

*Stage 2*  
**INTERSECTION CONTROL EVALUATION (ICE)**  
**For**  
**SR 524 at Cox Road**  
**SR 524 at London Boulevard**  
**SR 524 at Industry Road**

Brevard County

FPID: 437983-1

Prepared for:

**THE FLORIDA DEPARTMENT OF TRANSPORTATION**  
**DISTRICT 5**

719 S Woodland Blvd  
Deland, Florida 32720



Prepared by:  
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December 2024

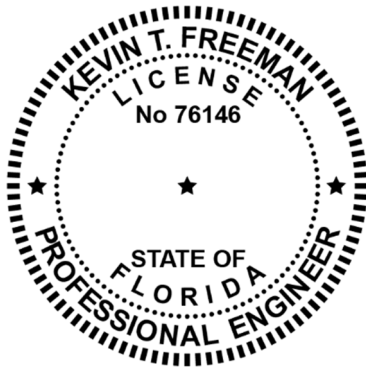
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Intersection Control Evaluation for SR 524 at Cox Road, SR 524 at London Blvd, and SR 524 at Industry Road

FPID: 437983-1

December 2024

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## Introduction

Stage 2 of an Intersection Control Evaluation (ICE) Analysis was performed for the following three intersections on SR 524 as part of the SR 524 Project Development & Environment (PD&E) Study:

- Cox Road
- London Boulevard
- Industry Road

The purpose of the ICE Analysis is to determine viable candidates for intersection control based on capacity, safety, and geometric constraints to be recommended for the project design phase.

In the SR 524 Final Project Traffic Analysis Report, operations for each intersection were evaluated for the Design Year 2045 in order to ensure that the intersection control alternatives provide sufficient operations through the design year. For each alternative, construction, design, and Right of Way (ROW) acquisition costs were calculated, and were used along with the safety improvements determined in the updated Stage 2 SPICE analysis and operational costs for the intersections to conduct a benefit/cost (b/c) analysis.

## Analysis

### SR 524 at Cox Road

For the Stage 2 ICE Analysis of the intersection at Cox Road, the following five control strategies were evaluated:

- Signalized Intersection
- Roundabout
- Signalized Restricted Crossing U-Turn (RCUT)
- Median U-Turn (MUT)
- Partial Displaced Left-Turn (PDLT)

The Signalized Intersection, Signalized Restricted Crossing U-Turn, Median U-Turn, and Partial Displaced Left-Turn were modelled in Synchro v.10.0, and the Roundabout was modelled in SIDRA. The operations of all intersections were analyzed using Highway Capacity Manual 6<sup>th</sup> Edition (HCM 6<sup>th</sup>) methodology. The table below shows the projected operations for Opening Year 2025 and Design Year 2045.

| Control Strategy                      | Delay (s) / LOS |          |          |          |
|---------------------------------------|-----------------|----------|----------|----------|
|                                       | 2025 AM         | 2025 PM  | 2045 AM  | 2045 PM  |
| Signalized Intersection               | 17.9 / B        | 20.0 / C | 26.5 / C | 30.9 / C |
| Roundabout                            | 6.2 / A         | 6.2 / A  | 15.7 / C | 16.9 / C |
| Signalized Restricted Crossing U-Turn | 15.0 / B        | 15.5 / B | 14.5 / B | 15.4 / B |
| Median U-Turn                         | 5.1 / A         | 6.0 / A  | 7.9 / A  | 11.1 / B |
| Partial Displaced Left-Turn           | 18.9 / B        | 19.2 / B | 25.3 / C | 22.8 / C |

The predicted number of crashes for each control strategy in the opening and design years were calculated in the updated SPICE tool during Stage 2 of the ICE analysis and are shown in the table below.

| Control Strategy                      | Predicted Crashes |              |       |              |
|---------------------------------------|-------------------|--------------|-------|--------------|
|                                       | 2025              |              | 2045  |              |
|                                       | Total             | Fatal/Injury | Total | Fatal/Injury |
| Signalized Intersection               | 4.42              | 1.48         | 8.02  | 2.77         |
| Roundabout                            | 5.13              | 0.90         | 8.82  | 1.64         |
| Signalized Restricted Crossing U-Turn | 3.76              | 1.15         | 6.82  | 2.16         |
| Median U-Turn                         | 3.76              | 1.04         | 6.82  | 1.94         |
| Partial Displaced Left-Turn           | 3.89              | 1.30         | 7.06  | 2.44         |

The ROW acquisition costs and design/construction costs were calculated for each control strategy and are shown in the table below.

| Control Strategy                      | ROW Cost    | Design/Construction Cost |
|---------------------------------------|-------------|--------------------------|
| Signalized Intersection               | \$152,000   | \$3,130,498              |
| Roundabout                            | \$234,000   | \$3,150,636              |
| Signalized Restricted Crossing U-Turn | \$152,000   | \$3,935,769              |
| Median U-Turn                         | \$152,000   | \$3,624,441              |
| Partial Displaced Left-Turn           | \$1,409,892 | \$3,960,751              |

The FDOT ICE tool was then used to determine the net present value of cost (NPVC) of each control strategy (for which lower is better) and the b/c ratio of the Roundabout, Signalized Restricted Crossing U-Turn, Median U-Turn, and Partial Displaced Left-Turn compared with the Signalized Intersection. The NPVC and b/c ratio compared to the Signalized Intersection for the five control strategies are shown in the table below. Note that the overall b/c ratio of the Roundabout compared with the Signalized Intersection could not be calculated. Based off NPVC, the Roundabout is preferred in comparison to the Signalized Intersection.

| Control Strategy                      | NPVC         | b/c ratio |
|---------------------------------------|--------------|-----------|
| Signalized Intersection               | \$31,678,090 | 1         |
| Roundabout                            | \$16,938,223 | N/A       |
| Signalized Restricted Crossing U-Turn | \$23,272,878 | 9.89      |
| Median U-Turn                         | \$15,998,128 | 25.73     |
| Partial Displaced Left-Turn           | \$30,711,599 | 2.00      |

Based on the NPVC, the Roundabout and Signalized Restricted Crossing U-Turn are the best control strategies. However, due to public comment during the Alternatives Meeting for the SR 524 PD&E, the roundabout was preferred over an RCUT intersection. Therefore, it is recommended that the Roundabout alternative move forward to the design phase.

The Stage 2 ICE forms, Synchro reports, SIDRA reports, cost estimates, FDOT ICE Tool outputs, and concept plans for the intersection with Cox Road are included in Attachment A.

#### SR 524 at London Boulevard

For the Stage 2 ICE Analysis of the intersection at London Boulevard, the following four control strategies were evaluated:

- Signalized Intersection
- Roundabout
- Signalized Restricted Crossing U-Turn (RCUT)
- Median U-Turn (MUT)

A Partial Displaced Left-Turn was considered as a control strategy in Stage 1 ICE Analysis. However, the proximity of the City of Cocoa Fire Station and Sunoco Gas station prevent design standards from being met. In order to provide the recommended minimum 300' left turn lane, at least one of the two driveways leading to the City of Cocoa Fire Station would have to be prevented from making a left turn on to SR 524. Additionally, meeting this turn lane criteria would lead to the closure of both driveways on SR 524 to the Sunoco gas station, limiting access to a single driveway on London Boulevard. Due to having several viable options that would have less impact, the Partial Displaced Left-Turn was removed from the analysis.

The Signalized Intersection, Signalized Restricted Crossing U-Turn, and Median U-Turn were modelled in Synchro v.10.0, and the Roundabout was modelled in SIDRA. The operations of all intersections were analyzed using HCM 6<sup>th</sup> methodology. The table below shows the projected operations for Opening Year 2025 and Design Year 2045.

| Control Strategy                      | Delay (s) / LOS |          |          |          |
|---------------------------------------|-----------------|----------|----------|----------|
|                                       | 2025 AM         | 2025 PM  | 2045 AM  | 2045 PM  |
| Signalized Intersection               | 15.8 / B        | 11.5 / B | 40.1 / D | 34.5 / C |
| Roundabout                            | 5.8 / A         | 6.4 / A  | 14.6 / B | 12.5 / B |
| Signalized Restricted Crossing U-Turn | 9.2 / A         | 6.6 / A  | 11.5 / B | 9.4 / A  |
| Median U-Turn                         | 5.6 / A         | 6.0 / A  | 11.0 / B | 7.4 / A  |

The predicted number of crashes for each control strategy in the opening and design years were calculated in the updated SPICE tool during Stage 2 of the ICE analysis and are shown in the table below.

| Control Strategy                      | Predicted Crashes |              |       |              |
|---------------------------------------|-------------------|--------------|-------|--------------|
|                                       | 2025              |              | 2045  |              |
|                                       | Total             | Fatal/Injury | Total | Fatal/Injury |
| Signalized Intersection               | 6.17              | 2.10         | 10.05 | 3.55         |
| Roundabout                            | 5.25              | 0.95         | 8.48  | 1.61         |
| Signalized Restricted Crossing U-Turn | 5.24              | 1.64         | 8.54  | 2.77         |
| Median U-Turn                         | 5.24              | 1.47         | 8.54  | 2.49         |

The ROW acquisition costs and design/construction costs were calculated for each control strategy and are shown in the table below.

| Control Strategy                             | ROW Cost  | Design/Construction Cost |
|----------------------------------------------|-----------|--------------------------|
| <b>Signalized Intersection</b>               | \$0       | \$2,623,117              |
| <b>Roundabout</b>                            | \$307,000 | \$2,432,361              |
| <b>Signalized Restricted Crossing U-Turn</b> | \$0       | \$3,164,954              |
| <b>Median U-Turn</b>                         | \$0       | \$3,155,872              |

The FDOT ICE tool was then used to determine the net present value of cost (NPVC) of each control strategy (for which lower is better) and the b/c ratio of the Roundabout, Signalized Restricted Crossing U-Turn, and Median U-Turn compared with the Signalized Intersection. The NPVC and b/c ratio compared to the Signalized Intersection for the four control strategies are shown in the table below. Note that the overall b/c ratio of the Roundabout compared with the Signalized Intersection could not be calculated. Based off NPVC, the Roundabout is preferred in comparison to the Signalized Intersection.

| Control Strategy                      | NPVC         | b/c ratio |
|---------------------------------------|--------------|-----------|
| Signalized Intersection               | \$37,609,784 | 1         |
| Roundabout                            | \$17,168,768 | N/A       |
| Signalized Restricted Crossing U-Turn | \$20,969,760 | 25.40     |
| Median U-Turn                         | \$18,458,970 | 29.46     |

Based on the NPVC, it is recommended that the Roundabout alternative move forward to the design phase.

The Stage 2 ICE forms, Synchro reports, SIDRA reports, cost estimates, FDOT ICE Tool outputs, and concept plans for the intersection with London Boulevard are included in Attachment B.

#### SR 524 at Industry Road

For the Stage 2 ICE Analysis of the intersection at Industry Road, the following three control strategies were evaluated:

- Signalized Intersection
- Partial Displaced Left-Turn (PDLT)
- Signalized Restricted Crossing U-Turn (RCUT)

All three intersections were modelled in Synchro v.10.0 and were analyzed using HCM 6<sup>th</sup> methodology. The table below shows the projected operations for Opening Year 2025 and Design Year 2045.

| Control Strategy                      | Delay (s) / LOS |          |           |           |
|---------------------------------------|-----------------|----------|-----------|-----------|
|                                       | 2025 AM         | 2025 PM  | 2045 AM   | 2045 PM   |
| Signalized Intersection               | 36.5 / D        | 49.4 / D | 53.3 / D  | 54.0 / D  |
| Partial Displaced Left-Turn           | 18.4 / B        | 16.9 / B | 48.2 / D  | 37.2 / D  |
| Signalized Restricted Crossing U-Turn | 40.3 / D        | 38.4 / D | 185.5 / F | 123.8 / F |

The predicted number of crashes for each control strategy in the opening and design years were calculated in the updated SPICE tool during Stage 2 of the ICE analysis and are shown in the table below.

| Control Strategy                      | Predicted Crashes |              |       |              |
|---------------------------------------|-------------------|--------------|-------|--------------|
|                                       | 2025              |              | 2045  |              |
|                                       | Total             | Fatal/Injury | Total | Fatal/Injury |
| Signalized Intersection               | 8.08              | 2.88         | 13.70 | 4.93         |
| Partial Displaced Left-Turn           | 7.11              | 2.53         | 12.06 | 4.34         |
| Signalized Restricted Crossing U-Turn | 6.87              | 2.25         | 11.65 | 3.85         |

The ROW acquisition costs and design/construction costs were calculated for each control strategy and are shown in the table below.

| Control Strategy                      | ROW Cost | Design/Construction Cost |
|---------------------------------------|----------|--------------------------|
| Signalized Intersection               | \$0      | \$3,428,538              |
| Partial Displaced Left-Turn           | \$0      | \$4,037,220              |
| Signalized Restricted Crossing U-Turn | \$0      | \$4,186,649              |

The FDOT ICE tool was then used to determine the net present value of cost (NPVC) of each control strategy (for which lower is better) and the b/c ratio of the Signalized Restricted Crossing U-Turn and Partial Displaced Left-Turn compared with the Signalized Intersection. The NPVC and b/c ratio compared to the Signalized Intersection for the three control strategies are shown in the table below. Note that the overall b/c ratio of the Signalized Restricted Crossing U-Turn compared with the Signalized Intersection could not be calculated. Based off NPVC, the Signalized Restricted Crossing U-Turn is not preferred in comparison to the Signalized Intersection.

| Control Strategy                      | NPVC          | b/c ratio |
|---------------------------------------|---------------|-----------|
| Signalized Intersection               | \$92,072,644  | 1         |
| Partial Displaced Left-Turn           | \$71,144,868  | 28.95     |
| Signalized Restricted Crossing U-Turn | \$153,921,406 | N/A       |

While the Partial Displaced Left-Turn works from an overall operational standpoint, it does have a much larger footprint than other intersection types. The projected queue length is longer than the length of the left-turn lanes, provided in the concept in the appendix. Due to the proximity of another signalized

intersection just 1,000 feet west of the SR 524 / Industry Road intersection, there is not enough space available to provide long enough displaced left-turn lanes to accommodate the projected traffic from SR 524 to Industry Road. Selecting the Partial Displaced Left-Turn control strategy would lead to left-turning traffic spilling out on to the SR 524 through lanes, causing severe impacts to the network and adjacent properties. A Signalized Intersection control strategy takes up less total area than the Partial Displaced Left-Turn control strategy, and can accommodate the projected left-turn traffic from SR 524 to Industry Road. Therefore, it is recommended that the Signalized Intersection alternative move forward to the design phase.

The Stage 2 ICE forms, Synchro reports, cost estimates, FDOT ICE Tool outputs, and concept plans for the intersection with Industry Road are included in Attachment C.

## Conclusion

For the intersection at Cox Road, it is recommended that the Roundabout control strategy be moved forward into the design phase. The Roundabout has the second lowest net present value of cost of the five alternatives. Additionally, the Roundabout is projected to result in fewer fatal and injury crashes than the other alternatives. Furthermore, the Roundabout was preferred by the public in comparison to the Partial Displaced Left-Turn, Median U-Turn, and Signalized Restricted Crossing U-Turn.

For the intersection at London Boulevard, it is recommended that the Roundabout control strategy be moved forward into the design phase. The net present value of cost of the Roundabout is the lowest of the five alternatives. Additionally, the Roundabout is projected to result in fewer fatal and injury crashes than the other alternatives. Furthermore, the Roundabout was preferred by the public in comparison to the Median U-Turn and Signalized Restricted Crossing U-Turn.

For the intersection at Industry Road, it is recommended that the Signalized Intersection control strategy be moved forward into the design phase. The Signalized Intersection is the only one of the three control strategies that provides the necessary storage to accommodate the large projected left-turn traffic from SR 524 to Industry Road.

Attachment A  
SR 524 at Cox Road

# Florida Department of Transportation

## Intersection Control Evaluation (ICE) Form

### Stage 2: Initial Control Strategy Assessment

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 2 (Intersection Control Strategy) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

|                                                                                    |                   |                |       |               |                  |
|------------------------------------------------------------------------------------|-------------------|----------------|-------|---------------|------------------|
| Project Name                                                                       | SR 524 PD&E Study | FDOT Project # | 14321 | Date          | 07/22/21         |
| Submitted By                                                                       | VHB               | Agency/Company | FDOT  | Email         | kfreeman@vhb.com |
| List all viable intersection control strategies identified in Stage 1 (Screening): |                   |                |       |               |                  |
| Signalized Control                                                                 |                   | Roundabout     |       | Median U-Turn |                  |
| RCUT (Signalized)                                                                  |                   | Partial DLT    |       |               |                  |

| Operational Analyses                                                                                                                                                                                                                                                                                                                              |                                          |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------|--------------------------|-----------------|------------------------------------------|--------------------------|-----------------|--------------|--------------------------|-----------|--------------|--------------------------|
| Summarize the results of the peak hour analysis performed for each control strategy. Select analysis year based on guidance in the ICE procedures document. Refer to Exhibit 19-8 of the <i>Highway Capacity Manual, 6th Edition</i> (HCM6) to determine the appropriate LOS based on intersection delay (hover over this cell for Exhibit 19-8). |                                          |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |
| Design Vehicle                                                                                                                                                                                                                                                                                                                                    | Florida Interstate Semitrailer (WB-62FL) |              |                          | Control Vehicle | Florida Interstate Semitrailer (WB-62FL) |                          |                 |              |                          |           |              |                          |
| Opening Year                                                                                                                                                                                                                                                                                                                                      | 2025                                     |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |
| Control Strategy                                                                                                                                                                                                                                                                                                                                  | Peak Hour                                |              |                          | Weekday AM Peak |                                          |                          | Weekday PM Peak |              |                          | Peak Hour |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   | LOS                                      | Delay (sec.) | All Queues Accommodated? | LOS             | Delay (sec.)                             | All Queues Accommodated? | LOS             | Delay (sec.) | All Queues Accommodated? | LOS       | Delay (sec.) | All Queues Accommodated? |
| Signalized Control                                                                                                                                                                                                                                                                                                                                | B                                        | 17.9         | Yes                      | C               | 20.0                                     | Yes                      |                 |              |                          |           |              |                          |
| Roundabout                                                                                                                                                                                                                                                                                                                                        | A                                        | 6.2          | Yes                      | A               | 6.2                                      | Yes                      |                 |              |                          |           |              |                          |
| Median U-Turn                                                                                                                                                                                                                                                                                                                                     | A                                        | 5.1          | Yes                      | A               | 6.0                                      | Yes                      |                 |              |                          |           |              |                          |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                 | B                                        | 15.0         | Yes                      | B               | 15.5                                     | Yes                      |                 |              |                          |           |              |                          |
| Partial DLT                                                                                                                                                                                                                                                                                                                                       | B                                        | 18.9         | Yes                      | B               | 19.2                                     | Yes                      |                 |              |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |
| Design Year                                                                                                                                                                                                                                                                                                                                       | 2045                                     |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |
| Control Strategy                                                                                                                                                                                                                                                                                                                                  | Peak Hour                                |              |                          | Weekday AM Peak |                                          |                          | Weekday PM Peak |              |                          | Peak Hour |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   | LOS                                      | Delay (sec.) | All Queues Accommodated? | LOS             | Delay (sec.)                             | All Queues Accommodated? | LOS             | Delay (sec.) | All Queues Accommodated? | LOS       | Delay (sec.) | All Queues Accommodated? |
| Signalized Control                                                                                                                                                                                                                                                                                                                                | C                                        | 26.5         | Yes                      | C               | 30.9                                     | Yes                      |                 |              |                          |           |              |                          |
| Roundabout                                                                                                                                                                                                                                                                                                                                        | C                                        | 15.7         | Yes                      | C               | 16.9                                     | Yes                      |                 |              |                          |           |              |                          |
| Median U-Turn                                                                                                                                                                                                                                                                                                                                     | A                                        | 7.9          | Yes                      | B               | 11.1                                     | Yes                      |                 |              |                          |           |              |                          |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                 | B                                        | 14.5         | Yes                      | B               | 15.4                                     | Yes                      |                 |              |                          |           |              |                          |
| Partial DLT                                                                                                                                                                                                                                                                                                                                       | C                                        | 25.3         | Yes                      | C               | 22.8                                     | Yes                      |                 |              |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |
| Provide any additional discussion necessary regarding the results of the operational analysis:                                                                                                                                                                                                                                                    |                                          |              |                          |                 |                                          |                          |                 |              |                          |           |              |                          |

| Safety Performance                                                                                                                                                                                                                                                                       |                                                                                                                                 |                         |                                |                                          |                                |      |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------|------------------------------------------|--------------------------------|------|-------|
| Enter the most recent five (5) years of crash data from the CAR System.                                                                                                                                                                                                                  |                                                                                                                                 |                         |                                | Most recent year of crash data available |                                |      | 2018  |
| Crash Type                                                                                                                                                                                                                                                                               |                                                                                                                                 | 2014                    | 2015                           | 2016                                     | 2017                           | 2018 | Total |
| Combined                                                                                                                                                                                                                                                                                 | Total                                                                                                                           | 0                       | 5                              | 6                                        | 4                              | 1    | 16    |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                                    | 0                       | 3                              | 4                                        | 2                              | 1    | 10    |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                             | 0                       | 2                              | 2                                        | 2                              | 0    | 6     |
| Single-Vehicle                                                                                                                                                                                                                                                                           | Total                                                                                                                           |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                                    |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                             |                         |                                |                                          |                                |      |       |
| Multi-Vehicle                                                                                                                                                                                                                                                                            | Total                                                                                                                           |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                                    |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                             |                         |                                |                                          |                                |      |       |
| Vehicle-Pedestrian                                                                                                                                                                                                                                                                       | Fatal/Injury                                                                                                                    | 0                       | 0                              | 0                                        | 0                              | 0    | 0     |
| Vehicle-Bicycle                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                                    | 0                       | 0                              | 0                                        | 0                              | 0    | 0     |
| Total                                                                                                                                                                                                                                                                                    | All                                                                                                                             | 0                       | 5                              | 6                                        | 4                              | 1    | 16    |
| Apply the FDOT SPICE Tool to model anticipated safety performance of each control strategy. For intersection types not accommodated in the tool, manually apply crash modification factors detailed in the ICE procedures document or qualitatively describe anticipated safety impacts. |                                                                                                                                 |                         |                                |                                          |                                |      |       |
| Control Strategy                                                                                                                                                                                                                                                                         | Anticipated Impact on Safety Performance                                                                                        | Opening Year            |                                | Design Year                              |                                |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                                 | Predicted Total Crashes | Predicted Fatal+Injury Crashes | Predicted Total Crashes                  | Predicted Fatal+Injury Crashes |      |       |
| Signalized Control                                                                                                                                                                                                                                                                       | No impact                                                                                                                       | 4.42                    | 1.48                           | 8.02                                     | 2.77                           |      |       |
| Roundabout                                                                                                                                                                                                                                                                               | Slightly more total crashes anticipated, but 1/2 the projected fatal + injury crashes anticipated than for a signalized control | 5.13                    | 0.90                           | 8.82                                     | 1.64                           |      |       |
| Median U-Turn                                                                                                                                                                                                                                                                            | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control          | 3.76                    | 1.04                           | 6.82                                     | 1.94                           |      |       |
| RCUT (Signalized)                                                                                                                                                                                                                                                                        | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control          | 3.76                    | 1.15                           | 6.82                                     | 2.16                           |      |       |
| Partial DLT                                                                                                                                                                                                                                                                              | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control          | 3.89                    | 1.30                           | 7.06                                     | 2.44                           |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                                 |                         |                                |                                          |                                |      |       |

| Costs and Benefit/Cost Ratios                                                                                                                                                                                                                                                                                                                                                                                         |                |                         |                       |            |             |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|-----------------------|------------|-------------|-------------------|
| Remaining cognizant of the current level of detail of each control strategy's conceptual design, provide a cost estimate for each. You may want to include costs for preliminary engineering, required right-of-way acquisitions, construction, and a contingency. Apply the FDOT ICE Tool to determine the delay benefit-cost ratio (B/C), safety B/C, overall B/C, and net-present value for each control strategy. |                |                         |                       |            |             |                   |
| Control Strategy                                                                                                                                                                                                                                                                                                                                                                                                      | ROW Costs (\$) | Construction Costs (\$) | FDOT ICE Tool Outputs |            |             |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         | Delay B/C             | Safety B/C | Overall B/C | Net Present Value |
| Signalized Control                                                                                                                                                                                                                                                                                                                                                                                                    | \$152,000      | \$3,100,098             | -                     | -          | -           | -                 |
| Roundabout                                                                                                                                                                                                                                                                                                                                                                                                            | \$234,000      | \$3,103,836             | -                     | -          | -           | \$14,739,857      |
| Median U-Turn                                                                                                                                                                                                                                                                                                                                                                                                         | \$152,000      | \$3,594,041             | 21.84                 | 3.89       | 25.73       | \$15,679,961      |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                                                                                     | \$152,000      | \$3,905,369             | 7.95                  | 1.94       | 9.89        | \$8,405,211       |
| Partial DLT                                                                                                                                                                                                                                                                                                                                                                                                           | \$1,409,892    | \$3,678,773             | 0.94                  | 1.06       | 2.00        | \$966,491         |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         |                       |            |             |                   |

| Multimodal Accommodations                                                                                                                                                                           |                                                                                              |              |                                                                                                                       |              |               |              |                |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------|--------------|---------------|--------------|----------------|----------|
| Note the existing/anticipated level of pedestrian/bicyclist activity at the study intersection during the peak hours of the typical day. See ICE procedures document for activity level thresholds: |                                                                                              |              |                                                                                                                       |              |               |              |                |          |
| Peak Hour:                                                                                                                                                                                          | Weekday AM Peak                                                                              |              | Weekday PM Peak                                                                                                       |              |               |              | Activity Level |          |
|                                                                                                                                                                                                     | Major Street                                                                                 | Minor Street | Major Street                                                                                                          | Minor Street | Major Street  | Minor Street | Ped.           | Bicycles |
| # of ped. crossings (both approaches, if app.):                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |               |              | Low            | Low      |
| # of cyclists (both approaches, if app.):                                                                                                                                                           |                                                                                              |              |                                                                                                                       |              |               |              |                |          |
| Summarize the ability of each viable control strategy to accommodate the existing/anticipated level of:                                                                                             |                                                                                              |              |                                                                                                                       |              |               |              |                |          |
| Control Strategy                                                                                                                                                                                    | Pedestrians and Bicyclists                                                                   |              | Transit Services                                                                                                      |              | Freight Needs |              |                |          |
| Signalized Control                                                                                                                                                                                  | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |               |              |                |          |
| Roundabout                                                                                                                                                                                          | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |               |              |                |          |
| Median U-Turn                                                                                                                                                                                       | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |               |              |                |          |
| RCUT (Signalized)                                                                                                                                                                                   | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |               |              |                |          |
| Partial DLT                                                                                                                                                                                         | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |               |              |                |          |
|                                                                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |               |              |                |          |

| Environmental, Utility, and Right-of-Way Impacts                                                                                                                                                           |                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Summarize any issues related to environmental, utility, or right-of-way (including relocation) impacts specific to each control strategy. Be sure to consider the NEPA requirements for each control type. |                                                       |
| Signalized Control                                                                                                                                                                                         |                                                       |
| Roundabout                                                                                                                                                                                                 | Some R/W will need to be acquired for the Roundabout  |
| Median U-Turn                                                                                                                                                                                              |                                                       |
| RCUT (Signalized)                                                                                                                                                                                          |                                                       |
| Partial DLT                                                                                                                                                                                                | Some R/W will need to be acquired for the Partial DLT |
|                                                                                                                                                                                                            |                                                       |

| Public Input/Feedback (if appropriate)                                 |
|------------------------------------------------------------------------|
| Summarize any agency or public input regarding the control strategies: |
| None performed to date.                                                |

| Control Strategy Evaluation                                                                                                                                                               |                          |                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Provide a brief justification as to why each of the following is either viable or not viable. If a single control strategy is recommended, select it as the only strategy to be advanced. |                          |                                                                                                                                                                                                                                                                                    |
| Control Strategy                                                                                                                                                                          | Strategy to be Advanced? | Justification                                                                                                                                                                                                                                                                      |
| Signalized Control                                                                                                                                                                        | No                       |                                                                                                                                                                                                                                                                                    |
| Roundabout                                                                                                                                                                                | Yes                      | Provides ample capacity for the vehicular operations, and adequate pedestrian/bike facilities for the low anticipated volume of pedestrians. Provides the lowest projected fatal+injury crashes, low vehicle delay, and second highest Net Present Value of the control strategies |
| Median U-Turn                                                                                                                                                                             | No                       |                                                                                                                                                                                                                                                                                    |
| RCUT (Signalized)                                                                                                                                                                         | No                       |                                                                                                                                                                                                                                                                                    |
| Partial DLT                                                                                                                                                                               | No                       |                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                           | No                       |                                                                                                                                                                                                                                                                                    |

| Resolution                                                                                        |  |           |  |      |  |
|---------------------------------------------------------------------------------------------------|--|-----------|--|------|--|
| <i>To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer</i> |  |           |  |      |  |
| Project Determination                                                                             |  |           |  |      |  |
| Comments                                                                                          |  |           |  |      |  |
| DTOE Name                                                                                         |  | Signature |  | Date |  |
| DDE Name                                                                                          |  | Signature |  | Date |  |

# HCM 6th Signalized Intersection Summary

## 7: Cox Road & SR 524

2025 AM.syn  
08/05/2019

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 16                                                                                | 496                                                                               | 119                                                                               | 127                                                                               | 437                                                                               | 29                                                                                | 60                                                                                  | 12                                                                                  | 97                                                                                  | 66                                                                                  | 50                                                                                  | 51                                                                                  |
| Future Volume (veh/h)        | 16                                                                                | 496                                                                               | 119                                                                               | 127                                                                               | 437                                                                               | 29                                                                                | 60                                                                                  | 12                                                                                  | 97                                                                                  | 66                                                                                  | 50                                                                                  | 51                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                     | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1811                                                                              | 1841                                                                              | 1856                                                                              | 1811                                                                              | 1900                                                                              | 1618                                                                                | 1900                                                                                | 1900                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 17                                                                                | 522                                                                               | 0                                                                                 | 134                                                                               | 460                                                                               | 0                                                                                 | 63                                                                                  | 13                                                                                  | 102                                                                                 | 69                                                                                  | 53                                                                                  | 54                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 6                                                                                 | 4                                                                                 | 3                                                                                 | 6                                                                                 | 0                                                                                 | 19                                                                                  | 0                                                                                   | 0                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 387                                                                               | 940                                                                               |                                                                                   | 399                                                                               | 1147                                                                              |                                                                                   | 277                                                                                 | 20                                                                                  | 159                                                                                 | 290                                                                                 | 95                                                                                  | 97                                                                                  |
| Arrive On Green              | 0.02                                                                              | 0.27                                                                              | 0.00                                                                              | 0.08                                                                              | 0.33                                                                              | 0.00                                                                              | 0.06                                                                                | 0.11                                                                                | 0.11                                                                                | 0.06                                                                                | 0.11                                                                                | 0.11                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3441                                                                              | 1560                                                                              | 1767                                                                              | 3441                                                                              | 1610                                                                              | 1541                                                                                | 185                                                                                 | 1453                                                                                | 1781                                                                                | 849                                                                                 | 865                                                                                 |
| Grp Volume(v), veh/h         | 17                                                                                | 522                                                                               | 0                                                                                 | 134                                                                               | 460                                                                               | 0                                                                                 | 63                                                                                  | 0                                                                                   | 115                                                                                 | 69                                                                                  | 0                                                                                   | 107                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1721                                                                              | 1560                                                                              | 1767                                                                              | 1721                                                                              | 1610                                                                              | 1541                                                                                | 0                                                                                   | 1638                                                                                | 1781                                                                                | 0                                                                                   | 1715                                                                                |
| Q Serve(g_s), s              | 0.4                                                                               | 7.1                                                                               | 0.0                                                                               | 2.9                                                                               | 5.6                                                                               | 0.0                                                                               | 2.0                                                                                 | 0.0                                                                                 | 3.7                                                                                 | 1.8                                                                                 | 0.0                                                                                 | 3.2                                                                                 |
| Cycle Q Clear(g_c), s        | 0.4                                                                               | 7.1                                                                               | 0.0                                                                               | 2.9                                                                               | 5.6                                                                               | 0.0                                                                               | 2.0                                                                                 | 0.0                                                                                 | 3.7                                                                                 | 1.8                                                                                 | 0.0                                                                                 | 3.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.89                                                                                | 1.00                                                                                |                                                                                     | 0.50                                                                                |
| Lane Grp Cap(c), veh/h       | 387                                                                               | 940                                                                               |                                                                                   | 399                                                                               | 1147                                                                              |                                                                                   | 277                                                                                 | 0                                                                                   | 179                                                                                 | 290                                                                                 | 0                                                                                   | 193                                                                                 |
| V/C Ratio(X)                 | 0.04                                                                              | 0.56                                                                              |                                                                                   | 0.34                                                                              | 0.40                                                                              |                                                                                   | 0.23                                                                                | 0.00                                                                                | 0.64                                                                                | 0.24                                                                                | 0.00                                                                                | 0.56                                                                                |
| Avail Cap(c_a), veh/h        | 514                                                                               | 2665                                                                              |                                                                                   | 614                                                                               | 3047                                                                              |                                                                                   | 415                                                                                 | 0                                                                                   | 466                                                                                 | 347                                                                                 | 0                                                                                   | 381                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 13.9                                                                              | 17.1                                                                              | 0.0                                                                               | 12.9                                                                              | 14.1                                                                              | 0.0                                                                               | 20.0                                                                                | 0.0                                                                                 | 23.4                                                                                | 19.9                                                                                | 0.0                                                                                 | 23.1                                                                                |
| Incr Delay (d2), s/veh       | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 0.6                                                                               | 0.3                                                                               | 0.0                                                                               | 0.4                                                                                 | 0.0                                                                                 | 4.6                                                                                 | 0.4                                                                                 | 0.0                                                                                 | 3.0                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln     | 0.2                                                                               | 4.0                                                                               | 0.0                                                                               | 1.6                                                                               | 3.0                                                                               | 0.0                                                                               | 1.1                                                                                 | 0.0                                                                                 | 2.6                                                                                 | 1.2                                                                                 | 0.0                                                                                 | 2.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 13.9                                                                              | 17.7                                                                              | 0.0                                                                               | 13.5                                                                              | 14.4                                                                              | 0.0                                                                               | 20.4                                                                                | 0.0                                                                                 | 28.0                                                                                | 20.3                                                                                | 0.0                                                                                 | 26.1                                                                                |
| LnGrp LOS                    | B                                                                                 | B                                                                                 |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 539                                                                               | A                                                                                 |                                                                                   | 594                                                                               | A                                                                                 |                                                                                     | 178                                                                                 |                                                                                     |                                                                                     | 176                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 17.6                                                                              |                                                                                   |                                                                                   | 14.2                                                                              |                                                                                   |                                                                                     | 25.3                                                                                |                                                                                     |                                                                                     | 23.8                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.0                                                                               | 25.8                                                                              | 9.3                                                                               | 12.8                                                                              | 10.3                                                                              | 22.5                                                                              | 9.1                                                                                 | 13.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.9                                                                               | 7.5                                                                               | 6.0                                                                               | * 6.8                                                                             | 5.9                                                                               | 7.5                                                                               | 6.0                                                                                 | 6.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.0                                                                               | 48.6                                                                              | 5.0                                                                               | * 16                                                                              | 11.1                                                                              | 42.5                                                                              | 8.0                                                                                 | 12.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.4                                                                               | 7.6                                                                               | 3.8                                                                               | 5.7                                                                               | 4.9                                                                               | 9.1                                                                               | 4.0                                                                                 | 5.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.4                                                                               | 0.0                                                                               | 0.4                                                                               | 0.2                                                                               | 3.9                                                                               | 0.0                                                                                 | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 17.9 |
| HCM 6th LOS        | B    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 7: Cox Road & SR 524

2025 PM.syn  
08/05/2019

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 42                                                                                | 464                                                                               | 47                                                                                | 127                                                                               | 522                                                                               | 89                                                                                | 74                                                                                  | 37                                                                                  | 177                                                                                 | 36                                                                                  | 33                                                                                  | 29                                                                                  |
| Future Volume (veh/h)        | 42                                                                                | 464                                                                               | 47                                                                                | 127                                                                               | 522                                                                               | 89                                                                                | 74                                                                                  | 37                                                                                  | 177                                                                                 | 36                                                                                  | 33                                                                                  | 29                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                     | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1811                                                                              | 1826                                                                              | 1752                                                                              | 1811                                                                              | 1900                                                                              | 1900                                                                                | 1870                                                                                | 1870                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 44                                                                                | 488                                                                               | 0                                                                                 | 134                                                                               | 549                                                                               | 0                                                                                 | 78                                                                                  | 39                                                                                  | 186                                                                                 | 38                                                                                  | 35                                                                                  | 31                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 6                                                                                 | 5                                                                                 | 10                                                                                | 6                                                                                 | 0                                                                                 | 0                                                                                   | 2                                                                                   | 2                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 340                                                                               | 870                                                                               |                                                                                   | 373                                                                               | 1012                                                                              |                                                                                   | 403                                                                                 | 51                                                                                  | 244                                                                                 | 248                                                                                 | 145                                                                                 | 128                                                                                 |
| Arrive On Green              | 0.04                                                                              | 0.25                                                                              | 0.00                                                                              | 0.08                                                                              | 0.29                                                                              | 0.00                                                                              | 0.06                                                                                | 0.18                                                                                | 0.18                                                                                | 0.04                                                                                | 0.16                                                                                | 0.16                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3441                                                                              | 1547                                                                              | 1668                                                                              | 3441                                                                              | 1610                                                                              | 1810                                                                                | 282                                                                                 | 1346                                                                                | 1767                                                                                | 907                                                                                 | 804                                                                                 |
| Grp Volume(v), veh/h         | 44                                                                                | 488                                                                               | 0                                                                                 | 134                                                                               | 549                                                                               | 0                                                                                 | 78                                                                                  | 0                                                                                   | 225                                                                                 | 38                                                                                  | 0                                                                                   | 66                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1721                                                                              | 1547                                                                              | 1668                                                                              | 1721                                                                              | 1610                                                                              | 1810                                                                                | 0                                                                                   | 1628                                                                                | 1767                                                                                | 0                                                                                   | 1711                                                                                |
| Q Serve(g_s), s              | 1.0                                                                               | 7.3                                                                               | 0.0                                                                               | 3.4                                                                               | 7.9                                                                               | 0.0                                                                               | 2.1                                                                                 | 0.0                                                                                 | 7.8                                                                                 | 1.0                                                                                 | 0.0                                                                                 | 2.0                                                                                 |
| Cycle Q Clear(g_c), s        | 1.0                                                                               | 7.3                                                                               | 0.0                                                                               | 3.4                                                                               | 7.9                                                                               | 0.0                                                                               | 2.1                                                                                 | 0.0                                                                                 | 7.8                                                                                 | 1.0                                                                                 | 0.0                                                                                 | 2.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.83                                                                                | 1.00                                                                                |                                                                                     | 0.47                                                                                |
| Lane Grp Cap(c), veh/h       | 340                                                                               | 870                                                                               |                                                                                   | 373                                                                               | 1012                                                                              |                                                                                   | 403                                                                                 | 0                                                                                   | 296                                                                                 | 248                                                                                 | 0                                                                                   | 273                                                                                 |
| V/C Ratio(X)                 | 0.13                                                                              | 0.56                                                                              |                                                                                   | 0.36                                                                              | 0.54                                                                              |                                                                                   | 0.19                                                                                | 0.00                                                                                | 0.76                                                                                | 0.15                                                                                | 0.00                                                                                | 0.24                                                                                |
| Avail Cap(c_a), veh/h        | 447                                                                               | 2059                                                                              |                                                                                   | 600                                                                               | 2465                                                                              |                                                                                   | 628                                                                                 | 0                                                                                   | 565                                                                                 | 328                                                                                 | 0                                                                                   | 410                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 15.3                                                                              | 19.3                                                                              | 0.0                                                                               | 14.7                                                                              | 17.6                                                                              | 0.0                                                                               | 18.9                                                                                | 0.0                                                                                 | 23.1                                                                                | 19.8                                                                                | 0.0                                                                                 | 21.8                                                                                |
| Incr Delay (d2), s/veh       | 0.2                                                                               | 0.7                                                                               | 0.0                                                                               | 0.7                                                                               | 0.5                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 4.8                                                                                 | 0.3                                                                                 | 0.0                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln     | 0.6                                                                               | 4.4                                                                               | 0.0                                                                               | 1.9                                                                               | 4.6                                                                               | 0.0                                                                               | 1.4                                                                                 | 0.0                                                                                 | 5.4                                                                                 | 0.7                                                                                 | 0.0                                                                                 | 1.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 15.5                                                                              | 20.0                                                                              | 0.0                                                                               | 15.4                                                                              | 18.1                                                                              | 0.0                                                                               | 19.1                                                                                | 0.0                                                                                 | 27.9                                                                                | 20.1                                                                                | 0.0                                                                                 | 22.3                                                                                |
| LnGrp LOS                    | B                                                                                 | B                                                                                 |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   | B                                                                                   | A                                                                                   | C                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 532                                                                               | A                                                                                 |                                                                                   | 683                                                                               | A                                                                                 |                                                                                     | 303                                                                                 |                                                                                     |                                                                                     | 104                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 19.6                                                                              |                                                                                   |                                                                                   | 17.6                                                                              |                                                                                   |                                                                                     | 25.6                                                                                |                                                                                     |                                                                                     | 21.5                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.5                                                                               | 25.0                                                                              | 8.3                                                                               | 17.6                                                                              | 10.9                                                                              | 22.5                                                                              | 9.6                                                                                 | 16.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.9                                                                               | 7.5                                                                               | 6.0                                                                               | * 6.8                                                                             | 5.9                                                                               | 7.5                                                                               | 6.0                                                                                 | 6.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 6.1                                                                               | 42.5                                                                              | 5.0                                                                               | * 21                                                                              | 13.1                                                                              | 35.5                                                                              | 11.0                                                                                | 14.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.0                                                                               | 9.9                                                                               | 3.0                                                                               | 9.8                                                                               | 5.4                                                                               | 9.3                                                                               | 4.1                                                                                 | 4.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 4.1                                                                               | 0.0                                                                               | 1.0                                                                               | 0.2                                                                               | 3.4                                                                               | 0.1                                                                                 | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 20.0 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 7: Cox Road & SR 524

2045 AM.syn  
08/05/2019

|                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                           |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)                                                                                        | 29                                                                                | 1048                                                                              | 192                                                                               | 180                                                                               | 981                                                                               | 57                                                                                | 128                                                                                 | 24                                                                                  | 160                                                                                 | 71                                                                                  | 66                                                                                  | 99                                                                                  |
| Future Volume (veh/h)                                                                                         | 29                                                                                | 1048                                                                              | 192                                                                               | 180                                                                               | 981                                                                               | 57                                                                                | 128                                                                                 | 24                                                                                  | 160                                                                                 | 71                                                                                  | 66                                                                                  | 99                                                                                  |
| Initial Q (Qb), veh                                                                                           | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)                                                                                           | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                                         |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                     | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                                        | 1900                                                                              | 1811                                                                              | 1841                                                                              | 1856                                                                              | 1811                                                                              | 1900                                                                              | 1618                                                                                | 1900                                                                                | 1900                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                                                          | 31                                                                                | 1103                                                                              | 0                                                                                 | 189                                                                               | 1033                                                                              | 0                                                                                 | 135                                                                                 | 25                                                                                  | 168                                                                                 | 75                                                                                  | 69                                                                                  | 104                                                                                 |
| Peak Hour Factor                                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                                          | 0                                                                                 | 6                                                                                 | 4                                                                                 | 3                                                                                 | 6                                                                                 | 0                                                                                 | 19                                                                                  | 0                                                                                   | 0                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                                    | 256                                                                               | 1353                                                                              |                                                                                   | 289                                                                               | 1544                                                                              |                                                                                   | 252                                                                                 | 36                                                                                  | 240                                                                                 | 240                                                                                 | 84                                                                                  | 127                                                                                 |
| Arrive On Green                                                                                               | 0.03                                                                              | 0.39                                                                              | 0.00                                                                              | 0.09                                                                              | 0.45                                                                              | 0.00                                                                              | 0.09                                                                                | 0.17                                                                                | 0.17                                                                                | 0.05                                                                                | 0.12                                                                                | 0.12                                                                                |
| Sat Flow, veh/h                                                                                               | 1810                                                                              | 3441                                                                              | 1560                                                                              | 1767                                                                              | 3441                                                                              | 1610                                                                              | 1541                                                                                | 213                                                                                 | 1430                                                                                | 1781                                                                                | 673                                                                                 | 1015                                                                                |
| Grp Volume(v), veh/h                                                                                          | 31                                                                                | 1103                                                                              | 0                                                                                 | 189                                                                               | 1033                                                                              | 0                                                                                 | 135                                                                                 | 0                                                                                   | 193                                                                                 | 75                                                                                  | 0                                                                                   | 173                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                                      | 1810                                                                              | 1721                                                                              | 1560                                                                              | 1767                                                                              | 1721                                                                              | 1610                                                                              | 1541                                                                                | 0                                                                                   | 1643                                                                                | 1781                                                                                | 0                                                                                   | 1688                                                                                |
| Q Serve(g_s), s                                                                                               | 0.9                                                                               | 24.7                                                                              | 0.0                                                                               | 5.3                                                                               | 20.4                                                                              | 0.0                                                                               | 6.5                                                                                 | 0.0                                                                                 | 9.6                                                                                 | 3.1                                                                                 | 0.0                                                                                 | 8.6                                                                                 |
| Cycle Q Clear(g_c), s                                                                                         | 0.9                                                                               | 24.7                                                                              | 0.0                                                                               | 5.3                                                                               | 20.4                                                                              | 0.0                                                                               | 6.5                                                                                 | 0.0                                                                                 | 9.6                                                                                 | 3.1                                                                                 | 0.0                                                                                 | 8.6                                                                                 |
| Prop In Lane                                                                                                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.87                                                                                | 1.00                                                                                |                                                                                     | 0.60                                                                                |
| Lane Grp Cap(c), veh/h                                                                                        | 256                                                                               | 1353                                                                              |                                                                                   | 289                                                                               | 1544                                                                              |                                                                                   | 252                                                                                 | 0                                                                                   | 276                                                                                 | 240                                                                                 | 0                                                                                   | 211                                                                                 |
| V/C Ratio(X)                                                                                                  | 0.12                                                                              | 0.82                                                                              |                                                                                   | 0.65                                                                              | 0.67                                                                              |                                                                                   | 0.54                                                                                | 0.00                                                                                | 0.70                                                                                | 0.31                                                                                | 0.00                                                                                | 0.82                                                                                |
| Avail Cap(c_a), veh/h                                                                                         | 306                                                                               | 1694                                                                              |                                                                                   | 365                                                                               | 1938                                                                              |                                                                                   | 252                                                                                 | 0                                                                                   | 297                                                                                 | 254                                                                                 | 0                                                                                   | 239                                                                                 |
| HCM Platoon Ratio                                                                                             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                            | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                                      | 16.1                                                                              | 23.4                                                                              | 0.0                                                                               | 18.3                                                                              | 18.7                                                                              | 0.0                                                                               | 29.5                                                                                | 0.0                                                                                 | 33.9                                                                                | 30.9                                                                                | 0.0                                                                                 | 36.8                                                                                |
| Incr Delay (d2), s/veh                                                                                        | 0.2                                                                               | 2.7                                                                               | 0.0                                                                               | 3.3                                                                               | 0.7                                                                               | 0.0                                                                               | 2.2                                                                                 | 0.0                                                                                 | 7.0                                                                                 | 0.7                                                                                 | 0.0                                                                                 | 18.9                                                                                |
| Initial Q Delay(d3),s/veh                                                                                     | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln                                                                                      | 0.6                                                                               | 14.0                                                                              | 0.0                                                                               | 3.6                                                                               | 11.3                                                                              | 0.0                                                                               | 4.3                                                                                 | 0.0                                                                                 | 7.4                                                                                 | 2.4                                                                                 | 0.0                                                                                 | 7.9                                                                                 |
| Unsig. Movement Delay, s/veh                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh                                                                                          | 16.3                                                                              | 26.1                                                                              | 0.0                                                                               | 21.6                                                                              | 19.5                                                                              | 0.0                                                                               | 31.7                                                                                | 0.0                                                                                 | 40.9                                                                                | 31.7                                                                                | 0.0                                                                                 | 55.8                                                                                |
| LnGrp LOS                                                                                                     | B                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   | C                                                                                   | A                                                                                   | D                                                                                   | C                                                                                   | A                                                                                   | E                                                                                   |
| Approach Vol, veh/h                                                                                           |                                                                                   | 1134                                                                              | A                                                                                 |                                                                                   | 1222                                                                              | A                                                                                 |                                                                                     | 328                                                                                 |                                                                                     |                                                                                     | 248                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                                         |                                                                                   | 25.9                                                                              |                                                                                   |                                                                                   | 19.8                                                                              |                                                                                   |                                                                                     | 37.1                                                                                |                                                                                     |                                                                                     | 48.5                                                                                |                                                                                     |
| Approach LOS                                                                                                  |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                                          | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                                      | 8.5                                                                               | 46.2                                                                              | 10.3                                                                              | 21.3                                                                              | 13.3                                                                              | 41.4                                                                              | 14.0                                                                                | 17.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                                       | 5.9                                                                               | 7.5                                                                               | 6.0                                                                               | * 6.8                                                                             | 5.9                                                                               | 7.5                                                                               | 6.0                                                                                 | 6.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                                   | 5.0                                                                               | 48.6                                                                              | 5.0                                                                               | * 16                                                                              | 11.1                                                                              | 42.5                                                                              | 8.0                                                                                 | 12.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                                  | 2.9                                                                               | 22.4                                                                              | 5.1                                                                               | 11.6                                                                              | 7.3                                                                               | 26.7                                                                              | 8.5                                                                                 | 10.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                                       | 0.0                                                                               | 8.5                                                                               | 0.0                                                                               | 0.4                                                                               | 0.2                                                                               | 7.2                                                                               | 0.0                                                                                 | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay                                                                                            |                                                                                   |                                                                                   | 26.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Notes</b>                                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 7: Cox Road & SR 524

2045 PM.syn  
08/05/2019

|                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                           |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)                                                                                        | 84                                                                                | 783                                                                               | 144                                                                               | 186                                                                               | 960                                                                               | 145                                                                               | 171                                                                                 | 15                                                                                  | 315                                                                                 | 51                                                                                  | 42                                                                                  | 41                                                                                  |
| Future Volume (veh/h)                                                                                         | 84                                                                                | 783                                                                               | 144                                                                               | 186                                                                               | 960                                                                               | 145                                                                               | 171                                                                                 | 15                                                                                  | 315                                                                                 | 51                                                                                  | 42                                                                                  | 41                                                                                  |
| Initial Q (Qb), veh                                                                                           | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)                                                                                           | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                                         |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                     | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                                        | 1900                                                                              | 1811                                                                              | 1826                                                                              | 1752                                                                              | 1811                                                                              | 1900                                                                              | 1900                                                                                | 1870                                                                                | 1870                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h                                                                                          | 88                                                                                | 824                                                                               | 0                                                                                 | 196                                                                               | 1011                                                                              | 0                                                                                 | 180                                                                                 | 16                                                                                  | 332                                                                                 | 54                                                                                  | 44                                                                                  | 43                                                                                  |
| Peak Hour Factor                                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                                          | 0                                                                                 | 6                                                                                 | 5                                                                                 | 10                                                                                | 6                                                                                 | 0                                                                                 | 0                                                                                   | 2                                                                                   | 2                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                                                                    | 234                                                                               | 1089                                                                              |                                                                                   | 316                                                                               | 1264                                                                              |                                                                                   | 444                                                                                 | 17                                                                                  | 360                                                                                 | 182                                                                                 | 153                                                                                 | 149                                                                                 |
| Arrive On Green                                                                                               | 0.05                                                                              | 0.32                                                                              | 0.00                                                                              | 0.10                                                                              | 0.37                                                                              | 0.00                                                                              | 0.10                                                                                | 0.24                                                                                | 0.24                                                                                | 0.04                                                                                | 0.18                                                                                | 0.18                                                                                |
| Sat Flow, veh/h                                                                                               | 1810                                                                              | 3441                                                                              | 1547                                                                              | 1668                                                                              | 3441                                                                              | 1610                                                                              | 1810                                                                                | 73                                                                                  | 1523                                                                                | 1767                                                                                | 862                                                                                 | 842                                                                                 |
| Grp Volume(v), veh/h                                                                                          | 88                                                                                | 824                                                                               | 0                                                                                 | 196                                                                               | 1011                                                                              | 0                                                                                 | 180                                                                                 | 0                                                                                   | 348                                                                                 | 54                                                                                  | 0                                                                                   | 87                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                                                                      | 1810                                                                              | 1721                                                                              | 1547                                                                              | 1668                                                                              | 1721                                                                              | 1610                                                                              | 1810                                                                                | 0                                                                                   | 1596                                                                                | 1767                                                                                | 0                                                                                   | 1704                                                                                |
| Q Serve(g_s), s                                                                                               | 2.8                                                                               | 18.6                                                                              | 0.0                                                                               | 6.6                                                                               | 22.7                                                                              | 0.0                                                                               | 6.8                                                                                 | 0.0                                                                                 | 18.4                                                                                | 2.1                                                                                 | 0.0                                                                                 | 3.8                                                                                 |
| Cycle Q Clear(g_c), s                                                                                         | 2.8                                                                               | 18.6                                                                              | 0.0                                                                               | 6.6                                                                               | 22.7                                                                              | 0.0                                                                               | 6.8                                                                                 | 0.0                                                                                 | 18.4                                                                                | 2.1                                                                                 | 0.0                                                                                 | 3.8                                                                                 |
| Prop In Lane                                                                                                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.49                                                                                |
| Lane Grp Cap(c), veh/h                                                                                        | 234                                                                               | 1089                                                                              |                                                                                   | 316                                                                               | 1264                                                                              |                                                                                   | 444                                                                                 | 0                                                                                   | 378                                                                                 | 182                                                                                 | 0                                                                                   | 302                                                                                 |
| V/C Ratio(X)                                                                                                  | 0.38                                                                              | 0.76                                                                              |                                                                                   | 0.62                                                                              | 0.80                                                                              |                                                                                   | 0.41                                                                                | 0.00                                                                                | 0.92                                                                                | 0.30                                                                                | 0.00                                                                                | 0.29                                                                                |
| Avail Cap(c_a), veh/h                                                                                         | 270                                                                               | 1414                                                                              |                                                                                   | 399                                                                               | 1692                                                                              |                                                                                   | 491                                                                                 | 0                                                                                   | 381                                                                                 | 210                                                                                 | 0                                                                                   | 302                                                                                 |
| HCM Platoon Ratio                                                                                             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                            | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                                      | 20.5                                                                              | 26.5                                                                              | 0.0                                                                               | 19.3                                                                              | 24.5                                                                              | 0.0                                                                               | 24.2                                                                                | 0.0                                                                                 | 32.2                                                                                | 28.2                                                                                | 0.0                                                                                 | 30.8                                                                                |
| Incr Delay (d2), s/veh                                                                                        | 1.0                                                                               | 1.9                                                                               | 0.0                                                                               | 2.4                                                                               | 2.2                                                                               | 0.0                                                                               | 0.6                                                                                 | 0.0                                                                                 | 27.5                                                                                | 0.9                                                                                 | 0.0                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh                                                                                     | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln                                                                                      | 2.0                                                                               | 11.3                                                                              | 0.0                                                                               | 4.3                                                                               | 13.1                                                                              | 0.0                                                                               | 5.0                                                                                 | 0.0                                                                                 | 14.5                                                                                | 1.6                                                                                 | 0.0                                                                                 | 2.8                                                                                 |
| Unsig. Movement Delay, s/veh                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh                                                                                          | 21.5                                                                              | 28.5                                                                              | 0.0                                                                               | 21.7                                                                              | 26.7                                                                              | 0.0                                                                               | 24.8                                                                                | 0.0                                                                                 | 59.7                                                                                | 29.1                                                                                | 0.0                                                                                 | 31.4                                                                                |
| LnGrp LOS                                                                                                     | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                   | A                                                                                   | E                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   |
| Approach Vol, veh/h                                                                                           |                                                                                   | 912                                                                               | A                                                                                 |                                                                                   | 1207                                                                              | A                                                                                 |                                                                                     | 528                                                                                 |                                                                                     |                                                                                     | 141                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                                         |                                                                                   | 27.8                                                                              |                                                                                   |                                                                                   | 25.9                                                                              |                                                                                   |                                                                                     | 47.8                                                                                |                                                                                     |                                                                                     | 30.5                                                                                |                                                                                     |
| Approach LOS                                                                                                  |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                                          | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                                      | 10.3                                                                              | 39.2                                                                              | 9.6                                                                               | 27.2                                                                              | 14.7                                                                              | 34.8                                                                              | 14.7                                                                                | 22.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                                       | 5.9                                                                               | 7.5                                                                               | 6.0                                                                               | * 6.8                                                                             | 5.9                                                                               | 7.5                                                                               | 6.0                                                                                 | 6.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                                   | 6.1                                                                               | 42.5                                                                              | 5.0                                                                               | * 21                                                                              | 13.1                                                                              | 35.5                                                                              | 11.0                                                                                | 14.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                                  | 4.8                                                                               | 24.7                                                                              | 4.1                                                                               | 20.4                                                                              | 8.6                                                                               | 20.6                                                                              | 8.8                                                                                 | 5.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                                       | 0.0                                                                               | 7.0                                                                               | 0.0                                                                               | 0.1                                                                               | 0.3                                                                               | 5.1                                                                               | 0.1                                                                                 | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay                                                                                            |                                                                                   |                                                                                   | 30.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Notes</b>                                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# LANE SUMMARY

 **Site: 101 [Cox Road 2025 AM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: Cox Road          |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 178                      | 10.8             | 743           | 0.239               | 100                | 7.6                     | LOS A               | 0.8                | 22.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 178                      | 10.8             |               | 0.239               |                    | 7.6                     | LOS A               | 0.8                | 22.8                |                |                      |                   |                      |
| NorthEast: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 313                      | 4.7              | 1233          | 0.254               | 100                | 5.2                     | LOS A               | 1.2                | 30.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2                   | 311                      | 5.4              | 1225          | 0.254               | 100                | 5.2                     | LOS A               | 1.2                | 30.7                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 624                      | 5.1              |               | 0.254               |                    | 5.2                     | LOS A               | 1.2                | 30.8                |                |                      |                   |                      |
| North: Cox Road          |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 176                      | 1.4              | 772           | 0.228               | 100                | 7.2                     | LOS A               | 0.9                | 21.9                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 176                      | 1.4              |               | 0.228               |                    | 7.2                     | LOS A               | 0.9                | 21.9                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 331                      | 5.7              | 1058          | 0.313               | 100                | 6.5                     | LOS A               | 1.4                | 37.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 333                      | 5.2              | 1063          | 0.313               | 100                | 6.5                     | LOS A               | 1.5                | 37.9                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 664                      | 5.5              |               | 0.313               |                    | 6.5                     | LOS A               | 1.5                | 37.9                |                |                      |                   |                      |
| Intersection             | 1642                     | 5.5              |               | 0.313               |                    | 6.2                     | LOS A               | 1.5                | 37.9                |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

 **Site: 202 [London Blvd 2025 PM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of Queue<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 46                       | 2.0              | 683           | 0.068               | 100                | 6.0                     | LOS A               | 0.2                      | 5.8                 | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 46                       | 2.0              |               | 0.068               |                    | 6.0                     | LOS A               | 0.2                      | 5.8                 |                |                      |                   |                      |
| East: SR 524             |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1                   | 474                      | 5.8              | 1215          | 0.390               | 100                | 6.8                     | LOS A               | 2.1                      | 54.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 506                      | 4.7              | 1296          | 0.390               | 100                | 6.5                     | LOS A               | 2.1                      | 53.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 980                      | 5.2              |               | 0.390               |                    | 6.6                     | LOS A               | 2.1                      | 54.8                |                |                      |                   |                      |
| North: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 89                       | 2.2              | 623           | 0.144               | 100                | 7.5                     | LOS A               | 0.5                      | 12.6                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 89                       | 2.2              |               | 0.144               |                    | 7.5                     | LOS A               | 0.5                      | 12.6                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1                   | 359                      | 5.5              | 1165          | 0.309               | 100                | 6.0                     | LOS A               | 1.5                      | 38.2                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 380                      | 5.8              | 1230          | 0.309               | 100                | 5.8                     | LOS A               | 1.4                      | 37.2                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 739                      | 5.7              |               | 0.309               |                    | 5.9                     | LOS A               | 1.5                      | 38.2                |                |                      |                   |                      |
| Intersection             | 1855                     | 5.2              |               | 0.390               |                    | 6.4                     | LOS A               | 2.1                      | 54.8                |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

 **Site: 301 [Cox Road 2045 AM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: Cox Road          |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 328                      | 11.4             | 431           | 0.762               | 100                | 34.3                    | LOS D               | 5.1                | 137.8               | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 328                      | 11.4             |               | 0.762               |                    | 34.3                    | LOS D               | 5.1                | 137.8               |                |                      |                   |                      |
| NorthEast: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 642                      | 5.1              | 1110          | 0.579               | 100                | 10.5                    | LOS B               | 3.8                | 98.4                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2                   | 640                      | 5.4              | 1106          | 0.579               | 100                | 10.5                    | LOS B               | 3.8                | 98.1                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1282                     | 5.3              |               | 0.579               |                    | 10.5                    | LOS B               | 3.8                | 98.4                |                |                      |                   |                      |
| North: Cox Road          |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 248                      | 1.2              | 409           | 0.607               | 100                | 24.5                    | LOS C               | 3.1                | 77.9                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 248                      | 1.2              |               | 0.607               |                    | 24.5                    | LOS C               | 3.1                | 77.9                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 667                      | 5.7              | 984           | 0.678               | 100                | 14.4                    | LOS B               | 8.7                | 228.1               | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 669                      | 5.4              | 987           | 0.678               | 100                | 14.3                    | LOS B               | 8.8                | 228.3               | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1336                     | 5.6              |               | 0.678               |                    | 14.4                    | LOS B               | 8.8                | 228.3               |                |                      |                   |                      |
| Intersection             | 3195                     | 5.7              |               | 0.762               |                    | 15.7                    | LOS C               | 8.8                | 228.3               |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

 **Site: 401 [Cox Road 2045 PM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of Queue<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: Cox Road          |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 527                      | 0.7              | 594           | 0.888               | 100                | 40.6                    | LOS E               | 11.4                     | 287.5               | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 527                      | 0.7              |               | 0.888               |                    | 40.6                    | LOS E               | 11.4                     | 287.5               |                |                      |                   |                      |
| NorthEast: SR 524        |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1                   | 671                      | 7.2              | 1023          | 0.657               | 100                | 13.3                    | LOS B               | 7.9                      | 208.0               | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 687                      | 4.7              | 1047          | 0.657               | 100                | 13.0                    | LOS B               | 8.1                      | 210.2               | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1359                     | 5.9              |               | 0.657               |                    | 13.1                    | LOS B               | 8.1                      | 210.2               |                |                      |                   |                      |
| North: Cox Road          |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 141                      | 2.1              | 400           | 0.353               | 100                | 15.6                    | LOS C               | 1.3                      | 33.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 141                      | 2.1              |               | 0.353               |                    | 15.6                    | LOS C               | 1.3                      | 33.8                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                          |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 534                      | 5.0              | 1014          | 0.526               | 100                | 10.1                    | LOS B               | 3.7                      | 96.6                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2                   | 530                      | 5.7              | 1007          | 0.526               | 100                | 10.1                    | LOS B               | 3.7                      | 96.3                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1064                     | 5.4              |               | 0.526               |                    | 10.1                    | LOS B               | 3.7                      | 96.6                |                |                      |                   |                      |
| Intersection             | 3092                     | 4.7              |               | 0.888               |                    | 16.9                    | LOS C               | 11.4                     | 287.5               |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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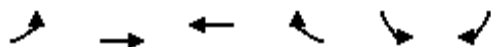
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# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

Cox Signalized RCUT 2025 AM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↘     |      |
| Traffic Volume (vph)              | 0    | 631   | 0    | 0                         | 116   | 0    |
| Future Volume (vph)               | 0    | 631   | 0    | 0                         | 116   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 5.0   |      |                           | 5.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3529  |      |                           | 1625  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3529  |      |                           | 1625  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 664   | 0    | 0                         | 122   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 114   | 0    |
| Lane Group Flow (vph)             | 0    | 664   | 0    | 0                         | 8     | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 2%   | 2%                        | 2%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 2     |      |                           | 4     |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 73.9  |      |                           | 6.1   |      |
| Effective Green, g (s)            |      | 73.9  |      |                           | 6.1   |      |
| Actuated g/C Ratio                |      | 0.82  |      |                           | 0.07  |      |
| Clearance Time (s)                |      | 5.0   |      |                           | 5.0   |      |
| Vehicle Extension (s)             |      | 3.0   |      |                           | 3.0   |      |
| Lane Grp Cap (vph)                |      | 2897  |      |                           | 110   |      |
| v/s Ratio Prot                    |      | c0.19 |      |                           | c0.01 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.23  |      |                           | 0.08  |      |
| Uniform Delay, d1                 |      | 1.8   |      |                           | 39.3  |      |
| Progression Factor                |      | 1.00  |      |                           | 1.00  |      |
| Incremental Delay, d2             |      | 0.2   |      |                           | 0.3   |      |
| Delay (s)                         |      | 2.0   |      |                           | 39.6  |      |
| Level of Service                  |      | A     |      |                           | D     |      |
| Approach Delay (s)                |      | 2.0   | 0.0  |                           | 39.6  |      |
| Approach LOS                      |      | A     | A    |                           | D     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 7.8   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.22  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 90.0  |      | Sum of lost time (s)      |       | 10.0 |
| Intersection Capacity Utilization |      | 39.3% |      | ICU Level of Service      |       | A    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| <b>c Critical Lane Group</b>      |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Side St

Cox Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 562                                                                               | 169                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 169                                                                                 | 127                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 562                                                                               | 169                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 169                                                                                 | 127                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1520                                                                                | 1799                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1520                                                                                | 1799                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 592                                                                               | 178                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 178                                                                                 | 134                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 17                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 592                                                                               | 161                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 178                                                                                 | 134                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 11%                                                                                 | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 64.0                                                                              | 64.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 16.0                                                                                | 16.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 64.0                                                                              | 64.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 16.0                                                                                | 16.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.71                                                                              | 0.71                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.18                                                                                | 0.18                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2485                                                                              | 1144                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 270                                                                                 | 319                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.17                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.07                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.10                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.12                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.24                                                                              | 0.14                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.66                                                                                | 0.42                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 4.5                                                                               | 4.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 34.5                                                                                | 32.9                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.79                                                                              | 0.74                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.2                                                                               | 0.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.7                                                                                 | 0.9                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 3.8                                                                               | 3.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 40.2                                                                                | 33.8                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 3.7                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 40.2                                                                                |                                                                                     |                                                                                     | 33.8                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 13.4                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.32                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 33.7%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: Cox Road

Cox Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 497                                                                               | 41                                                                                | 0                                                                                  | 0                                                                                   | 167                                                                                 | 16                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 497                                                                               | 41                                                                                | 0                                                                                  | 0                                                                                   | 167                                                                                 | 16                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3431                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3431                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 523                                                                               | 43                                                                                | 0                                                                                  | 0                                                                                   | 176                                                                                 | 17                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 10                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 523                                                                               | 33                                                                                | 0                                                                                  | 0                                                                                   | 176                                                                                 | 17                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 8%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 91.7                                                                              | 91.7                                                                              |                                                                                    |                                                                                     | 18.3                                                                                | 18.3                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 91.7                                                                              | 91.7                                                                              |                                                                                    |                                                                                     | 18.3                                                                                | 18.3                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.76                                                                              | 0.76                                                                              |                                                                                    |                                                                                     | 0.15                                                                                | 0.15                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2621                                                                              | 1241                                                                              |                                                                                    |                                                                                     | 252                                                                                 | 276                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.15                                                                             |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.01                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                    |                                                                                     | c0.11                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.20                                                                              | 0.03                                                                              |                                                                                    |                                                                                     | 0.70                                                                                | 0.06                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.9                                                                               | 3.4                                                                               |                                                                                    |                                                                                     | 48.2                                                                                | 43.5                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.87                                                                              | 0.53                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.0                                                                               |                                                                                    |                                                                                     | 8.2                                                                                 | 0.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.6                                                                               | 1.9                                                                               |                                                                                    |                                                                                     | 56.4                                                                                | 43.6                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 3.5                                                                               |                                                                                   | 56.4                                                                               |                                                                                     |                                                                                     | 43.6                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 16.6                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                          |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.28                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                               |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 31.8%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                               |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

Cox Signalized RCUT 2025 AM.syn

11/18/2019

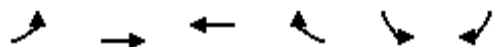
|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 593                                                                               | 72                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 593                                                                               | 72                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1429                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1429                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 624                                                                               | 76                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 73                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 624                                                                               | 3                                                                                 | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 16%                                                                               | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 107.6                                                                             | 4.4                                                                               |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 107.6                                                                             | 4.4                                                                               |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.90                                                                              | 0.04                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 3164                                                                              | 52                                                                                |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                             | c0.00                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.20                                                                              | 0.05                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 0.8                                                                               | 55.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.4                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 0.9                                                                               | 56.2                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 0.9                                                                               | 56.2                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 6.9                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 26.5%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

Cox Signalized RCUT 2025 PM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↱                         |      |
| Traffic Volume (vph)              | 0    | 553   | 0     | 0    | 69                        | 0    |
| Future Volume (vph)               | 0    | 553   | 0     | 0    | 69                        | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3529  |       |      | 1609                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3529  |       |      | 1609                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 582   | 0     | 0    | 73                        | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 69                        | 0    |
| Lane Group Flow (vph)             | 0    | 582   | 0     | 0    | 4                         | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 2%    | 2%   | 3%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 75.6  |       |      | 4.4                       |      |
| Effective Green, g (s)            |      | 75.6  |       |      | 4.4                       |      |
| Actuated g/C Ratio                |      | 0.84  |       |      | 0.05                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 2964  |       |      | 78                        |      |
| v/s Ratio Prot                    |      | c0.16 |       |      | c0.00                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.20  |       |      | 0.05                      |      |
| Uniform Delay, d1                 |      | 1.4   |       |      | 40.8                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 0.1   |       |      | 0.2                       |      |
| Delay (s)                         |      | 1.5   |       |      | 41.0                      |      |
| Level of Service                  |      | A     |       |      | D                         |      |
| Approach Delay (s)                |      | 1.5   | 0.0   |      | 41.0                      |      |
| Approach LOS                      |      | A     | A     |      | D                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 5.9   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.19  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 39.2% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Side St

Cox Signalized RCUT 2025 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↗                                                                                   | ↗                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 500                                                                               | 80                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 288                                                                                 | 127                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 500                                                                               | 80                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 288                                                                                 | 127                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1684                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1684                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 526                                                                               | 84                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 303                                                                                 | 134                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 22                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 526                                                                               | 62                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 303                                                                                 | 134                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 4%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 10%                                                                                 | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 57.6                                                                              | 57.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 22.4                                                                                | 22.4                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 57.6                                                                              | 57.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 22.4                                                                                | 22.4                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.64                                                                              | 0.64                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.25                                                                                | 0.25                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2236                                                                              | 1020                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 411                                                                                 | 419                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.15                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.08                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.04                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.18                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.24                                                                              | 0.06                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.74                                                                                | 0.32                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 6.9                                                                               | 6.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 31.1                                                                                | 27.6                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.84                                                                              | 0.68                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.2                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 6.8                                                                                 | 0.4                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 6.0                                                                               | 4.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 37.9                                                                                | 28.0                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 5.8                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 37.9                                                                                |                                                                                     |                                                                                     | 28.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.38                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 39.2%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: Cox Road

Cox Signalized RCUT 2025 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 596                                                                               | 126                                                                               | 0                                                                                  | 0                                                                                   | 134                                                                                 | 42                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 596                                                                               | 126                                                                               | 0                                                                                  | 0                                                                                   | 134                                                                                 | 42                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 627                                                                               | 133                                                                               | 0                                                                                  | 0                                                                                   | 141                                                                                 | 44                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 13                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 627                                                                               | 120                                                                               | 0                                                                                  | 0                                                                                   | 141                                                                                 | 44                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 94.4                                                                              | 94.4                                                                              |                                                                                    |                                                                                     | 15.6                                                                                | 15.6                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 94.4                                                                              | 94.4                                                                              |                                                                                    |                                                                                     | 15.6                                                                                | 15.6                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.79                                                                              | 0.79                                                                              |                                                                                    |                                                                                     | 0.13                                                                                | 0.13                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2776                                                                              | 1278                                                                              |                                                                                    |                                                                                     | 215                                                                                 | 236                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                             |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.07                                                                              |                                                                                    |                                                                                     | c0.09                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.23                                                                              | 0.09                                                                              |                                                                                    |                                                                                     | 0.66                                                                                | 0.19                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.3                                                                               | 2.9                                                                               |                                                                                    |                                                                                     | 49.6                                                                                | 46.5                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.87                                                                              | 0.83                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.1                                                                               |                                                                                    |                                                                                     | 7.0                                                                                 | 0.4                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.1                                                                               | 2.6                                                                               |                                                                                    |                                                                                     | 56.7                                                                                | 46.9                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   | 56.7                                                                               |                                                                                     |                                                                                     | 46.9                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 13.0                                                                              |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.29                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 32.5%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

Cox Signalized RCUT 2025 PM.syn

11/18/2019

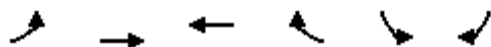
|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 738                                                                               | 111                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 738                                                                               | 111                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 777                                                                               | 117                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 112                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 777                                                                               | 5                                                                                 | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 106.5                                                                             | 5.5                                                                               |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 106.5                                                                             | 5.5                                                                               |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.89                                                                              | 0.05                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 3101                                                                              | 74                                                                                |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.22                                                                             | c0.00                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.25                                                                              | 0.07                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 1.0                                                                               | 54.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.4                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 1.2                                                                               | 55.2                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 1.2                                                                               | 55.2                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.2                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.24                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 32.5%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

Cox Signalized RCUT 2045 AM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↘                         |      |
| Traffic Volume (vph)              | 0    | 1269  | 0     | 0    | 152                       | 0    |
| Future Volume (vph)               | 0    | 1269  | 0     | 0    | 152                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3495  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3495  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 1336  | 0     | 0    | 160                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 17                        | 0    |
| Lane Group Flow (vph)             | 0    | 1336  | 0     | 0    | 143                       | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 66.7  |       |      | 13.3                      |      |
| Effective Green, g (s)            |      | 66.7  |       |      | 13.3                      |      |
| Actuated g/C Ratio                |      | 0.74  |       |      | 0.15                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 2590  |       |      | 240                       |      |
| v/s Ratio Prot                    |      | c0.38 |       |      | c0.09                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.52  |       |      | 0.60                      |      |
| Uniform Delay, d1                 |      | 4.9   |       |      | 35.8                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 0.7   |       |      | 3.9                       |      |
| Delay (s)                         |      | 5.6   |       |      | 39.8                      |      |
| Level of Service                  |      | A     |       |      | D                         |      |
| Approach Delay (s)                |      | 5.6   | 0.0   |      | 39.8                      |      |
| Approach LOS                      |      | A     | A     |      | D                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 9.3   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.53  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 74.2% |      | ICU Level of Service      | D    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Side St

Cox Signalized RCUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↗                                                                                   | ↗                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1119                                                                              | 258                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 312                                                                                 | 180                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1119                                                                              | 258                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 312                                                                                 | 180                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1520                                                                                | 1799                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1520                                                                                | 1799                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1178                                                                              | 272                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 328                                                                                 | 189                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 24                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1178                                                                              | 248                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 328                                                                                 | 189                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 11%                                                                                 | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 54.5                                                                              | 54.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 25.5                                                                                | 25.5                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 54.5                                                                              | 54.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 25.5                                                                                | 25.5                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.61                                                                              | 0.61                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.28                                                                                | 0.28                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2116                                                                              | 974                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 430                                                                                 | 509                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.34                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.11                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.15                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.22                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.56                                                                              | 0.25                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.76                                                                                | 0.37                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 10.6                                                                              | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 29.5                                                                                | 25.8                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.69                                                                              | 0.61                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.9                                                                               | 0.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 7.8                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 8.2                                                                               | 5.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 37.3                                                                                | 26.3                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 7.8                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 37.3                                                                                |                                                                                     |                                                                                     | 26.3                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 14.5                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.62                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 57.3%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: Cox Road

Cox Signalized RCUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1109                                                                              | 81                                                                                | 0                                                                                  | 0                                                                                   | 236                                                                                 | 29                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1109                                                                              | 81                                                                                | 0                                                                                  | 0                                                                                   | 236                                                                                 | 29                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3431                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3431                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1167                                                                              | 85                                                                                | 0                                                                                  | 0                                                                                   | 248                                                                                 | 31                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 17                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1167                                                                              | 68                                                                                | 0                                                                                  | 0                                                                                   | 248                                                                                 | 31                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 8%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 86.3                                                                              | 86.3                                                                              |                                                                                    |                                                                                     | 23.7                                                                                | 23.7                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 86.3                                                                              | 86.3                                                                              |                                                                                    |                                                                                     | 23.7                                                                                | 23.7                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.72                                                                              | 0.72                                                                              |                                                                                    |                                                                                     | 0.20                                                                                | 0.20                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2467                                                                              | 1168                                                                              |                                                                                    |                                                                                     | 326                                                                                 | 358                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.34                                                                             |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.04                                                                              |                                                                                    |                                                                                     | c0.15                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.47                                                                              | 0.06                                                                              |                                                                                    |                                                                                     | 0.76                                                                                | 0.09                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 7.2                                                                               | 4.9                                                                               |                                                                                    |                                                                                     | 45.5                                                                                | 39.3                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.73                                                                              | 0.62                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.6                                                                               | 0.1                                                                               |                                                                                    |                                                                                     | 10.0                                                                                | 0.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.8                                                                               | 3.2                                                                               |                                                                                    |                                                                                     | 55.5                                                                                | 39.4                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 5.7                                                                               |                                                                                   | 55.5                                                                               |                                                                                     |                                                                                     | 39.4                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 14.4                                                                              |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.53                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 52.4%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

Cox Signalized RCUT 2045 AM.syn

11/18/2019

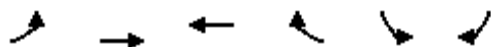
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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1218                                                                              | 152                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1218                                                                              | 152                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1429                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1429                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1282                                                                              | 160                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 53                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1282                                                                              | 107                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 16%                                                                               | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 97.8                                                                              | 14.2                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 97.8                                                                              | 14.2                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.81                                                                              | 0.12                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2876                                                                              | 169                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.36                                                                             | c0.07                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.45                                                                              | 0.63                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 50.4                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.5                                                                               | 7.5                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 3.7                                                                               | 58.0                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 3.7                                                                               | 58.0                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 9.7                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.47                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 47.7%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

Cox Signalized RCUT 2045 PM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↵     |      |
| Traffic Volume (vph)              | 0    | 1011  | 0    | 0                         | 93    | 0    |
| Future Volume (vph)               | 0    | 1011  | 0    | 0                         | 93    | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 5.0   |      |                           | 5.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3529  |      |                           | 1609  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3529  |      |                           | 1609  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 1064  | 0    | 0                         | 98    | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 43    | 0    |
| Lane Group Flow (vph)             | 0    | 1064  | 0    | 0                         | 55    | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 2%   | 2%                        | 3%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 2     |      |                           | 4     |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 72.4  |      |                           | 7.6   |      |
| Effective Green, g (s)            |      | 72.4  |      |                           | 7.6   |      |
| Actuated g/C Ratio                |      | 0.80  |      |                           | 0.08  |      |
| Clearance Time (s)                |      | 5.0   |      |                           | 5.0   |      |
| Vehicle Extension (s)             |      | 3.0   |      |                           | 3.0   |      |
| Lane Grp Cap (vph)                |      | 2838  |      |                           | 135   |      |
| v/s Ratio Prot                    |      | c0.30 |      |                           | c0.03 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.37  |      |                           | 0.41  |      |
| Uniform Delay, d1                 |      | 2.5   |      |                           | 39.1  |      |
| Progression Factor                |      | 1.00  |      |                           | 1.00  |      |
| Incremental Delay, d2             |      | 0.4   |      |                           | 2.0   |      |
| Delay (s)                         |      | 2.8   |      |                           | 41.1  |      |
| Level of Service                  |      | A     |      |                           | D     |      |
| Approach Delay (s)                |      | 2.8   | 0.0  |                           | 41.1  |      |
| Approach LOS                      |      | A     | A    |                           | D     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 6.1   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.38  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 90.0  |      | Sum of lost time (s)      |       | 10.0 |
| Intersection Capacity Utilization |      | 66.3% |      | ICU Level of Service      |       | C    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| c Critical Lane Group             |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Side St

Cox Signalized RCUT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 834                                                                               | 186                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 501                                                                                 | 186                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 834                                                                               | 186                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 501                                                                                 | 186                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1579                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1684                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1579                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1684                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 878                                                                               | 196                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 527                                                                                 | 196                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 30                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 878                                                                               | 166                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 527                                                                                 | 196                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 10%                                                                                 | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 45.7                                                                              | 45.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 34.3                                                                                | 34.3                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 45.7                                                                              | 45.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 34.3                                                                                | 34.3                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.51                                                                              | 0.51                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.38                                                                                | 0.38                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1774                                                                              | 801                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 630                                                                                 | 641                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.25                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.12                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.11                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.32                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.49                                                                              | 0.21                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.84                                                                                | 0.31                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 14.6                                                                              | 12.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 25.3                                                                                | 19.5                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.89                                                                              | 0.79                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.9                                                                               | 0.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 9.4                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 13.9                                                                              | 10.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 34.7                                                                                | 19.8                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | C                                                                                   | B                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 13.2                                                                              |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 34.7                                                                                |                                                                                     |                                                                                     | 19.8                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | C                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 20.2                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.64                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     | 10.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 61.0%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: Cox Road

Cox Signalized RCUT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |                                                                                    |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |   |  |                                                                                    |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1131                                                                                                                                                                | 160                                                                               | 0                                                                                  | 0                                                                                   | 134                                                                                 | 84                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1131                                                                                                                                                                | 160                                                                               | 0                                                                                  | 0                                                                                   | 134                                                                                 | 84                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                                                                                                | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                                                                                                                 | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3529                                                                                                                                                                | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3529                                                                                                                                                                | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1191                                                                                                                                                                | 168                                                                               | 0                                                                                  | 0                                                                                   | 141                                                                                 | 88                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 13                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1191                                                                                                                                                                | 155                                                                               | 0                                                                                  | 0                                                                                   | 141                                                                                 | 88                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                                                                                                  | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                                                                                                  | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 94.4                                                                                                                                                                | 94.4                                                                              |                                                                                    |                                                                                     | 15.6                                                                                | 15.6                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 94.4                                                                                                                                                                | 94.4                                                                              |                                                                                    |                                                                                     | 15.6                                                                                | 15.6                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.79                                                                                                                                                                | 0.79                                                                              |                                                                                    |                                                                                     | 0.13                                                                                | 0.13                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                                                                                                                 | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                                                                                                                 | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2776                                                                                                                                                                | 1278                                                                              |                                                                                    |                                                                                     | 215                                                                                 | 236                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.34                                                                                                                                                               |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.05                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     | 0.10                                                                              |                                                                                    |                                                                                     | c0.09                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.43                                                                                                                                                                | 0.12                                                                              |                                                                                    |                                                                                     | 0.66                                                                                | 0.37                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.1                                                                                                                                                                 | 3.0                                                                               |                                                                                    |                                                                                     | 49.6                                                                                | 47.7                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.75                                                                                                                                                                | 0.73                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.4                                                                                                                                                                 | 0.2                                                                               |                                                                                    |                                                                                     | 7.0                                                                                 | 1.0                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.5                                                                                                                                                                 | 2.4                                                                               |                                                                                    |                                                                                     | 56.7                                                                                | 48.7                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                                                                                                   | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 3.4                                                                                                                                                                 |                                                                                   | 56.7                                                                               |                                                                                     |                                                                                     | 48.7                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 10.6                                                                              |                                                                                   | HCM 2000 Level of Service                                                                                                                                           |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.46                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     | 10.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 46.9%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

Cox Signalized RCUT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1291                                                                              | 186                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1291                                                                              | 186                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1359                                                                              | 196                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 43                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1359                                                                              | 153                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 95.4                                                                              | 16.6                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 95.4                                                                              | 16.6                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.80                                                                              | 0.14                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2778                                                                              | 224                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.39                                                                             | c0.09                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.49                                                                              | 0.68                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 4.1                                                                               | 49.2                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.6                                                                               | 8.3                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 4.7                                                                               | 57.5                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 4.7                                                                               | 57.5                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 11.4                                                                              | HCM 2000 Level of Service                                                         |                                                                                   | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.52                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 51.5%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & Cox Road

Cox MUT 2025 AM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 624                                                                               | 143                                                                               | 0                                                                                  | 12                                                                                  | 0                                                                                   | 0                                                                                   | 50                                                                                  | 117                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 624                                                                               | 143                                                                               | 0                                                                                  | 12                                                                                  | 0                                                                                   | 0                                                                                   | 50                                                                                  | 117                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3463                                                                              | 1609                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3463                                                                              | 1609                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 657                                                                               | 151                                                                               | 0                                                                                  | 13                                                                                  | 0                                                                                   | 0                                                                                   | 53                                                                                  | 123                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 30                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 37                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 657                                                                               | 121                                                                               | 0                                                                                  | 13                                                                                  | 0                                                                                   | 0                                                                                   | 53                                                                                  | 86                                                                                  |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 7%                                                                                | 3%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 22.9                                                                              | 22.9                                                                              |                                                                                    | 17.0                                                                                |                                                                                     |                                                                                     | 11.5                                                                                | 11.5                                                                                |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 23.9                                                                              | 23.9                                                                              |                                                                                    | 18.0                                                                                |                                                                                     |                                                                                     | 18.0                                                                                | 18.0                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.50                                                                              | 0.50                                                                              |                                                                                    | 0.38                                                                                |                                                                                     |                                                                                     | 0.38                                                                                | 0.38                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                    | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1727                                                                              | 802                                                                               |                                                                                    | 718                                                                                 |                                                                                     |                                                                                     | 718                                                                                 | 610                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.19                                                                             |                                                                                   |                                                                                    | 0.01                                                                                |                                                                                     |                                                                                     | 0.03                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.08                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.05                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.38                                                                              | 0.15                                                                              |                                                                                    | 0.02                                                                                |                                                                                     |                                                                                     | 0.07                                                                                | 0.14                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 7.4                                                                               | 6.5                                                                               |                                                                                    | 9.4                                                                                 |                                                                                     |                                                                                     | 9.6                                                                                 | 9.9                                                                                 |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.58                                                                              | 0.36                                                                              |                                                                                    | 0.11                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.1                                                                               |                                                                                    | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.1                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.5                                                                               | 2.4                                                                               |                                                                                    | 1.0                                                                                 |                                                                                     |                                                                                     | 9.6                                                                                 | 10.0                                                                                |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   | A                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                    | 1.0                                                                                 |                                                                                     |                                                                                     | 9.9                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.36                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 47.9                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 31.7%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

Cox MUT 2025 AM.syn  
08/09/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 593                                                                               | 76                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 593                                                                               | 76                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1441                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1441                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 624                                                                               | 80                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 59                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 624                                                                               | 21                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 15%                                                                               | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 28.2                                                                              | 11.7                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 29.2                                                                              | 12.7                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.61                                                                              | 0.27                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2151                                                                              | 382                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                             | c0.01                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.29                                                                              | 0.06                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 4.4                                                                               | 13.1                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.1                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 4.5                                                                               | 13.2                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 4.5                                                                               | 13.2                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.5                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.28                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 47.9                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 40.4%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

Cox MUT 2025 AM.syn  
08/09/2019



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↵     |      |
| Traffic Volume (vph)              | 0    | 631   | 0    | 0                         | 193   | 0    |
| Future Volume (vph)               | 0    | 631   | 0    | 0                         | 193   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 3.0   |      |                           | 3.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3529  |      |                           | 1609  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3529  |      |                           | 1609  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 664   | 0    | 0                         | 203   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 115   | 0    |
| Lane Group Flow (vph)             | 0    | 664   | 0    | 0                         | 88    | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 3%   | 2%                        | 3%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 1 7   |      |                           | 3 5   |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 28.2  |      |                           | 11.7  |      |
| Effective Green, g (s)            |      | 29.2  |      |                           | 12.7  |      |
| Actuated g/C Ratio                |      | 0.61  |      |                           | 0.27  |      |
| Clearance Time (s)                |      |       |      |                           |       |      |
| Vehicle Extension (s)             |      |       |      |                           |       |      |
| Lane Grp Cap (vph)                |      | 2151  |      |                           | 426   |      |
| v/s Ratio Prot                    |      | c0.19 |      |                           | c0.05 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.31  |      |                           | 0.21  |      |
| Uniform Delay, d1                 |      | 4.5   |      |                           | 13.7  |      |
| Progression Factor                |      | 1.00  |      |                           | 0.79  |      |
| Incremental Delay, d2             |      | 0.1   |      |                           | 0.2   |      |
| Delay (s)                         |      | 4.6   |      |                           | 11.0  |      |
| Level of Service                  |      | A     |      |                           | B     |      |
| Approach Delay (s)                |      | 4.6   | 0.0  |                           | 11.0  |      |
| Approach LOS                      |      | A     | A    |                           | B     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 6.1   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.36  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 47.9  |      | Sum of lost time (s)      |       | 15.5 |
| Intersection Capacity Utilization |      | 38.4% |      | ICU Level of Service      |       | A    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| <b>c Critical Lane Group</b>      |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 5: Cox Road & SR 524

Cox MUT 2025 AM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | ↑                                                                                   | ↗                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 578                                                                               | 246                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 12                                                                                  | 157                                                                                 | 0                                                                                   | 50                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 578                                                                               | 246                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 12                                                                                  | 157                                                                                 | 0                                                                                   | 50                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1609                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1912                                                                                | 1480                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1609                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1912                                                                                | 1480                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 608                                                                               | 259                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 13                                                                                  | 165                                                                                 | 0                                                                                   | 53                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 30                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 37                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 608                                                                               | 229                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 13                                                                                  | 128                                                                                 | 0                                                                                   | 53                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 12%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 22.9                                                                              | 22.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 11.5                                                                                | 11.5                                                                                |                                                                                     | 17.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 23.9                                                                              | 23.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 18.0                                                                                | 18.0                                                                                |                                                                                     | 18.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.50                                                                              | 0.50                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.38                                                                                | 0.38                                                                                |                                                                                     | 0.38                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1760                                                                              | 802                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 718                                                                                 | 556                                                                                 |                                                                                     | 718                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.17                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.01                                                                                |                                                                                     |                                                                                     | 0.03                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.14                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.09                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.35                                                                              | 0.29                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.02                                                                                | 0.23                                                                                |                                                                                     | 0.07                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 7.3                                                                               | 7.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.4                                                                                 | 10.2                                                                                |                                                                                     | 9.6                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 0.78                                                                              | 0.70                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.10                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.1                                                                               | 0.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.0                                                                                 | 0.2                                                                                 |                                                                                     | 0.2                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 5.8                                                                               | 5.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.4                                                                                 | 10.4                                                                                |                                                                                     | 1.2                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 5.6                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                     | 10.3                                                                                |                                                                                     |                                                                                     | 1.2                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 6.2                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.39                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 47.9                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 31.7%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & Cox Road

Cox MUT 2025 PM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |  |                                                                                    |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 723                                                                               | 169                                                                               | 0                                                                                  | 37                                                                                  | 0                                                                                   | 0                                                                                   | 33                                                                                  | 65                                                                                  |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 723                                                                               | 169                                                                               | 0                                                                                  | 37                                                                                  | 0                                                                                   | 0                                                                                   | 33                                                                                  | 65                                                                                  |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1535                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1893                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1535                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1893                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 761                                                                               | 178                                                                               | 0                                                                                  | 39                                                                                  | 0                                                                                   | 0                                                                                   | 35                                                                                  | 68                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 31                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 36                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 761                                                                               | 147                                                                               | 0                                                                                  | 39                                                                                  | 0                                                                                   | 0                                                                                   | 35                                                                                  | 32                                                                                  |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 8%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 23.5                                                                              | 23.5                                                                              |                                                                                    | 19.4                                                                                |                                                                                     |                                                                                     | 13.9                                                                                | 13.9                                                                                |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 24.5                                                                              | 24.5                                                                              |                                                                                    | 20.4                                                                                |                                                                                     |                                                                                     | 20.4                                                                                | 20.4                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.48                                                                              | 0.48                                                                              |                                                                                    | 0.40                                                                                |                                                                                     |                                                                                     | 0.40                                                                                | 0.40                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                    | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1682                                                                              | 738                                                                               |                                                                                    | 766                                                                                 |                                                                                     |                                                                                     | 758                                                                                 | 651                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.22                                                                             |                                                                                   |                                                                                    | c0.02                                                                               |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.10                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0.02                                                                                |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.45                                                                              | 0.20                                                                              |                                                                                    | 0.05                                                                                |                                                                                     |                                                                                     | 0.05                                                                                | 0.05                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 8.8                                                                               | 7.6                                                                               |                                                                                    | 9.3                                                                                 |                                                                                     |                                                                                     | 9.3                                                                                 | 9.3                                                                                 |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.69                                                                              | 0.55                                                                              |                                                                                    | 0.10                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.1                                                                               |                                                                                    | 0.1                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.2                                                                               | 4.3                                                                               |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     | 9.3                                                                                 | 9.4                                                                                 |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   | A                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 5.9                                                                               |                                                                                   |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     | 9.3                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 50.9                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.4%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

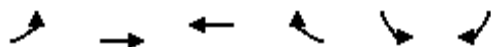
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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 738                                                                               | 116                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 738                                                                               | 116                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 777                                                                               | 122                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 84                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 777                                                                               | 38                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 31.7                                                                              | 11.2                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 32.7                                                                              | 12.2                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.64                                                                              | 0.24                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2245                                                                              | 389                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.22                                                                             | c0.02                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.35                                                                              | 0.10                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 4.2                                                                               | 15.1                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.91                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.1                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 4.3                                                                               | 13.8                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 4.3                                                                               | 13.8                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.6                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 50.9                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 44.8%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

Cox MUT 2025 PM.syn  
08/09/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↱                         |      |
| Traffic Volume (vph)              | 0    | 553   | 0     | 0    | 163                       | 0    |
| Future Volume (vph)               | 0    | 553   | 0     | 0    | 163                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 3.0   |       |      | 3.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3529  |       |      | 1535                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3529  |       |      | 1535                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 582   | 0     | 0    | 172                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 131                       | 0    |
| Lane Group Flow (vph)             | 0    | 582   | 0     | 0    | 41                        | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 3%    | 2%   | 8%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 1 7   |       |      | 3 5                       |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 31.7  |       |      | 11.2                      |      |
| Effective Green, g (s)            |      | 32.7  |       |      | 12.2                      |      |
| Actuated g/C Ratio                |      | 0.64  |       |      | 0.24                      |      |
| Clearance Time (s)                |      |       |       |      |                           |      |
| Vehicle Extension (s)             |      |       |       |      |                           |      |
| Lane Grp Cap (vph)                |      | 2267  |       |      | 367                       |      |
| v/s Ratio Prot                    |      | c0.16 |       |      | c0.03                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.26  |       |      | 0.11                      |      |
| Uniform Delay, d1                 |      | 3.9   |       |      | 15.1                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.47                      |      |
| Incremental Delay, d2             |      | 0.1   |       |      | 0.1                       |      |
| Delay (s)                         |      | 4.0   |       |      | 22.3                      |      |
| Level of Service                  |      | A     |       |      | C                         |      |
| Approach Delay (s)                |      | 4.0   | 0.0   |      | 22.3                      |      |
| Approach LOS                      |      | A     | A     |      | C                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 8.2   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.28  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 50.9  |      | Sum of lost time (s)      | 15.5 |
| Intersection Capacity Utilization |      |       | 38.4% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 5: Cox Road & SR 524

Cox MUT 2025 PM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |  |                                                                                   |                                                                                   |                                                                                   |                                                                                    |  |  |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 542                                                                               | 174                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 37                                                                                  | 251                                                                                 | 0                                                                                   | 33                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 542                                                                               | 174                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 37                                                                                  | 251                                                                                 | 0                                                                                   | 33                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1521                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1893                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1521                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1893                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 571                                                                               | 183                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 39                                                                                  | 264                                                                                 | 0                                                                                   | 35                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 31                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 36                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 571                                                                               | 152                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 39                                                                                  | 228                                                                                 | 0                                                                                   | 35                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 9%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 23.5                                                                              | 23.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 13.9                                                                                | 13.9                                                                                |                                                                                     | 19.4                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 24.5                                                                              | 24.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 20.4                                                                                | 20.4                                                                                |                                                                                     | 20.4                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.48                                                                              | 0.48                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.40                                                                                | 0.40                                                                                |                                                                                     | 0.40                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1698                                                                              | 732                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 766                                                                                 | 651                                                                                 |                                                                                     | 758                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.16                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.02                                                                                |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.10                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | c0.14                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.34                                                                              | 0.21                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.05                                                                                | 0.35                                                                                |                                                                                     | 0.05                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 8.2                                                                               | 7.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.3                                                                                 | 10.6                                                                                |                                                                                     | 9.3                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 0.91                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.10                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.1                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.0                                                                                 | 0.3                                                                                 |                                                                                     | 0.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 7.6                                                                               | 6.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.4                                                                                 | 11.0                                                                                |                                                                                     | 1.0                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 7.3                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                    | 10.8                                                                                |                                                                                     |                                                                                     | 1.0                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.1                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.44                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 50.9                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.4%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & Cox Road

Cox MUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1289                                                                              | 209                                                                               | 0                                                                                  | 24                                                                                  | 0                                                                                   | 0                                                                                   | 66                                                                                  | 170                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1289                                                                              | 209                                                                               | 0                                                                                  | 24                                                                                  | 0                                                                                   | 0                                                                                   | 66                                                                                  | 170                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3463                                                                              | 1609                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3463                                                                              | 1609                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1357                                                                              | 220                                                                               | 0                                                                                  | 25                                                                                  | 0                                                                                   | 0                                                                                   | 69                                                                                  | 179                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 30                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 36                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1357                                                                              | 190                                                                               | 0                                                                                  | 25                                                                                  | 0                                                                                   | 0                                                                                   | 69                                                                                  | 143                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 7%                                                                                | 3%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 26.2                                                                              | 26.2                                                                              |                                                                                    | 20.9                                                                                |                                                                                     |                                                                                     | 15.4                                                                                | 15.4                                                                                |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 27.2                                                                              | 27.2                                                                              |                                                                                    | 21.9                                                                                |                                                                                     |                                                                                     | 21.9                                                                                | 21.9                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.49                                                                              | 0.49                                                                              |                                                                                    | 0.40                                                                                |                                                                                     |                                                                                     | 0.40                                                                                | 0.40                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                    | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1709                                                                              | 794                                                                               |                                                                                    | 759                                                                                 |                                                                                     |                                                                                     | 759                                                                                 | 645                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.39                                                                             |                                                                                   |                                                                                    | 0.01                                                                                |                                                                                     |                                                                                     | 0.04                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.12                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.09                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.79                                                                              | 0.24                                                                              |                                                                                    | 0.03                                                                                |                                                                                     |                                                                                     | 0.09                                                                                | 0.22                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 11.6                                                                              | 8.0                                                                               |                                                                                    | 10.1                                                                                |                                                                                     |                                                                                     | 10.4                                                                                | 11.0                                                                                |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.53                                                                              | 0.24                                                                              |                                                                                    | 0.11                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2.2                                                                               | 0.1                                                                               |                                                                                    | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 | 0.2                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 8.4                                                                               | 2.1                                                                               |                                                                                    | 1.2                                                                                 |                                                                                     |                                                                                     | 10.4                                                                                | 11.1                                                                                |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   | B                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 7.5                                                                               |                                                                                   |                                                                                    | 1.2                                                                                 |                                                                                     |                                                                                     | 10.9                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.9                                                                               |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                          |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.68                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 55.1                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                               |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 55.0%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                               |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

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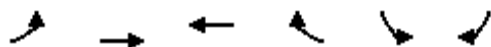
|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1218                                                                              | 157                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1218                                                                              | 157                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1441                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1441                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1282                                                                              | 165                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1282                                                                              | 150                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 15%                                                                               | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 29.5                                                                              | 17.6                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 30.5                                                                              | 18.6                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.55                                                                              | 0.34                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 1953                                                                              | 486                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.36                                                                             | c0.10                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.66                                                                              | 0.31                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 8.6                                                                               | 13.5                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.58                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.8                                                                               | 0.3                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 9.4                                                                               | 8.1                                                                               |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 9.4                                                                               | 8.1                                                                               |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 9.3                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.65                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 55.1                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 73.9%                                                                             | ICU Level of Service                                                              |                                                                                   | D                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

Cox MUT 2045 AM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↵     |      |
| Traffic Volume (vph)              | 0    | 1269  | 0    | 0                         | 251   | 0    |
| Future Volume (vph)               | 0    | 1269  | 0    | 0                         | 251   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 3.0   |      |                           | 3.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3495  |      |                           | 1609  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3495  |      |                           | 1609  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 1336  | 0    | 0                         | 264   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 13    | 0    |
| Lane Group Flow (vph)             | 0    | 1336  | 0    | 0                         | 251   | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 3%   | 2%                        | 3%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 1 7   |      |                           | 3 5   |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 29.5  |      |                           | 17.6  |      |
| Effective Green, g (s)            |      | 30.5  |      |                           | 18.6  |      |
| Actuated g/C Ratio                |      | 0.55  |      |                           | 0.34  |      |
| Clearance Time (s)                |      |       |      |                           |       |      |
| Vehicle Extension (s)             |      |       |      |                           |       |      |
| Lane Grp Cap (vph)                |      | 1934  |      |                           | 543   |      |
| v/s Ratio Prot                    |      | c0.38 |      |                           | c0.16 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.69  |      |                           | 0.46  |      |
| Uniform Delay, d1                 |      | 8.9   |      |                           | 14.3  |      |
| Progression Factor                |      | 1.00  |      |                           | 0.42  |      |
| Incremental Delay, d2             |      | 1.1   |      |                           | 0.4   |      |
| Delay (s)                         |      | 10.0  |      |                           | 6.5   |      |
| Level of Service                  |      | A     |      |                           | A     |      |
| Approach Delay (s)                |      | 10.0  | 0.0  |                           | 6.5   |      |
| Approach LOS                      |      | A     | A    |                           | A     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 9.4   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.75  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 55.1  |      | Sum of lost time (s)      |       | 15.5 |
| Intersection Capacity Utilization |      | 73.4% |      | ICU Level of Service      |       | D    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| c Critical Lane Group             |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 5: Cox Road & SR 524

Cox MUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |  |                                                                                   |                                                                                   |                                                                                   |                                                                                    |  |  |                                                                                     |  |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1148                                                                              | 372                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 24                                                                                  | 288                                                                                 | 0                                                                                   | 66                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1148                                                                              | 372                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 24                                                                                  | 288                                                                                 | 0                                                                                   | 66                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1480                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1480                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1208                                                                              | 392                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 25                                                                                  | 303                                                                                 | 0                                                                                   | 69                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 30                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 36                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1208                                                                              | 362                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 25                                                                                  | 267                                                                                 | 0                                                                                   | 69                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 4%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 12%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 26.2                                                                              | 26.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 15.4                                                                                | 15.4                                                                                |                                                                                     | 20.9                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 27.2                                                                              | 27.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 21.9                                                                                | 21.9                                                                                |                                                                                     | 21.9                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.49                                                                              | 0.49                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.40                                                                                | 0.40                                                                                |                                                                                     | 0.40                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1725                                                                              | 786                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 759                                                                                 | 588                                                                                 |                                                                                     | 759                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.35                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.01                                                                                |                                                                                     |                                                                                     | 0.04                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.23                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | c0.18                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.70                                                                              | 0.46                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.03                                                                                | 0.45                                                                                |                                                                                     | 0.09                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 10.8                                                                              | 9.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.1                                                                                | 12.2                                                                                |                                                                                     | 10.4                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.55                                                                              | 0.40                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.10                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 1.0                                                                               | 0.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.0                                                                                 | 0.6                                                                                 |                                                                                     | 0.2                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 6.9                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.2                                                                                | 12.8                                                                                |                                                                                     | 1.2                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 6.2                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                    | 12.6                                                                                |                                                                                     |                                                                                     | 1.2                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.1                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.74                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 55.1                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 55.0%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & Cox Road

Cox MUT 2045 PM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1317                                                                              | 270                                                                               | 0                                                                                  | 15                                                                                  | 0                                                                                   | 0                                                                                   | 42                                                                                  | 92                                                                                  |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1317                                                                              | 270                                                                               | 0                                                                                  | 15                                                                                  | 0                                                                                   | 0                                                                                   | 42                                                                                  | 92                                                                                  |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1549                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1893                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1549                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1893                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1386                                                                              | 284                                                                               | 0                                                                                  | 16                                                                                  | 0                                                                                   | 0                                                                                   | 44                                                                                  | 97                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 32                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 34                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1386                                                                              | 252                                                                               | 0                                                                                  | 16                                                                                  | 0                                                                                   | 0                                                                                   | 44                                                                                  | 63                                                                                  |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 7%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 26.1                                                                              | 26.1                                                                              |                                                                                    | 24.2                                                                                |                                                                                     |                                                                                     | 18.7                                                                                | 18.7                                                                                |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 27.1                                                                              | 27.1                                                                              |                                                                                    | 25.2                                                                                |                                                                                     |                                                                                     | 25.2                                                                                | 25.2                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.46                                                                              | 0.46                                                                              |                                                                                    | 0.43                                                                                |                                                                                     |                                                                                     | 0.43                                                                                | 0.43                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                    | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1624                                                                              | 720                                                                               |                                                                                    | 826                                                                                 |                                                                                     |                                                                                     | 818                                                                                 | 702                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.40                                                                             |                                                                                   |                                                                                    | 0.01                                                                                |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.16                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.04                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.85                                                                              | 0.35                                                                              |                                                                                    | 0.02                                                                                |                                                                                     |                                                                                     | 0.05                                                                                | 0.09                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 13.8                                                                              | 10.0                                                                              |                                                                                    | 9.5                                                                                 |                                                                                     |                                                                                     | 9.6                                                                                 | 9.8                                                                                 |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.65                                                                              | 0.42                                                                              |                                                                                    | 0.11                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.7                                                                               | 0.2                                                                               |                                                                                    | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.1                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 12.7                                                                              | 4.4                                                                               |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     | 9.6                                                                                 | 9.8                                                                                 |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   | A                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 11.3                                                                              |                                                                                   |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     | 9.8                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 11.1                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                          |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.60                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 58.3                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                               |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 60.7%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                               |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

Cox MUT 2045 PM.syn

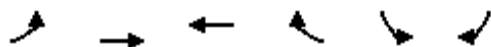
08/09/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1291                                                                              | 255                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1291                                                                              | 255                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1359                                                                              | 268                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 12                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1359                                                                              | 256                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 32.1                                                                              | 18.2                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 33.1                                                                              | 19.2                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.57                                                                              | 0.33                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 1984                                                                              | 535                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.39                                                                             | c0.16                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.68                                                                              | 0.48                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 8.9                                                                               | 15.6                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.94                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 1.0                                                                               | 0.5                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 9.9                                                                               | 15.2                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 9.9                                                                               | 15.2                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 10.8                                                                              | HCM 2000 Level of Service                                                         |                                                                                   | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.74                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 58.3                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 75.8%                                                                             | ICU Level of Service                                                              |                                                                                   | D                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

Cox MUT 2045 PM.syn  
08/09/2019



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↱     |      |
| Traffic Volume (vph)              | 0    | 1011  | 0    | 0                         | 237   | 0    |
| Future Volume (vph)               | 0    | 1011  | 0    | 0                         | 237   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 3.0   |      |                           | 3.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3529  |      |                           | 1535  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3529  |      |                           | 1535  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 1064  | 0    | 0                         | 249   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 30    | 0    |
| Lane Group Flow (vph)             | 0    | 1064  | 0    | 0                         | 219   | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 3%   | 2%                        | 8%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 1 7   |      |                           | 3 5   |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 32.1  |      |                           | 18.2  |      |
| Effective Green, g (s)            |      | 33.1  |      |                           | 19.2  |      |
| Actuated g/C Ratio                |      | 0.57  |      |                           | 0.33  |      |
| Clearance Time (s)                |      |       |      |                           |       |      |
| Vehicle Extension (s)             |      |       |      |                           |       |      |
| Lane Grp Cap (vph)                |      | 2003  |      |                           | 505   |      |
| v/s Ratio Prot                    |      | c0.30 |      |                           | c0.14 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.53  |      |                           | 0.43  |      |
| Uniform Delay, d1                 |      | 7.8   |      |                           | 15.3  |      |
| Progression Factor                |      | 1.00  |      |                           | 0.35  |      |
| Incremental Delay, d2             |      | 0.3   |      |                           | 0.3   |      |
| Delay (s)                         |      | 8.1   |      |                           | 5.6   |      |
| Level of Service                  |      | A     |      |                           | A     |      |
| Approach Delay (s)                |      | 8.1   | 0.0  |                           | 5.6   |      |
| Approach LOS                      |      | A     | A    |                           | A     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 7.6   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.60  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 58.3  |      | Sum of lost time (s)      |       | 15.5 |
| Intersection Capacity Utilization |      | 65.5% |      | ICU Level of Service      |       | C    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| c Critical Lane Group             |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 5: Cox Road & SR 524

Cox MUT 2045 PM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | ↑                                                                                   | ↗                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 918                                                                               | 330                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 15                                                                                  | 486                                                                                 | 0                                                                                   | 42                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 918                                                                               | 330                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 15                                                                                  | 486                                                                                 | 0                                                                                   | 42                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1535                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1912                                                                                | 1625                                                                                |                                                                                     | 1893                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1535                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1912                                                                                | 1625                                                                                |                                                                                     | 1893                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 966                                                                               | 347                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 16                                                                                  | 512                                                                                 | 0                                                                                   | 44                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 32                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 34                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 966                                                                               | 315                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 16                                                                                  | 478                                                                                 | 0                                                                                   | 44                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 8%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 26.1                                                                              | 26.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 18.7                                                                                | 18.7                                                                                |                                                                                     | 24.2                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 27.1                                                                              | 27.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 25.2                                                                                | 25.2                                                                                |                                                                                     | 25.2                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.46                                                                              | 0.46                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.43                                                                                | 0.43                                                                                |                                                                                     | 0.43                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1640                                                                              | 713                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 826                                                                                 | 702                                                                                 |                                                                                     | 818                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.27                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.01                                                                                |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.29                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.59                                                                              | 0.44                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.02                                                                                | 0.68                                                                                |                                                                                     | 0.05                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 11.5                                                                              | 10.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.5                                                                                 | 13.3                                                                                |                                                                                     | 9.6                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 0.67                                                                              | 0.56                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.10                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.5                                                                               | 0.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.0                                                                                 | 2.7                                                                                 |                                                                                     | 0.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 8.2                                                                               | 6.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.5                                                                                 | 16.0                                                                                |                                                                                     | 1.1                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                     | 15.8                                                                                |                                                                                     |                                                                                     | 1.1                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 9.8                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.78                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 58.3                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 60.7%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

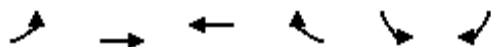
# HCM Signalized Intersection Capacity Analysis

Cox Partial DLT 2025 AM.syn

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11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   | ↑↑                                                                                | ↗                                                                                 | ↗                                                                                  | ↑                                                                                   |                                                                                     | ↗                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 496                                                                               | 119                                                                               | 0                                                                                 | 437                                                                               | 29                                                                                | 60                                                                                 | 12                                                                                  | 0                                                                                   | 66                                                                                  | 50                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 496                                                                               | 119                                                                               | 0                                                                                 | 437                                                                               | 29                                                                                | 60                                                                                 | 12                                                                                  | 0                                                                                   | 66                                                                                  | 50                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                               | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1557                                                                               | 1912                                                                                |                                                                                     | 1816                                                                                | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.63                                                                               | 1.00                                                                                |                                                                                     | 0.75                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1040                                                                               | 1912                                                                                |                                                                                     | 1432                                                                                | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 522                                                                               | 125                                                                               | 0                                                                                 | 460                                                                               | 31                                                                                | 63                                                                                 | 13                                                                                  | 0                                                                                   | 69                                                                                  | 53                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 74                                                                                | 0                                                                                 | 0                                                                                 | 18                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 522                                                                               | 51                                                                                | 0                                                                                 | 460                                                                               | 13                                                                                | 63                                                                                 | 13                                                                                  | 0                                                                                   | 69                                                                                  | 53                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 4%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 19%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   | NA                                                                                | Perm                                                                              | pm+pt                                                                              | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   | 3                                                                                  | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               | 8                                                                                  |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                               | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                               | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.41                                                                              | 0.41                                                                              |                                                                                   | 0.41                                                                              | 0.41                                                                              | 0.46                                                                               | 0.33                                                                                |                                                                                     | 0.38                                                                                | 0.29                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1432                                                                              | 653                                                                               |                                                                                   | 1432                                                                              | 666                                                                               | 545                                                                                | 630                                                                                 |                                                                                     | 578                                                                                 | 554                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.15                                                                             |                                                                                   |                                                                                   | 0.13                                                                              |                                                                                   | c0.02                                                                              | 0.01                                                                                |                                                                                     | 0.01                                                                                | 0.03                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.03                                                                              |                                                                                   |                                                                                   | 0.01                                                                              | c0.04                                                                              |                                                                                     |                                                                                     | 0.03                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.36                                                                              | 0.08                                                                              |                                                                                   | 0.32                                                                              | 0.02                                                                              | 0.12                                                                               | 0.02                                                                                |                                                                                     | 0.12                                                                                | 0.10                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 20.5                                                                              | 18.0                                                                              |                                                                                   | 20.0                                                                              | 17.5                                                                              | 15.3                                                                               | 22.6                                                                                |                                                                                     | 20.0                                                                                | 25.9                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.50                                                                               | 0.62                                                                                |                                                                                     | 0.33                                                                                | 0.51                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.7                                                                               | 0.2                                                                               |                                                                                   | 0.6                                                                               | 0.1                                                                               | 0.4                                                                                | 0.1                                                                                 |                                                                                     | 0.4                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 21.2                                                                              | 18.2                                                                              |                                                                                   | 20.6                                                                              | 17.6                                                                              | 8.0                                                                                | 14.1                                                                                |                                                                                     | 6.9                                                                                 | 13.6                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   | C                                                                                 | B                                                                                 | A                                                                                  | B                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 20.6                                                                              |                                                                                   |                                                                                   | 20.4                                                                              |                                                                                   |                                                                                    | 9.0                                                                                 |                                                                                     |                                                                                     | 9.8                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 18.9                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.26                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 31.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      |       |       |      |                           |      |
| Traffic Volume (vph)              | 16   | 615   | 497   | 0    | 0                         | 51   |
| Future Volume (vph)               | 16   | 615   | 497   | 0    | 0                         | 51   |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 5.0  | 4.0   | 5.0   |      |                           | 5.0  |
| Lane Util. Factor                 | 1.00 | 0.95  | 0.95  |      |                           | 1.00 |
| Frt                               | 1.00 | 1.00  | 1.00  |      |                           | 0.86 |
| Flt Protected                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 1816 | 3495  | 3431  |      |                           | 1654 |
| Flt Permitted                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 1816 | 3495  | 3431  |      |                           | 1654 |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 17   | 647   | 523   | 0    | 0                         | 54   |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 0                         | 38   |
| Lane Group Flow (vph)             | 17   | 647   | 523   | 0    | 0                         | 16   |
| Heavy Vehicles (%)                | 2%   | 6%    | 8%    | 2%   | 2%                        | 2%   |
| Turn Type                         | Prot | NA    | NA    |      |                           | Over |
| Protected Phases                  | 1    | Free  | 2     |      |                           | 1    |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             | 29.0 | 100.0 | 61.0  |      |                           | 29.0 |
| Effective Green, g (s)            | 29.0 | 100.0 | 61.0  |      |                           | 29.0 |
| Actuated g/C Ratio                | 0.29 | 1.00  | 0.61  |      |                           | 0.29 |
| Clearance Time (s)                | 5.0  |       | 5.0   |      |                           | 5.0  |
| Lane Grp Cap (vph)                | 526  | 3495  | 2092  |      |                           | 479  |
| v/s Ratio Prot                    | 0.01 | 0.19  | c0.15 |      |                           | 0.01 |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         | 0.03 | 0.19  | 0.25  |      |                           | 0.03 |
| Uniform Delay, d1                 | 25.4 | 0.0   | 9.0   |      |                           | 25.4 |
| Progression Factor                | 1.00 | 1.00  | 0.73  |      |                           | 1.00 |
| Incremental Delay, d2             | 0.1  | 0.1   | 0.3   |      |                           | 0.1  |
| Delay (s)                         | 25.6 | 0.1   | 6.8   |      |                           | 25.6 |
| Level of Service                  | C    | A     | A     |      |                           | C    |
| Approach Delay (s)                |      | 0.8   | 6.8   |      | 25.6                      |      |
| Approach LOS                      |      | A     | A     |      | C                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 4.4   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.24  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 100.0 |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 25.1% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Cox Road

Cox Partial DLT 2025 AM.syn  
11/18/2019



| Movement                          | EBL   | EBR  | NBL   | NBT   | SBT                       | SBR  |
|-----------------------------------|-------|------|-------|-------|---------------------------|------|
| Lane Configurations               |       |      |       |       |                           |      |
| Traffic Volume (vph)              | 16    | 0    | 0     | 12    | 116                       | 51   |
| Future Volume (vph)               | 16    | 0    | 0     | 12    | 116                       | 51   |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950  | 1950                      | 1950 |
| Total Lost time (s)               | 5.0   |      |       | 4.0   | 6.0                       |      |
| Lane Util. Factor                 | 1.00  |      |       | 1.00  | 1.00                      |      |
| Frt                               | 1.00  |      |       | 1.00  | 0.96                      |      |
| Flt Protected                     | 0.95  |      |       | 1.00  | 1.00                      |      |
| Satd. Flow (prot)                 | 1816  |      |       | 1912  | 1833                      |      |
| Flt Permitted                     | 0.95  |      |       | 1.00  | 1.00                      |      |
| Satd. Flow (perm)                 | 1816  |      |       | 1912  | 1833                      |      |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95  | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 17    | 0    | 0     | 13    | 122                       | 54   |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0     | 16                        | 0    |
| Lane Group Flow (vph)             | 17    | 0    | 0     | 13    | 160                       | 0    |
| Turn Type                         | Prot  |      |       | NA    | NA                        |      |
| Protected Phases                  | 2     |      |       | 1 7 8 | 3 4                       |      |
| Permitted Phases                  |       |      |       |       |                           |      |
| Actuated Green, G (s)             | 19.0  |      |       | 72.0  | 48.0                      |      |
| Effective Green, g (s)            | 19.0  |      |       | 60.0  | 48.0                      |      |
| Actuated g/C Ratio                | 0.19  |      |       | 0.60  | 0.48                      |      |
| Clearance Time (s)                | 5.0   |      |       |       |                           |      |
| Lane Grp Cap (vph)                | 345   |      |       | 1147  | 879                       |      |
| v/s Ratio Prot                    | c0.01 |      |       | c0.01 | c0.09                     |      |
| v/s Ratio Perm                    |       |      |       |       |                           |      |
| v/c Ratio                         | 0.05  |      |       | 0.01  | 0.18                      |      |
| Uniform Delay, d1                 | 33.1  |      |       | 8.1   | 14.8                      |      |
| Progression Factor                | 0.46  |      |       | 0.72  | 1.00                      |      |
| Incremental Delay, d2             | 0.3   |      |       | 0.0   | 0.5                       |      |
| Delay (s)                         | 15.5  |      |       | 5.8   | 15.3                      |      |
| Level of Service                  | B     |      |       | A     | B                         |      |
| Approach Delay (s)                | 15.5  |      |       | 5.8   | 15.3                      |      |
| Approach LOS                      | B     |      |       | A     | B                         |      |
| <b>Intersection Summary</b>       |       |      |       |       |                           |      |
| HCM 2000 Control Delay            |       |      | 14.7  |       | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio |       |      | 0.12  |       |                           |      |
| Actuated Cycle Length (s)         |       |      | 100.0 |       | Sum of lost time (s)      | 21.0 |
| Intersection Capacity Utilization |       |      | 21.5% |       | ICU Level of Service      | A    |
| Analysis Period (min)             |       |      | 15    |       |                           |      |
| c Critical Lane Group             |       |      |       |       |                           |      |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               | ↑↑                                                                                |                                                                                   | ↱                                                                                 | ↑↑                                                                                |                                                                                   | ↱                                                                                 |
| Traffic Volume (vph)              | 562                                                                               | 0                                                                                 | 127                                                                               | 466                                                                               | 0                                                                                 | 97                                                                                |
| Future Volume (vph)               | 562                                                                               | 0                                                                                 | 127                                                                               | 466                                                                               | 0                                                                                 | 97                                                                                |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 4.0                                                                               |                                                                                   | 5.0                                                                               |
| Lane Util. Factor                 | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |
| Frt                               | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.86                                                                              |
| Flt Protected                     | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Satd. Flow (prot)                 | 3495                                                                              |                                                                                   | 1799                                                                              | 3495                                                                              |                                                                                   | 1576                                                                              |
| Flt Permitted                     | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Satd. Flow (perm)                 | 3495                                                                              |                                                                                   | 1799                                                                              | 3495                                                                              |                                                                                   | 1576                                                                              |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 592                                                                               | 0                                                                                 | 134                                                                               | 491                                                                               | 0                                                                                 | 102                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 73                                                                                |
| Lane Group Flow (vph)             | 592                                                                               | 0                                                                                 | 134                                                                               | 491                                                                               | 0                                                                                 | 29                                                                                |
| Heavy Vehicles (%)                | 6%                                                                                | 2%                                                                                | 3%                                                                                | 6%                                                                                | 2%                                                                                | 7%                                                                                |
| Turn Type                         | NA                                                                                |                                                                                   | Prot                                                                              | NA                                                                                |                                                                                   | Over                                                                              |
| Protected Phases                  | 2                                                                                 |                                                                                   | 1                                                                                 | Free                                                                              |                                                                                   | 1                                                                                 |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 62.0                                                                              |                                                                                   | 28.0                                                                              | 100.0                                                                             |                                                                                   | 28.0                                                                              |
| Effective Green, g (s)            | 62.0                                                                              |                                                                                   | 28.0                                                                              | 100.0                                                                             |                                                                                   | 28.0                                                                              |
| Actuated g/C Ratio                | 0.62                                                                              |                                                                                   | 0.28                                                                              | 1.00                                                                              |                                                                                   | 0.28                                                                              |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                               |
| Lane Grp Cap (vph)                | 2166                                                                              |                                                                                   | 503                                                                               | 3495                                                                              |                                                                                   | 441                                                                               |
| v/s Ratio Prot                    | c0.17                                                                             |                                                                                   | c0.07                                                                             | 0.14                                                                              |                                                                                   | 0.02                                                                              |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.27                                                                              |                                                                                   | 0.27                                                                              | 0.14                                                                              |                                                                                   | 0.06                                                                              |
| Uniform Delay, d1                 | 8.7                                                                               |                                                                                   | 28.0                                                                              | 0.0                                                                               |                                                                                   | 26.4                                                                              |
| Progression Factor                | 0.76                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Incremental Delay, d2             | 0.3                                                                               |                                                                                   | 1.3                                                                               | 0.1                                                                               |                                                                                   | 0.3                                                                               |
| Delay (s)                         | 6.9                                                                               |                                                                                   | 29.3                                                                              | 0.1                                                                               |                                                                                   | 26.7                                                                              |
| Level of Service                  | A                                                                                 |                                                                                   | C                                                                                 | A                                                                                 |                                                                                   | C                                                                                 |
| Approach Delay (s)                | 6.9                                                                               |                                                                                   |                                                                                   | 6.3                                                                               | 26.7                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | C                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   | HCM 2000 Level of Service                                                         | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.27                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 10.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 30.3%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 41: Cox Road & WB DLT

Cox Partial DLT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Configurations               |  |                                                                                   |  |                                                                                   |                                                                                   |  |
| Traffic Volume (vph)              | 127                                                                               | 0                                                                                 | 72                                                                                | 97                                                                                | 0                                                                                 | 50                                                                                |
| Future Volume (vph)               | 127                                                                               | 0                                                                                 | 72                                                                                | 97                                                                                | 0                                                                                 | 50                                                                                |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                   | 4.0                                                                               |
| Lane Util. Factor                 | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Frt                               | 1.00                                                                              |                                                                                   | 0.92                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Flt Protected                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (prot)                 | 1799                                                                              |                                                                                   | 1623                                                                              |                                                                                   |                                                                                   | 1912                                                                              |
| Flt Permitted                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (perm)                 | 1799                                                                              |                                                                                   | 1623                                                                              |                                                                                   |                                                                                   | 1912                                                                              |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 134                                                                               | 0                                                                                 | 76                                                                                | 102                                                                               | 0                                                                                 | 53                                                                                |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 48                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Group Flow (vph)             | 134                                                                               | 0                                                                                 | 130                                                                               | 0                                                                                 | 0                                                                                 | 53                                                                                |
| Heavy Vehicles (%)                | 3%                                                                                | 2%                                                                                | 16%                                                                               | 7%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         | Prot                                                                              |                                                                                   | NA                                                                                |                                                                                   |                                                                                   | NA                                                                                |
| Protected Phases                  | 2                                                                                 |                                                                                   | 3 4                                                                               |                                                                                   |                                                                                   | 1 7 8                                                                             |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 72.0                                                                              |
| Effective Green, g (s)            | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 60.0                                                                              |
| Actuated g/C Ratio                | 0.19                                                                              |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   | 0.60                                                                              |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                | 341                                                                               |                                                                                   | 779                                                                               |                                                                                   |                                                                                   | 1147                                                                              |
| v/s Ratio Prot                    | c0.07                                                                             |                                                                                   | c0.08                                                                             |                                                                                   |                                                                                   | c0.03                                                                             |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.39                                                                              |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   | 0.05                                                                              |
| Uniform Delay, d1                 | 35.5                                                                              |                                                                                   | 14.7                                                                              |                                                                                   |                                                                                   | 8.2                                                                               |
| Progression Factor                | 0.43                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 0.70                                                                              |
| Incremental Delay, d2             | 3.3                                                                               |                                                                                   | 0.5                                                                               |                                                                                   |                                                                                   | 0.1                                                                               |
| Delay (s)                         | 18.6                                                                              |                                                                                   | 15.2                                                                              |                                                                                   |                                                                                   | 5.9                                                                               |
| Level of Service                  | B                                                                                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| Approach Delay (s)                | 18.6                                                                              |                                                                                   | 15.2                                                                              |                                                                                   |                                                                                   | 5.9                                                                               |
| Approach LOS                      | B                                                                                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 15.1                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 21.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 25.5%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

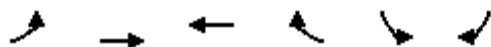
Cox Partial DLT 2025 PM.syn

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11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   | ↑↑                                                                                | ↗                                                                                 | ↗                                                                                   | ↑                                                                                   |                                                                                     | ↗                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 464                                                                               | 47                                                                                | 0                                                                                 | 522                                                                               | 89                                                                                | 74                                                                                  | 37                                                                                  | 0                                                                                   | 36                                                                                  | 33                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 464                                                                               | 47                                                                                | 0                                                                                 | 522                                                                               | 89                                                                                | 74                                                                                  | 37                                                                                  | 0                                                                                   | 36                                                                                  | 33                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                 | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1579                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1816                                                                                | 1912                                                                                |                                                                                     | 1799                                                                                | 1893                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.65                                                                                | 1.00                                                                                |                                                                                     | 0.73                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1579                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1234                                                                                | 1912                                                                                |                                                                                     | 1385                                                                                | 1893                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 488                                                                               | 49                                                                                | 0                                                                                 | 549                                                                               | 94                                                                                | 78                                                                                  | 39                                                                                  | 0                                                                                   | 38                                                                                  | 35                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 29                                                                                | 0                                                                                 | 0                                                                                 | 55                                                                                | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 488                                                                               | 20                                                                                | 0                                                                                 | 549                                                                               | 39                                                                                | 78                                                                                  | 39                                                                                  | 0                                                                                   | 38                                                                                  | 35                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 5%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   | 3                                                                                   | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                                | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                                | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.41                                                                              | 0.41                                                                              |                                                                                   | 0.41                                                                              | 0.41                                                                              | 0.46                                                                                | 0.33                                                                                |                                                                                     | 0.38                                                                                | 0.29                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.0                                                                                 | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1432                                                                              | 647                                                                               |                                                                                   | 1432                                                                              | 666                                                                               | 643                                                                                 | 630                                                                                 |                                                                                     | 563                                                                                 | 548                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | 0.14                                                                              |                                                                                   |                                                                                   | c0.16                                                                             |                                                                                   | c0.02                                                                               | 0.02                                                                                |                                                                                     | 0.01                                                                                | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.01                                                                              |                                                                                   |                                                                                   | 0.02                                                                              | c0.04                                                                               |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.34                                                                              | 0.03                                                                              |                                                                                   | 0.38                                                                              | 0.06                                                                              | 0.12                                                                                | 0.06                                                                                |                                                                                     | 0.07                                                                                | 0.06                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 20.2                                                                              | 17.6                                                                              |                                                                                   | 20.7                                                                              | 17.8                                                                              | 15.3                                                                                | 22.9                                                                                |                                                                                     | 19.6                                                                                | 25.7                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.40                                                                                | 0.52                                                                                |                                                                                     | 0.34                                                                                | 0.57                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.6                                                                               | 0.1                                                                               |                                                                                   | 0.8                                                                               | 0.2                                                                               | 0.4                                                                                 | 0.2                                                                                 |                                                                                     | 0.2                                                                                 | 0.2                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 20.9                                                                              | 17.7                                                                              |                                                                                   | 21.4                                                                              | 18.0                                                                              | 6.5                                                                                 | 12.2                                                                                |                                                                                     | 6.9                                                                                 | 14.9                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   | C                                                                                 | B                                                                                 | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 20.6                                                                              |                                                                                   |                                                                                   | 20.9                                                                              |                                                                                   |                                                                                     | 8.4                                                                                 |                                                                                     |                                                                                     | 10.8                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 19.2                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.27                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 33.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

c Critical Lane Group



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      |       |       |      |                           |      |
| Traffic Volume (vph)              | 42   | 511   | 596   | 0    | 0                         | 29   |
| Future Volume (vph)               | 42   | 511   | 596   | 0    | 0                         | 29   |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 5.0  | 4.0   | 5.0   |      |                           | 5.0  |
| Lane Util. Factor                 | 1.00 | 0.95  | 0.95  |      |                           | 1.00 |
| Frt                               | 1.00 | 1.00  | 1.00  |      |                           | 0.86 |
| Flt Protected                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 1816 | 3495  | 3529  |      |                           | 1654 |
| Flt Permitted                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 1816 | 3495  | 3529  |      |                           | 1654 |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 44   | 538   | 627   | 0    | 0                         | 31   |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 0                         | 22   |
| Lane Group Flow (vph)             | 44   | 538   | 627   | 0    | 0                         | 9    |
| Heavy Vehicles (%)                | 2%   | 6%    | 5%    | 2%   | 2%                        | 2%   |
| Turn Type                         | Prot | NA    | NA    |      |                           | Over |
| Protected Phases                  | 1    | Free  | 2     |      |                           | 1    |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             | 29.0 | 100.0 | 61.0  |      |                           | 29.0 |
| Effective Green, g (s)            | 29.0 | 100.0 | 61.0  |      |                           | 29.0 |
| Actuated g/C Ratio                | 0.29 | 1.00  | 0.61  |      |                           | 0.29 |
| Clearance Time (s)                | 5.0  |       | 5.0   |      |                           | 5.0  |
| Lane Grp Cap (vph)                | 526  | 3495  | 2152  |      |                           | 479  |
| v/s Ratio Prot                    | 0.02 | 0.15  | c0.18 |      |                           | 0.01 |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         | 0.08 | 0.15  | 0.29  |      |                           | 0.02 |
| Uniform Delay, d1                 | 25.8 | 0.0   | 9.2   |      |                           | 25.3 |
| Progression Factor                | 1.00 | 1.00  | 0.71  |      |                           | 1.00 |
| Incremental Delay, d2             | 0.3  | 0.1   | 0.3   |      |                           | 0.1  |
| Delay (s)                         | 26.1 | 0.1   | 6.9   |      |                           | 25.4 |
| Level of Service                  | C    | A     | A     |      |                           | C    |
| Approach Delay (s)                |      | 2.1   | 6.9   |      | 25.4                      |      |
| Approach LOS                      |      | A     | A     |      | C                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 5.1   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.26  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 100.0 |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 27.7% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Cox Road

Cox Partial DLT 2025 PM.syn

11/18/2019



| Movement                          | EBL                                                                               | EBR  | NBL   | NBT                                                                               | SBT                                                                               | SBR  |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations               |  |      |       |  |  |      |
| Traffic Volume (vph)              | 42                                                                                | 0    | 0     | 37                                                                                | 69                                                                                | 29   |
| Future Volume (vph)               | 42                                                                                | 0    | 0     | 37                                                                                | 69                                                                                | 29   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950 | 1950  | 1950                                                                              | 1950                                                                              | 1950 |
| Total Lost time (s)               | 5.0                                                                               |      |       | 4.0                                                                               | 6.0                                                                               |      |
| Lane Util. Factor                 | 1.00                                                                              |      |       | 1.00                                                                              | 1.00                                                                              |      |
| Frt                               | 1.00                                                                              |      |       | 1.00                                                                              | 0.96                                                                              |      |
| Flt Protected                     | 0.95                                                                              |      |       | 1.00                                                                              | 1.00                                                                              |      |
| Satd. Flow (prot)                 | 1816                                                                              |      |       | 1912                                                                              | 1822                                                                              |      |
| Flt Permitted                     | 0.95                                                                              |      |       | 1.00                                                                              | 1.00                                                                              |      |
| Satd. Flow (perm)                 | 1816                                                                              |      |       | 1912                                                                              | 1822                                                                              |      |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95 | 0.95  | 0.95                                                                              | 0.95                                                                              | 0.95 |
| Adj. Flow (vph)                   | 44                                                                                | 0    | 0     | 39                                                                                | 73                                                                                | 31   |
| RTOR Reduction (vph)              | 0                                                                                 | 0    | 0     | 0                                                                                 | 15                                                                                | 0    |
| Lane Group Flow (vph)             | 44                                                                                | 0    | 0     | 39                                                                                | 89                                                                                | 0    |
| Heavy Vehicles (%)                | 2%                                                                                | 2%   | 2%    | 2%                                                                                | 3%                                                                                | 2%   |
| Turn Type                         | Prot                                                                              |      |       | NA                                                                                | NA                                                                                |      |
| Protected Phases                  | 2                                                                                 |      |       | 1 7 8                                                                             | 3 4                                                                               |      |
| Permitted Phases                  |                                                                                   |      |       |                                                                                   |                                                                                   |      |
| Actuated Green, G (s)             | 19.0                                                                              |      |       | 72.0                                                                              | 48.0                                                                              |      |
| Effective Green, g (s)            | 19.0                                                                              |      |       | 60.0                                                                              | 48.0                                                                              |      |
| Actuated g/C Ratio                | 0.19                                                                              |      |       | 0.60                                                                              | 0.48                                                                              |      |
| Clearance Time (s)                | 5.0                                                                               |      |       |                                                                                   |                                                                                   |      |
| Lane Grp Cap (vph)                | 345                                                                               |      |       | 1147                                                                              | 874                                                                               |      |
| v/s Ratio Prot                    | c0.02                                                                             |      |       | c0.02                                                                             | c0.05                                                                             |      |
| v/s Ratio Perm                    |                                                                                   |      |       |                                                                                   |                                                                                   |      |
| v/c Ratio                         | 0.13                                                                              |      |       | 0.03                                                                              | 0.10                                                                              |      |
| Uniform Delay, d1                 | 33.6                                                                              |      |       | 8.2                                                                               | 14.2                                                                              |      |
| Progression Factor                | 0.46                                                                              |      |       | 0.71                                                                              | 1.00                                                                              |      |
| Incremental Delay, d2             | 0.8                                                                               |      |       | 0.1                                                                               | 0.2                                                                               |      |
| Delay (s)                         | 16.1                                                                              |      |       | 5.8                                                                               | 14.4                                                                              |      |
| Level of Service                  | B                                                                                 |      |       | A                                                                                 | B                                                                                 |      |
| Approach Delay (s)                | 16.1                                                                              |      |       | 5.8                                                                               | 14.4                                                                              |      |
| Approach LOS                      | B                                                                                 |      |       | A                                                                                 | B                                                                                 |      |
| Intersection Summary              |                                                                                   |      |       |                                                                                   |                                                                                   |      |
| HCM 2000 Control Delay            |                                                                                   |      | 13.0  | HCM 2000 Level of Service                                                         |                                                                                   | B    |
| HCM 2000 Volume to Capacity ratio |                                                                                   |      | 0.10  |                                                                                   |                                                                                   |      |
| Actuated Cycle Length (s)         |                                                                                   |      | 100.0 | Sum of lost time (s)                                                              |                                                                                   | 21.0 |
| Intersection Capacity Utilization |                                                                                   |      | 17.8% | ICU Level of Service                                                              |                                                                                   | A    |
| Analysis Period (min)             |                                                                                   |      | 15    |                                                                                   |                                                                                   |      |
| c Critical Lane Group             |                                                                                   |      |       |                                                                                   |                                                                                   |      |

| Movement                          | EBT   | EBR  | WBL   | WBT   | NBL                       | NBR  |
|-----------------------------------|-------|------|-------|-------|---------------------------|------|
| Lane Configurations               | ↑↑    |      | ↱     | ↑↑    |                           | ↱    |
| Traffic Volume (vph)              | 500   | 0    | 127   | 611   | 0                         | 177  |
| Future Volume (vph)               | 500   | 0    | 127   | 611   | 0                         | 177  |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950  | 1950                      | 1950 |
| Total Lost time (s)               | 5.0   |      | 5.0   | 4.0   |                           | 5.0  |
| Lane Util. Factor                 | 0.95  |      | 1.00  | 0.95  |                           | 1.00 |
| Frt                               | 1.00  |      | 1.00  | 1.00  |                           | 0.86 |
| Flt Protected                     | 1.00  |      | 0.95  | 1.00  |                           | 1.00 |
| Satd. Flow (prot)                 | 3495  |      | 1684  | 3529  |                           | 1654 |
| Flt Permitted                     | 1.00  |      | 0.95  | 1.00  |                           | 1.00 |
| Satd. Flow (perm)                 | 3495  |      | 1684  | 3529  |                           | 1654 |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95  | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 526   | 0    | 134   | 643   | 0                         | 186  |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0     | 0                         | 134  |
| Lane Group Flow (vph)             | 526   | 0    | 134   | 643   | 0                         | 52   |
| Heavy Vehicles (%)                | 6%    | 2%   | 10%   | 5%    | 2%                        | 2%   |
| Turn Type                         | NA    |      | Prot  | NA    |                           | Over |
| Protected Phases                  | 2     |      | 1     | Free  |                           | 1    |
| Permitted Phases                  |       |      |       |       |                           |      |
| Actuated Green, G (s)             | 62.0  |      | 28.0  | 100.0 |                           | 28.0 |
| Effective Green, g (s)            | 62.0  |      | 28.0  | 100.0 |                           | 28.0 |
| Actuated g/C Ratio                | 0.62  |      | 0.28  | 1.00  |                           | 0.28 |
| Clearance Time (s)                | 5.0   |      | 5.0   |       |                           | 5.0  |
| Lane Grp Cap (vph)                | 2166  |      | 471   | 3529  |                           | 463  |
| v/s Ratio Prot                    | c0.15 |      | c0.08 | 0.18  |                           | 0.03 |
| v/s Ratio Perm                    |       |      |       |       |                           |      |
| v/c Ratio                         | 0.24  |      | 0.28  | 0.18  |                           | 0.11 |
| Uniform Delay, d1                 | 8.5   |      | 28.2  | 0.0   |                           | 26.8 |
| Progression Factor                | 0.74  |      | 1.00  | 1.00  |                           | 1.00 |
| Incremental Delay, d2             | 0.3   |      | 1.5   | 0.1   |                           | 0.5  |
| Delay (s)                         | 6.6   |      | 29.7  | 0.1   |                           | 27.2 |
| Level of Service                  | A     |      | C     | A     |                           | C    |
| Approach Delay (s)                | 6.6   |      |       | 5.2   | 27.2                      |      |
| Approach LOS                      | A     |      |       | A     | C                         |      |
| <b>Intersection Summary</b>       |       |      |       |       |                           |      |
| HCM 2000 Control Delay            |       |      | 8.4   |       | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |       |      | 0.26  |       |                           |      |
| Actuated Cycle Length (s)         |       |      | 100.0 |       | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |       |      | 32.5% |       | ICU Level of Service      | A    |
| Analysis Period (min)             |       |      | 15    |       |                           |      |
| c Critical Lane Group             |       |      |       |       |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 41: Cox Road & WB DLT

Cox Partial DLT 2025 PM.syn  
11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Configurations               |  |                                                                                   |  |                                                                                   |                                                                                   |  |
| Traffic Volume (vph)              | 127                                                                               | 0                                                                                 | 111                                                                               | 177                                                                               | 0                                                                                 | 33                                                                                |
| Future Volume (vph)               | 127                                                                               | 0                                                                                 | 111                                                                               | 177                                                                               | 0                                                                                 | 33                                                                                |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                   | 4.0                                                                               |
| Lane Util. Factor                 | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Frt                               | 1.00                                                                              |                                                                                   | 0.92                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Flt Protected                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (prot)                 | 1684                                                                              |                                                                                   | 1753                                                                              |                                                                                   |                                                                                   | 1893                                                                              |
| Flt Permitted                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (perm)                 | 1684                                                                              |                                                                                   | 1753                                                                              |                                                                                   |                                                                                   | 1893                                                                              |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 134                                                                               | 0                                                                                 | 117                                                                               | 186                                                                               | 0                                                                                 | 35                                                                                |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 57                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Group Flow (vph)             | 134                                                                               | 0                                                                                 | 246                                                                               | 0                                                                                 | 0                                                                                 | 35                                                                                |
| Heavy Vehicles (%)                | 10%                                                                               | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                |
| Turn Type                         | Prot                                                                              |                                                                                   | NA                                                                                |                                                                                   |                                                                                   | NA                                                                                |
| Protected Phases                  | 2                                                                                 |                                                                                   | 3 4                                                                               |                                                                                   |                                                                                   | 1 7 8                                                                             |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 72.0                                                                              |
| Effective Green, g (s)            | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 60.0                                                                              |
| Actuated g/C Ratio                | 0.19                                                                              |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   | 0.60                                                                              |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                | 319                                                                               |                                                                                   | 841                                                                               |                                                                                   |                                                                                   | 1135                                                                              |
| v/s Ratio Prot                    | c0.08                                                                             |                                                                                   | c0.14                                                                             |                                                                                   |                                                                                   | c0.02                                                                             |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.42                                                                              |                                                                                   | 0.29                                                                              |                                                                                   |                                                                                   | 0.03                                                                              |
| Uniform Delay, d1                 | 35.7                                                                              |                                                                                   | 15.7                                                                              |                                                                                   |                                                                                   | 8.2                                                                               |
| Progression Factor                | 0.43                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 0.58                                                                              |
| Incremental Delay, d2             | 3.9                                                                               |                                                                                   | 0.9                                                                               |                                                                                   |                                                                                   | 0.1                                                                               |
| Delay (s)                         | 19.3                                                                              |                                                                                   | 16.6                                                                              |                                                                                   |                                                                                   | 4.8                                                                               |
| Level of Service                  | B                                                                                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| Approach Delay (s)                | 19.3                                                                              |                                                                                   | 16.6                                                                              |                                                                                   |                                                                                   | 4.8                                                                               |
| Approach LOS                      | B                                                                                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 16.5                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.29                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 21.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 32.3%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

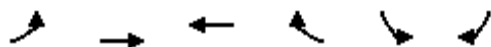
Cox Partial DLT 2045 AM.syn

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11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   | ↑↑                                                                                | ↗                                                                                 | ↗                                                                                   | ↑                                                                                   |                                                                                     | ↗                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1048                                                                              | 192                                                                               | 0                                                                                 | 981                                                                               | 57                                                                                | 128                                                                                 | 24                                                                                  | 0                                                                                   | 71                                                                                  | 66                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1048                                                                              | 192                                                                               | 0                                                                                 | 981                                                                               | 57                                                                                | 128                                                                                 | 24                                                                                  | 0                                                                                   | 71                                                                                  | 66                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                 | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1557                                                                                | 1912                                                                                |                                                                                     | 1816                                                                                | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.63                                                                                | 1.00                                                                                |                                                                                     | 0.74                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1594                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1025                                                                                | 1912                                                                                |                                                                                     | 1417                                                                                | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1103                                                                              | 202                                                                               | 0                                                                                 | 1033                                                                              | 60                                                                                | 135                                                                                 | 25                                                                                  | 0                                                                                   | 75                                                                                  | 69                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 114                                                                               | 0                                                                                 | 0                                                                                 | 35                                                                                | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1103                                                                              | 88                                                                                | 0                                                                                 | 1033                                                                              | 25                                                                                | 135                                                                                 | 25                                                                                  | 0                                                                                   | 75                                                                                  | 69                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 4%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 19%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   | NA                                                                                | Perm                                                                              | pm+pt                                                                               | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   | 3                                                                                   | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                                | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                                | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.41                                                                              | 0.41                                                                              |                                                                                   | 0.41                                                                              | 0.41                                                                              | 0.46                                                                                | 0.33                                                                                |                                                                                     | 0.38                                                                                | 0.29                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.0                                                                                 | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1432                                                                              | 653                                                                               |                                                                                   | 1432                                                                              | 666                                                                               | 540                                                                                 | 630                                                                                 |                                                                                     | 574                                                                                 | 554                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.32                                                                             |                                                                                   |                                                                                   | 0.30                                                                              |                                                                                   | c0.03                                                                               | 0.01                                                                                |                                                                                     | 0.01                                                                                | 0.04                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.05                                                                              |                                                                                   |                                                                                   | 0.02                                                                              | c0.08                                                                               |                                                                                     |                                                                                     | 0.04                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.77                                                                              | 0.13                                                                              |                                                                                   | 0.72                                                                              | 0.04                                                                              | 0.25                                                                                | 0.04                                                                                |                                                                                     | 0.13                                                                                | 0.12                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 25.4                                                                              | 18.4                                                                              |                                                                                   | 24.7                                                                              | 17.7                                                                              | 16.1                                                                                | 22.7                                                                                |                                                                                     | 20.0                                                                                | 26.1                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.30                                                                                | 0.40                                                                                |                                                                                     | 0.39                                                                                | 0.51                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 3.8                                                                               | 0.4                                                                               |                                                                                   | 3.1                                                                               | 0.1                                                                               | 1.0                                                                                 | 0.1                                                                                 |                                                                                     | 0.5                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 29.3                                                                              | 18.8                                                                              |                                                                                   | 27.8                                                                              | 17.8                                                                              | 5.8                                                                                 | 9.3                                                                                 |                                                                                     | 8.2                                                                                 | 13.9                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   | C                                                                                 | B                                                                                 | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 27.7                                                                              |                                                                                   |                                                                                   | 27.2                                                                              |                                                                                   |                                                                                     | 6.3                                                                                 |                                                                                     |                                                                                     | 11.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 25.3                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.54                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 50.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

c Critical Lane Group



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      |       |       |      |                           |      |
| Traffic Volume (vph)              | 29   | 1240  | 1109  | 0    | 0                         | 99   |
| Future Volume (vph)               | 29   | 1240  | 1109  | 0    | 0                         | 99   |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 5.0  | 4.0   | 5.0   |      |                           | 5.0  |
| Lane Util. Factor                 | 1.00 | 0.95  | 0.95  |      |                           | 1.00 |
| Frt                               | 1.00 | 1.00  | 1.00  |      |                           | 0.86 |
| Flt Protected                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 1816 | 3495  | 3431  |      |                           | 1654 |
| Flt Permitted                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 1816 | 3495  | 3431  |      |                           | 1654 |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 31   | 1305  | 1167  | 0    | 0                         | 104  |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 0                         | 61   |
| Lane Group Flow (vph)             | 31   | 1305  | 1167  | 0    | 0                         | 43   |
| Heavy Vehicles (%)                | 2%   | 6%    | 8%    | 2%   | 2%                        | 2%   |
| Turn Type                         | Prot | NA    | NA    |      |                           | Over |
| Protected Phases                  | 1    | Free  | 2     |      |                           | 1    |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             | 29.0 | 100.0 | 61.0  |      |                           | 29.0 |
| Effective Green, g (s)            | 29.0 | 100.0 | 61.0  |      |                           | 29.0 |
| Actuated g/C Ratio                | 0.29 | 1.00  | 0.61  |      |                           | 0.29 |
| Clearance Time (s)                | 5.0  |       | 5.0   |      |                           | 5.0  |
| Lane Grp Cap (vph)                | 526  | 3495  | 2092  |      |                           | 479  |
| v/s Ratio Prot                    | 0.02 | 0.37  | 0.34  |      |                           | 0.03 |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         | 0.06 | 0.37  | 0.56  |      |                           | 0.09 |
| Uniform Delay, d1                 | 25.6 | 0.0   | 11.5  |      |                           | 25.9 |
| Progression Factor                | 1.00 | 1.00  | 0.72  |      |                           | 1.36 |
| Incremental Delay, d2             | 0.2  | 0.3   | 0.8   |      |                           | 0.4  |
| Delay (s)                         | 25.9 | 0.3   | 9.2   |      |                           | 35.6 |
| Level of Service                  | C    | A     | A     |      |                           | D    |
| Approach Delay (s)                |      | 0.9   | 9.2   |      | 35.6                      |      |
| Approach LOS                      |      | A     | A     |      | D                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 6.0   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.52  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 100.0 |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 44.2% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Cox Road

Cox Partial DLT 2045 AM.syn

11/18/2019



| Movement               | EBL   | EBR  | NBL  | NBT   | SBT   | SBR  |
|------------------------|-------|------|------|-------|-------|------|
| Lane Configurations    |       |      |      |       |       |      |
| Traffic Volume (vph)   | 29    | 0    | 0    | 24    | 137   | 99   |
| Future Volume (vph)    | 29    | 0    | 0    | 24    | 137   | 99   |
| Ideal Flow (vphpl)     | 1950  | 1950 | 1950 | 1950  | 1950  | 1950 |
| Total Lost time (s)    | 5.0   |      |      | 4.0   | 6.0   |      |
| Lane Util. Factor      | 1.00  |      |      | 1.00  | 1.00  |      |
| Frt                    | 1.00  |      |      | 1.00  | 0.94  |      |
| Flt Protected          | 0.95  |      |      | 1.00  | 1.00  |      |
| Satd. Flow (prot)      | 1816  |      |      | 1912  | 1804  |      |
| Flt Permitted          | 0.95  |      |      | 1.00  | 1.00  |      |
| Satd. Flow (perm)      | 1816  |      |      | 1912  | 1804  |      |
| Peak-hour factor, PHF  | 0.95  | 0.95 | 0.95 | 0.95  | 0.95  | 0.95 |
| Adj. Flow (vph)        | 31    | 0    | 0    | 25    | 144   | 104  |
| RTOR Reduction (vph)   | 0     | 0    | 0    | 0     | 26    | 0    |
| Lane Group Flow (vph)  | 31    | 0    | 0    | 25    | 222   | 0    |
| Turn Type              | Prot  |      |      | NA    | NA    |      |
| Protected Phases       | 2     |      |      | 1 7 8 | 3 4   |      |
| Permitted Phases       |       |      |      |       |       |      |
| Actuated Green, G (s)  | 19.0  |      |      | 72.0  | 48.0  |      |
| Effective Green, g (s) | 19.0  |      |      | 60.0  | 48.0  |      |
| Actuated g/C Ratio     | 0.19  |      |      | 0.60  | 0.48  |      |
| Clearance Time (s)     | 5.0   |      |      |       |       |      |
| Lane Grp Cap (vph)     | 345   |      |      | 1147  | 865   |      |
| v/s Ratio Prot         | c0.02 |      |      | c0.01 | c0.12 |      |
| v/s Ratio Perm         |       |      |      |       |       |      |
| v/c Ratio              | 0.09  |      |      | 0.02  | 0.26  |      |
| Uniform Delay, d1      | 33.4  |      |      | 8.1   | 15.4  |      |
| Progression Factor     | 0.46  |      |      | 0.71  | 1.00  |      |
| Incremental Delay, d2  | 0.5   |      |      | 0.0   | 0.7   |      |
| Delay (s)              | 15.8  |      |      | 5.8   | 16.1  |      |
| Level of Service       | B     |      |      | A     | B     |      |
| Approach Delay (s)     | 15.8  |      |      | 5.8   | 16.1  |      |
| Approach LOS           | B     |      |      | A     | B     |      |

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| <b>Intersection Summary</b>       |       |                           |      |
| HCM 2000 Control Delay            | 15.3  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.18  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 21.0 |
| Intersection Capacity Utilization | 25.4% | ICU Level of Service      | A    |
| Analysis Period (min)             | 15    |                           |      |
| c Critical Lane Group             |       |                           |      |

| Movement                          | EBT   | EBR  | WBL   | WBT   | NBL                       | NBR  |
|-----------------------------------|-------|------|-------|-------|---------------------------|------|
| Lane Configurations               | ↑↑    |      | ↱     | ↑↑    |                           | ↱    |
| Traffic Volume (vph)              | 1119  | 0    | 180   | 1038  | 0                         | 160  |
| Future Volume (vph)               | 1119  | 0    | 180   | 1038  | 0                         | 160  |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950  | 1950                      | 1950 |
| Total Lost time (s)               | 5.0   |      | 5.0   | 4.0   |                           | 5.0  |
| Lane Util. Factor                 | 0.95  |      | 1.00  | 0.95  |                           | 1.00 |
| Frt                               | 1.00  |      | 1.00  | 1.00  |                           | 0.86 |
| Flt Protected                     | 1.00  |      | 0.95  | 1.00  |                           | 1.00 |
| Satd. Flow (prot)                 | 3495  |      | 1799  | 3495  |                           | 1576 |
| Flt Permitted                     | 1.00  |      | 0.95  | 1.00  |                           | 1.00 |
| Satd. Flow (perm)                 | 3495  |      | 1799  | 3495  |                           | 1576 |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95  | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 1178  | 0    | 189   | 1093  | 0                         | 168  |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0     | 0                         | 63   |
| Lane Group Flow (vph)             | 1178  | 0    | 189   | 1093  | 0                         | 105  |
| Heavy Vehicles (%)                | 6%    | 2%   | 3%    | 6%    | 2%                        | 7%   |
| Turn Type                         | NA    |      | Prot  | NA    |                           | Over |
| Protected Phases                  | 2     |      | 1     | Free  |                           | 1    |
| Permitted Phases                  |       |      |       |       |                           |      |
| Actuated Green, G (s)             | 62.0  |      | 28.0  | 100.0 |                           | 28.0 |
| Effective Green, g (s)            | 62.0  |      | 28.0  | 100.0 |                           | 28.0 |
| Actuated g/C Ratio                | 0.62  |      | 0.28  | 1.00  |                           | 0.28 |
| Clearance Time (s)                | 5.0   |      | 5.0   |       |                           | 5.0  |
| Lane Grp Cap (vph)                | 2166  |      | 503   | 3495  |                           | 441  |
| v/s Ratio Prot                    | c0.34 |      | c0.11 | 0.31  |                           | 0.07 |
| v/s Ratio Perm                    |       |      |       |       |                           |      |
| v/c Ratio                         | 0.54  |      | 0.38  | 0.31  |                           | 0.24 |
| Uniform Delay, d1                 | 10.9  |      | 29.0  | 0.0   |                           | 27.8 |
| Progression Factor                | 0.74  |      | 1.00  | 1.00  |                           | 0.91 |
| Incremental Delay, d2             | 0.7   |      | 2.1   | 0.2   |                           | 1.2  |
| Delay (s)                         | 8.7   |      | 31.1  | 0.2   |                           | 26.4 |
| Level of Service                  | A     |      | C     | A     |                           | C    |
| Approach Delay (s)                | 8.7   |      |       | 4.8   | 26.4                      |      |
| Approach LOS                      | A     |      |       | A     | C                         |      |
| <b>Intersection Summary</b>       |       |      |       |       |                           |      |
| HCM 2000 Control Delay            |       |      | 7.9   |       | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |       |      | 0.49  |       |                           |      |
| Actuated Cycle Length (s)         |       |      | 100.0 |       | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |       |      | 48.2% |       | ICU Level of Service      | A    |
| Analysis Period (min)             |       |      | 15    |       |                           |      |
| c Critical Lane Group             |       |      |       |       |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 41: Cox Road & WB DLT

Cox Partial DLT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Configurations               |  |                                                                                   |  |                                                                                   |                                                                                   |  |
| Traffic Volume (vph)              | 180                                                                               | 0                                                                                 | 152                                                                               | 160                                                                               | 0                                                                                 | 66                                                                                |
| Future Volume (vph)               | 180                                                                               | 0                                                                                 | 152                                                                               | 160                                                                               | 0                                                                                 | 66                                                                                |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                   | 4.0                                                                               |
| Lane Util. Factor                 | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Frt                               | 1.00                                                                              |                                                                                   | 0.93                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Flt Protected                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (prot)                 | 1799                                                                              |                                                                                   | 1674                                                                              |                                                                                   |                                                                                   | 1912                                                                              |
| Flt Permitted                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (perm)                 | 1799                                                                              |                                                                                   | 1674                                                                              |                                                                                   |                                                                                   | 1912                                                                              |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 189                                                                               | 0                                                                                 | 160                                                                               | 168                                                                               | 0                                                                                 | 69                                                                                |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 38                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Group Flow (vph)             | 189                                                                               | 0                                                                                 | 290                                                                               | 0                                                                                 | 0                                                                                 | 69                                                                                |
| Heavy Vehicles (%)                | 3%                                                                                | 2%                                                                                | 10%                                                                               | 7%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         | Prot                                                                              |                                                                                   | NA                                                                                |                                                                                   |                                                                                   | NA                                                                                |
| Protected Phases                  | 2                                                                                 |                                                                                   | 3 4                                                                               |                                                                                   |                                                                                   | 1 7 8                                                                             |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 72.0                                                                              |
| Effective Green, g (s)            | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 60.0                                                                              |
| Actuated g/C Ratio                | 0.19                                                                              |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   | 0.60                                                                              |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                | 341                                                                               |                                                                                   | 803                                                                               |                                                                                   |                                                                                   | 1147                                                                              |
| v/s Ratio Prot                    | c0.11                                                                             |                                                                                   | c0.17                                                                             |                                                                                   |                                                                                   | c0.04                                                                             |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.55                                                                              |                                                                                   | 0.36                                                                              |                                                                                   |                                                                                   | 0.06                                                                              |
| Uniform Delay, d1                 | 36.7                                                                              |                                                                                   | 16.4                                                                              |                                                                                   |                                                                                   | 8.3                                                                               |
| Progression Factor                | 0.43                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 0.74                                                                              |
| Incremental Delay, d2             | 6.0                                                                               |                                                                                   | 1.3                                                                               |                                                                                   |                                                                                   | 0.1                                                                               |
| Delay (s)                         | 21.8                                                                              |                                                                                   | 17.6                                                                              |                                                                                   |                                                                                   | 6.3                                                                               |
| Level of Service                  | C                                                                                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| Approach Delay (s)                | 21.8                                                                              |                                                                                   | 17.6                                                                              |                                                                                   |                                                                                   | 6.3                                                                               |
| Approach LOS                      | C                                                                                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 17.6                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.37                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 21.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.2%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

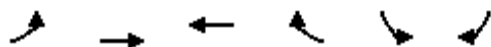
Cox Partial DLT 2045 PM.syn

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11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   | ↑↑                                                                                | ↗                                                                                 | ↗                                                                                  | ↑                                                                                   |                                                                                     | ↗                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 783                                                                               | 144                                                                               | 0                                                                                 | 960                                                                               | 145                                                                               | 171                                                                                | 15                                                                                  | 0                                                                                   | 51                                                                                  | 42                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 783                                                                               | 144                                                                               | 0                                                                                 | 960                                                                               | 145                                                                               | 171                                                                                | 15                                                                                  | 0                                                                                   | 51                                                                                  | 42                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                               | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1579                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1816                                                                               | 1912                                                                                |                                                                                     | 1799                                                                                | 1893                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.64                                                                               | 1.00                                                                                |                                                                                     | 0.75                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1579                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1224                                                                               | 1912                                                                                |                                                                                     | 1414                                                                                | 1893                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 824                                                                               | 152                                                                               | 0                                                                                 | 1011                                                                              | 153                                                                               | 180                                                                                | 16                                                                                  | 0                                                                                   | 54                                                                                  | 44                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 90                                                                                | 0                                                                                 | 0                                                                                 | 90                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 824                                                                               | 62                                                                                | 0                                                                                 | 1011                                                                              | 63                                                                                | 180                                                                                | 16                                                                                  | 0                                                                                   | 54                                                                                  | 44                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 5%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 3%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   | NA                                                                                | Perm                                                                              | pm+pt                                                                              | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   | 3                                                                                  | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               | 8                                                                                  |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                               | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 41.0                                                                              | 41.0                                                                              |                                                                                   | 41.0                                                                              | 41.0                                                                              | 46.0                                                                               | 33.0                                                                                |                                                                                     | 38.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.41                                                                              | 0.41                                                                              |                                                                                   | 0.41                                                                              | 0.41                                                                              | 0.46                                                                               | 0.33                                                                                |                                                                                     | 0.38                                                                                | 0.29                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1432                                                                              | 647                                                                               |                                                                                   | 1432                                                                              | 666                                                                               | 640                                                                                | 630                                                                                 |                                                                                     | 571                                                                                 | 548                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | 0.24                                                                              |                                                                                   |                                                                                   | c0.29                                                                             |                                                                                   | c0.04                                                                              | 0.01                                                                                |                                                                                     | 0.01                                                                                | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.04                                                                              |                                                                                   |                                                                                   | 0.04                                                                              | c0.09                                                                              |                                                                                     |                                                                                     | 0.03                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.58                                                                              | 0.10                                                                              |                                                                                   | 0.71                                                                              | 0.09                                                                              | 0.28                                                                               | 0.03                                                                                |                                                                                     | 0.09                                                                                | 0.08                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 22.8                                                                              | 18.1                                                                              |                                                                                   | 24.5                                                                              | 18.1                                                                              | 16.3                                                                               | 22.6                                                                                |                                                                                     | 19.8                                                                                | 25.8                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.29                                                                               | 0.36                                                                                |                                                                                     | 0.32                                                                                | 0.53                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 1.6                                                                               | 0.3                                                                               |                                                                                   | 2.8                                                                               | 0.3                                                                               | 0.9                                                                                | 0.1                                                                                 |                                                                                     | 0.3                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 24.4                                                                              | 18.4                                                                              |                                                                                   | 27.3                                                                              | 18.4                                                                              | 5.6                                                                                | 8.2                                                                                 |                                                                                     | 6.6                                                                                 | 14.0                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   | C                                                                                 | B                                                                                 | A                                                                                  | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 23.5                                                                              |                                                                                   |                                                                                   | 26.2                                                                              |                                                                                   |                                                                                    | 5.8                                                                                 |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 22.8                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.53                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 50.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

c Critical Lane Group



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR   |
|-----------------------------------|------|-------|-------|------|---------------------------|-------|
| Lane Configurations               |      |       |       |      |                           |       |
| Traffic Volume (vph)              | 84   | 927   | 1131  | 0    | 0                         | 41    |
| Future Volume (vph)               | 84   | 927   | 1131  | 0    | 0                         | 41    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950  |
| Total Lost time (s)               | 5.0  | 4.0   | 5.0   |      |                           | 5.0   |
| Lane Util. Factor                 | 1.00 | 0.95  | 0.95  |      |                           | 1.00  |
| Frt                               | 1.00 | 1.00  | 1.00  |      |                           | 0.86  |
| Flt Protected                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00  |
| Satd. Flow (prot)                 | 1816 | 3495  | 3529  |      |                           | 1654  |
| Flt Permitted                     | 0.95 | 1.00  | 1.00  |      |                           | 1.00  |
| Satd. Flow (perm)                 | 1816 | 3495  | 3529  |      |                           | 1654  |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95  |
| Adj. Flow (vph)                   | 88   | 976   | 1191  | 0    | 0                         | 43    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 0                         | 31    |
| Lane Group Flow (vph)             | 88   | 976   | 1191  | 0    | 0                         | 12    |
| Heavy Vehicles (%)                | 2%   | 6%    | 5%    | 2%   | 2%                        | 2%    |
| Turn Type                         | Prot | NA    | NA    |      |                           | Over  |
| Protected Phases                  | 1    | Free  | 2     |      |                           | 1     |
| Permitted Phases                  |      |       |       |      |                           |       |
| Actuated Green, G (s)             | 29.0 | 100.0 | 61.0  |      |                           | 29.0  |
| Effective Green, g (s)            | 29.0 | 100.0 | 61.0  |      |                           | 29.0  |
| Actuated g/C Ratio                | 0.29 | 1.00  | 0.61  |      |                           | 0.29  |
| Clearance Time (s)                | 5.0  |       | 5.0   |      |                           | 5.0   |
| Lane Grp Cap (vph)                | 526  | 3495  | 2152  |      |                           | 479   |
| v/s Ratio Prot                    | 0.05 | 0.28  | c0.34 |      |                           | 0.01  |
| v/s Ratio Perm                    |      |       |       |      |                           |       |
| v/c Ratio                         | 0.17 | 0.28  | 0.55  |      |                           | 0.03  |
| Uniform Delay, d1                 | 26.5 | 0.0   | 11.5  |      |                           | 25.4  |
| Progression Factor                | 1.00 | 1.00  | 0.75  |      |                           | 6.82  |
| Incremental Delay, d2             | 0.7  | 0.2   | 0.8   |      |                           | 0.1   |
| Delay (s)                         | 27.2 | 0.2   | 9.4   |      |                           | 173.4 |
| Level of Service                  | C    | A     | A     |      |                           | F     |
| Approach Delay (s)                |      | 2.4   | 9.4   |      | 173.4                     |       |
| Approach LOS                      |      | A     | A     |      | F                         |       |
| <b>Intersection Summary</b>       |      |       |       |      |                           |       |
| HCM 2000 Control Delay            |      |       | 9.2   |      | HCM 2000 Level of Service | A     |
| HCM 2000 Volume to Capacity ratio |      |       | 0.48  |      |                           |       |
| Actuated Cycle Length (s)         |      |       | 100.0 |      | Sum of lost time (s)      | 10.0  |
| Intersection Capacity Utilization |      |       | 43.3% |      | ICU Level of Service      | A     |
| Analysis Period (min)             |      |       | 15    |      |                           |       |
| c Critical Lane Group             |      |       |       |      |                           |       |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Cox Road

Cox Partial DLT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)              | 84                                                                                | 0                                                                                 | 0                                                                                 | 15                                                                                | 93                                                                                | 41                                                                                |
| Future Volume (vph)               | 84                                                                                | 0                                                                                 | 0                                                                                 | 15                                                                                | 93                                                                                | 41                                                                                |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   |                                                                                   | 4.0                                                                               | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              | 0.96                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1816                                                                              |                                                                                   |                                                                                   | 1912                                                                              | 1821                                                                              |                                                                                   |
| Flt Permitted                     | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 1816                                                                              |                                                                                   |                                                                                   | 1912                                                                              | 1821                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 88                                                                                | 0                                                                                 | 0                                                                                 | 16                                                                                | 98                                                                                | 43                                                                                |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 16                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 88                                                                                | 0                                                                                 | 0                                                                                 | 16                                                                                | 125                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                | 2%                                                                                |
| Turn Type                         | Prot                                                                              |                                                                                   |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   |
| Protected Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 1 7 8                                                                             | 3 4                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 19.0                                                                              |                                                                                   |                                                                                   | 72.0                                                                              | 48.0                                                                              |                                                                                   |
| Effective Green, g (s)            | 19.0                                                                              |                                                                                   |                                                                                   | 60.0                                                                              | 48.0                                                                              |                                                                                   |
| Actuated g/C Ratio                | 0.19                                                                              |                                                                                   |                                                                                   | 0.60                                                                              | 0.48                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                | 345                                                                               |                                                                                   |                                                                                   | 1147                                                                              | 874                                                                               |                                                                                   |
| v/s Ratio Prot                    | c0.05                                                                             |                                                                                   |                                                                                   | c0.01                                                                             | c0.07                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.26                                                                              |                                                                                   |                                                                                   | 0.01                                                                              | 0.14                                                                              |                                                                                   |
| Uniform Delay, d1                 | 34.5                                                                              |                                                                                   |                                                                                   | 8.1                                                                               | 14.5                                                                              |                                                                                   |
| Progression Factor                | 0.45                                                                              |                                                                                   |                                                                                   | 0.92                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 1.8                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 0.3                                                                               |                                                                                   |
| Delay (s)                         | 17.4                                                                              |                                                                                   |                                                                                   | 7.5                                                                               | 14.9                                                                              |                                                                                   |
| Level of Service                  | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Approach Delay (s)                | 17.4                                                                              |                                                                                   |                                                                                   | 7.5                                                                               | 14.9                                                                              |                                                                                   |
| Approach LOS                      | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            | 15.3                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | B                                                                                 |
| HCM 2000 Volume to Capacity ratio | 0.15                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 21.0                                                                              |
| Intersection Capacity Utilization | 20.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               | ↑↑                                                                                |                                                                                   | ↱                                                                                 | ↑↑                                                                                |                                                                                   | ↱                                                                                 |
| Traffic Volume (vph)              | 834                                                                               | 0                                                                                 | 186                                                                               | 1105                                                                              | 0                                                                                 | 315                                                                               |
| Future Volume (vph)               | 834                                                                               | 0                                                                                 | 186                                                                               | 1105                                                                              | 0                                                                                 | 315                                                                               |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 4.0                                                                               |                                                                                   | 5.0                                                                               |
| Lane Util. Factor                 | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |
| Frt                               | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.86                                                                              |
| Flt Protected                     | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Satd. Flow (prot)                 | 3632                                                                              |                                                                                   | 1816                                                                              | 3632                                                                              |                                                                                   | 1654                                                                              |
| Flt Permitted                     | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Satd. Flow (perm)                 | 3632                                                                              |                                                                                   | 1816                                                                              | 3632                                                                              |                                                                                   | 1654                                                                              |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 878                                                                               | 0                                                                                 | 196                                                                               | 1163                                                                              | 0                                                                                 | 332                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 122                                                                               |
| Lane Group Flow (vph)             | 878                                                                               | 0                                                                                 | 196                                                                               | 1163                                                                              | 0                                                                                 | 210                                                                               |
| Turn Type                         | NA                                                                                |                                                                                   | Prot                                                                              | NA                                                                                |                                                                                   | Over                                                                              |
| Protected Phases                  | 2                                                                                 |                                                                                   | 1                                                                                 | Free                                                                              |                                                                                   | 1                                                                                 |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 62.0                                                                              |                                                                                   | 28.0                                                                              | 100.0                                                                             |                                                                                   | 28.0                                                                              |
| Effective Green, g (s)            | 62.0                                                                              |                                                                                   | 28.0                                                                              | 100.0                                                                             |                                                                                   | 28.0                                                                              |
| Actuated g/C Ratio                | 0.62                                                                              |                                                                                   | 0.28                                                                              | 1.00                                                                              |                                                                                   | 0.28                                                                              |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                               |
| Lane Grp Cap (vph)                | 2251                                                                              |                                                                                   | 508                                                                               | 3632                                                                              |                                                                                   | 463                                                                               |
| v/s Ratio Prot                    | c0.24                                                                             |                                                                                   | 0.11                                                                              | 0.32                                                                              |                                                                                   | c0.13                                                                             |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.39                                                                              |                                                                                   | 0.39                                                                              | 0.32                                                                              |                                                                                   | 0.45                                                                              |
| Uniform Delay, d1                 | 9.5                                                                               |                                                                                   | 29.1                                                                              | 0.0                                                                               |                                                                                   | 29.7                                                                              |
| Progression Factor                | 0.72                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.90                                                                              |
| Incremental Delay, d2             | 0.4                                                                               |                                                                                   | 2.2                                                                               | 0.2                                                                               |                                                                                   | 2.6                                                                               |
| Delay (s)                         | 7.2                                                                               |                                                                                   | 31.3                                                                              | 0.2                                                                               |                                                                                   | 29.3                                                                              |
| Level of Service                  | A                                                                                 |                                                                                   | C                                                                                 | A                                                                                 |                                                                                   | C                                                                                 |
| Approach Delay (s)                | 7.2                                                                               |                                                                                   |                                                                                   | 4.7                                                                               | 29.3                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | C                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.7                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.41                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 10.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 49.8%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 41: Cox Road & WB DLT

Cox Partial DLT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Configurations               |  |                                                                                   |  |                                                                                   |                                                                                   |  |
| Traffic Volume (vph)              | 186                                                                               | 0                                                                                 | 186                                                                               | 315                                                                               | 0                                                                                 | 42                                                                                |
| Future Volume (vph)               | 186                                                                               | 0                                                                                 | 186                                                                               | 315                                                                               | 0                                                                                 | 42                                                                                |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                   | 4.0                                                                               |
| Lane Util. Factor                 | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Frt                               | 1.00                                                                              |                                                                                   | 0.92                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Flt Protected                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (prot)                 | 1816                                                                              |                                                                                   | 1749                                                                              |                                                                                   |                                                                                   | 1912                                                                              |
| Flt Permitted                     | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |
| Satd. Flow (perm)                 | 1816                                                                              |                                                                                   | 1749                                                                              |                                                                                   |                                                                                   | 1912                                                                              |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 196                                                                               | 0                                                                                 | 196                                                                               | 332                                                                               | 0                                                                                 | 44                                                                                |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 61                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Group Flow (vph)             | 196                                                                               | 0                                                                                 | 467                                                                               | 0                                                                                 | 0                                                                                 | 44                                                                                |
| Turn Type                         | Prot                                                                              |                                                                                   | NA                                                                                |                                                                                   |                                                                                   | NA                                                                                |
| Protected Phases                  | 2                                                                                 |                                                                                   | 3 4                                                                               |                                                                                   |                                                                                   | 1 7 8                                                                             |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 72.0                                                                              |
| Effective Green, g (s)            | 19.0                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   | 60.0                                                                              |
| Actuated g/C Ratio                | 0.19                                                                              |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   | 0.60                                                                              |
| Clearance Time (s)                | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                | 345                                                                               |                                                                                   | 839                                                                               |                                                                                   |                                                                                   | 1147                                                                              |
| v/s Ratio Prot                    | c0.11                                                                             |                                                                                   | c0.27                                                                             |                                                                                   |                                                                                   | c0.02                                                                             |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.57                                                                              |                                                                                   | 0.56                                                                              |                                                                                   |                                                                                   | 0.04                                                                              |
| Uniform Delay, d1                 | 36.8                                                                              |                                                                                   | 18.5                                                                              |                                                                                   |                                                                                   | 8.2                                                                               |
| Progression Factor                | 0.43                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 0.78                                                                              |
| Incremental Delay, d2             | 6.2                                                                               |                                                                                   | 2.7                                                                               |                                                                                   |                                                                                   | 0.1                                                                               |
| Delay (s)                         | 22.1                                                                              |                                                                                   | 21.1                                                                              |                                                                                   |                                                                                   | 6.4                                                                               |
| Level of Service                  | C                                                                                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| Approach Delay (s)                | 22.1                                                                              |                                                                                   | 21.1                                                                              |                                                                                   |                                                                                   | 6.4                                                                               |
| Approach LOS                      | C                                                                                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                 |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 20.5                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | C                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 21.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 47.6%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

### SR 524 at Cox Road Signalized Cost Estimate

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                       | UNIT | QUANTITY | UNIT COST           | COST            |
|--------------------|-----------------------------------------------------------------------------------|------|----------|---------------------|-----------------|
| 101-1              | Mobilization                                                                      | LS   | 1        | \$ 165,338.59       | \$ 165,338.59   |
| 102-1              | Maintenance of Traffic                                                            | LS   | 1        | \$ 165,338.59       | \$ 165,338.59   |
| 110-1-1            | Clearing and Grubbing                                                             | AC   | 7.1      | \$ 18,895.19        | \$ 133,317.80   |
| 110-4-10           | Removal of Existing Concrete                                                      | SY   | 10,986.4 | \$ 20.72            | \$ 227,639.13   |
| 160-4              | Type B Stabilization                                                              | SY   | 12,155.8 | \$ 5.83             | \$ 70,868.18    |
| 285-709            | Optional Base, Base Group 09                                                      | SY   | 12,155.8 | \$ 19.27            | \$ 234,241.84   |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)       | TN   | 1,002.9  | \$ 95.68            | \$ 95,952.85    |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12,5, PG 76-22 (165 lb/yd^2)      | TN   | 1,002.9  | \$ 114.05           | \$ 114,375.23   |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                    | LF   | 4,384.0  | \$ 23.65            | \$ 103,681.60   |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                    | LF   | 3,857.0  | \$ 26.67            | \$ 102,866.19   |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                             | SY   | 2,089.3  | \$ 43.68            | \$ 91,262.08    |
| 527-2              | Detectable Warnings                                                               | SF   | 333.6    | \$ 29.11            | \$ 9,711.10     |
| 570-1-2            | Performance Turf, Sod                                                             | SY   | 2,560.8  | \$ 2.62             | \$ 6,709.24     |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                           | LF   | 3,142.0  | \$ 8.74             | \$ 27,461.08    |
| 632-7-1            | Signal Cable - New Or Reconstructed Intersection, Furnish & Install               | PI   | 1.0      | \$ 6,178.01         | \$ 6,178.01     |
| 635-2-11           | Pull & Splice Box, F&I, 13" X 24" Cover Size                                      | EA   | 26.0     | \$ 753.91           | \$ 19,601.66    |
| 639-1-122          | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor         | AS   | 1.0      | \$ 3,390.41         | \$ 3,390.41     |
| 639-2-1            | Electrical Service Wire                                                           | LF   | 156.2    | \$ 5.23             | \$ 816.93       |
| 641-2-12           | Prestressed Concrete Pole, F&I, Type P-Ii Service Pole                            | EA   | 2.0      | \$ 1,651.12         | \$ 3,302.24     |
| 646-1-11           | Aluminum Signals Pole, Pedestal                                                   | EA   | 2.0      | \$ 1,625.89         | \$ 3,251.78     |
| 646-1-12           | Aluminum Signals Pole, F&I Pedestrian Detector Post                               | EA   | 2.0      | \$ 1,104.51         | \$ 2,209.02     |
| 649-21-3           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 40'                      | EA   | 2.0      | \$ 40,867.45        | \$ 81,734.90    |
| 649-21-15          | Steel Mast Arm Assembly, Furnish and Install, Single Arm 70'                      | EA   | 2.0      | \$ 53,510.36        | \$ 107,020.72   |
| 650-1-14           | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                      | AS   | 10.0     | \$ 1,029.91         | \$ 10,299.10    |
| 653-1-11           | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                       | AS   | 4.0      | \$ 677.73           | \$ 2,710.92     |
| 660-4-11           | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment             | EA   | 4.0      | \$ 7,308.13         | \$ 29,232.52    |
| 660-4-12           | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment        | EA   | 4.0      | \$ 5,812.31         | \$ 23,249.24    |
| 665-1-11           | Pedestrian Detector, Furnish & Install, Standard                                  | EA   | 4.0      | \$ 292.89           | \$ 1,171.56     |
| 670-5-111          | Traffic Controller Assembly, F&I, Nema, 1 Preemption                              | AS   | 1.0      | \$ 30,363.51        | \$ 30,363.51    |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                              | GM   | 1.17     | \$ 1,008.98         | \$ 1,177.72     |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                             | LF   | 424      | \$ 0.91             | \$ 385.57       |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 24" | LF   | 392      | \$ 3.60             | \$ 1,411.20     |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                               | GM   | 0.47     | \$ 479.38           | \$ 224.35       |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                                | EA   | 20       | \$ 61.25            | \$ 1,225.00     |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                             | GM   | 0.65     | \$ 1,038.01         | \$ 679.03       |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                 | LF   | 3,250    | \$ 2.12             | \$ 6,890.00     |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Min | EA   | 16       | \$ 5,501.51         | \$ 88,024.16    |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                 | EA   | 1.0      | \$ 10,750.00        | \$ 10,750.00    |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          | Construction Cost:  | \$ 1,984,063.02 |
|                    |                                                                                   |      |          | PE (Design Phase):  | \$ 496,015.76   |
|                    |                                                                                   |      |          | Contingency (25%):  | \$ 620,019.69   |
|                    |                                                                                   |      |          | TOTAL PROJECT COST: | \$ 3,100,098.47 |

SR 524 at Cox Road Roundabout Cost Estimate

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                              | UNIT | QUANTITY | UNIT COST           | COST            |
|--------------------|------------------------------------------------------------------------------------------|------|----------|---------------------|-----------------|
| 101-1              | Mobilization                                                                             | LS   | 1        | \$ 142,705.09       | \$ 142,705.09   |
| 102-1              | Maintenance of Traffic                                                                   | LS   | 1        | \$ 142,705.09       | \$ 142,705.09   |
| 110-1-1            | Clearing and Grubbing                                                                    | AC   | 7.1      | \$ 18,895.19        | \$ 133,317.80   |
| 110-4-10           | Removal of Existing Concrete                                                             | SY   | 10,985.7 | \$ 20.72            | \$ 227,623.01   |
| 120-1              | Regular Excavation                                                                       | CY   | 7,510.3  | \$ 7.18             | \$ 53,923.93    |
| 120-6              | Embankment                                                                               | CY   | 615.7    | \$ 8.90             | \$ 5,479.43     |
| 160-4              | Type B Stabilization                                                                     | SY   | 11,265.4 | \$ 5.83             | \$ 65,677.54    |
| 285-709            | Optional Base, Base Group 09                                                             | SY   | 11,265.4 | \$ 19.27            | \$ 217,085.11   |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)              | TN   | 929.4    | \$ 95.68            | \$ 88,924.91    |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12,5, PG 76-22 (165 lb/yd^2)             | TN   | 929.4    | \$ 114.05           | \$ 105,997.97   |
| 350-3-13           | Plain Cement Concrete Pavement, 12"                                                      | SY   | 328.1    | \$ 90.00            | \$ 29,530.00    |
| 400-0-11           | Concrete Class NS, Gravity Wall Index 400-011                                            | CY   | 22.3     | \$ 632.30           | \$ 14,121.37    |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                           | LF   | 3,468.0  | \$ 23.65            | \$ 82,018.20    |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                           | LF   | 2,785.0  | \$ 26.67            | \$ 74,275.95    |
| 520-2-4            | CONCRETE CURB & GUTTER, TYPE D                                                           | LF   | 326.0    | \$ 24.75            | \$ 8,068.50     |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                                    | SY   | 3,574.4  | \$ 43.68            | \$ 156,131.73   |
| 527-2              | Detectable Warnings                                                                      | SF   | 204.7    | \$ 29.11            | \$ 5,958.82     |
| 570-1-2            | Performance Turf, Sod                                                                    | SY   | 3,466.6  | \$ 2.62             | \$ 9,082.38     |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                                  | LF   | 3,000.0  | \$ 8.74             | \$ 26,220.00    |
| 635-2-11           | Pull & Splice Box, F&I, 13" x 24" Cover Size                                             | EA   | 16.0     | \$ 753.91           | \$ 12,062.56    |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                                     | GM   | 1.01     | \$ 1,008.98         | \$ 1,020.64     |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                                    | LF   | 820      | \$ 0.91             | \$ 746.20       |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 24"        | LF   | 428      | \$ 3.60             | \$ 1,540.80     |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                                      | GM   | 0.59     | \$ 479.38           | \$ 280.55       |
| 710-11-141         | Painted Pavement Marking, Standard, White, 2-4 Dotted Guideline/ 6-10 Gap Extension      | GM   | 0.06     | \$ 1,931.83         | \$ 124.51       |
| 710-11-144         | Painted Pavement Marking, Standard, White, 2-2 Dotted Extension Line, 12" for Roundabout | GM   | 0.02     | \$ 9,946.67         | \$ 164.27       |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                                       | EA   | 20       | \$ 61.25            | \$ 1,225.00     |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                                    | GM   | 0.76     | \$ 1,038.01         | \$ 785.58       |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                        | LF   | 3,250    | \$ 2.12             | \$ 6,890.00     |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Maximum    | EA   | 16       | \$ 5,501.51         | \$ 88,024.16    |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                        | EA   | 1.0      | \$ 10,750.00        | \$ 10,750.00    |
|                    |                                                                                          |      |          |                     |                 |
|                    |                                                                                          |      |          |                     |                 |
|                    |                                                                                          |      |          |                     |                 |
|                    |                                                                                          |      |          |                     |                 |
|                    |                                                                                          |      |          | Construction Cost:  | \$ 1,712,461.11 |
|                    |                                                                                          |      |          | PE (Design Phase):  | \$ 770,607.50   |
|                    |                                                                                          |      |          | Contingency (25%):  | \$ 620,767.15   |
|                    |                                                                                          |      |          | TOTAL PROJECT COST: | \$ 3,103,835.76 |

*SR 524 at Cox Road Restricted Crossing U-Turn Cost Estimate*

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                       | UNIT | QUANTITY | UNIT COST                  | COST                   |
|--------------------|-----------------------------------------------------------------------------------|------|----------|----------------------------|------------------------|
| 101-1              | Mobilization                                                                      | LS   | 1        | \$ 208,286.37              | \$ 208,286.37          |
| 102-1              | Maintenance of Traffic                                                            | LS   | 1        | \$ 208,286.37              | \$ 208,286.37          |
| 110-1-1            | Clearing and Grubbing                                                             | AC   | 7.3      | \$ 18,895.19               | \$ 137,511.96          |
| 110-4-10           | Removal of Existing Concrete                                                      | SY   | 11,529.7 | \$ 20.72                   | \$ 238,894.69          |
| 160-4              | Type B Stabilization                                                              | SY   | 13,242.8 | \$ 5.83                    | \$ 77,205.39           |
| 285-709            | Optional Base, Base Group 09                                                      | SY   | 13,242.8 | \$ 19.27                   | \$ 255,188.33          |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)       | TN   | 1,092.5  | \$ 95.68                   | \$ 104,533.19          |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12,5, PG 76-22 (165 lb/yd^2)      | TN   | 1,092.5  | \$ 114.05                  | \$ 124,602.95          |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                    | LF   | 3,135.3  | \$ 23.65                   | \$ 74,149.85           |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                    | LF   | 3,702.1  | \$ 26.67                   | \$ 98,735.01           |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                             | SY   | 1,796.9  | \$ 43.68                   | \$ 78,488.11           |
| 520-70             | Concrete Traffic Separator, Special, Variable Width                               | SY   | 847.5    | \$ 87.12                   | \$ 73,834.20           |
| 527-2              | Detectable Warnings                                                               | SF   | 312.1    | \$ 29.11                   | \$ 9,085.23            |
| 570-1-2            | Performance Turf, Sod                                                             | SY   | 2,351.4  | \$ 2.62                    | \$ 6,160.78            |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                           | LF   | 6,363.0  | \$ 8.74                    | \$ 55,612.62           |
| 632-7-1            | Signal Cable - New Or Reconstructed Intersection, Furnish & Install               | PI   | 1.0      | \$ 6,178.01                | \$ 6,178.01            |
| 635-2-11           | Pull & Splice Box, F&I, 13" X 24" Cover Size                                      | EA   | 34.0     | \$ 753.91                  | \$ 25,632.94           |
| 639-1-122          | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor         | AS   | 1.0      | \$ 3,390.41                | \$ 3,390.41            |
| 639-2-1            | Electrical Service Wire                                                           | LF   | 3,699.3  | \$ 5.23                    | \$ 19,347.34           |
| 641-2-12           | Prestressed Concrete Pole, F&I, Type P-Ii Service Pole                            | EA   | 6.0      | \$ 1,651.12                | \$ 9,906.72            |
| 646-1-11           | Aluminum Signals Pole, Pedestal                                                   | EA   | 6.0      | \$ 1,625.89                | \$ 9,755.34            |
| 646-1-12           | Aluminum Signals Pole, F&I Pedestrian Detector Post                               | EA   | 6.0      | \$ 1,104.51                | \$ 6,627.06            |
| 649-21-1           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 30'                      | EA   | 2.0      | \$ 36,515.87               | \$ 73,031.74           |
| 649-21-15          | Steel Mast Arm Assembly, Furnish and Install, Single Arm 70'                      | EA   | 6.0      | \$ 53,510.36               | \$ 321,062.16          |
| 650-1-14           | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                      | AS   | 18.0     | \$ 1,029.91                | \$ 18,538.38           |
| 653-1-11           | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                       | AS   | 4.0      | \$ 677.73                  | \$ 2,710.92            |
| 660-4-11           | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment             | EA   | 8.0      | \$ 7,308.13                | \$ 58,465.04           |
| 660-4-12           | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment        | EA   | 8.0      | \$ 5,812.31                | \$ 46,498.48           |
| 665-1-11           | Pedestrian Detector, Furnish & Install, Standard                                  | EA   | 4.0      | \$ 292.89                  | \$ 1,171.56            |
| 670-5-111          | Traffic Controller Assembly, F&I, Nema, 1 Preemption                              | AS   | 1.0      | \$ 30,363.51               | \$ 30,363.51           |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                              | GM   | 1.34     | \$ 1,008.98                | \$ 1,350.47            |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                             | LF   | 2,636    | \$ 0.91                    | \$ 2,398.76            |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 2'  | LF   | 635      | \$ 3.60                    | \$ 2,286.00            |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                               | GM   | 0.57     | \$ 479.38                  | \$ 273.10              |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                                | EA   | 56       | \$ 61.25                   | \$ 3,430.00            |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                             | GM   | 0.75     | \$ 1,038.01                | \$ 779.29              |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                 | LF   | 3,250    | \$ 2.12                    | \$ 6,890.00            |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Max | EA   | 16       | \$ 5,501.51                | \$ 88,024.16           |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                 | EA   | 1.0      | \$ 10,750.00               | \$ 10,750.00           |
|                    |                                                                                   |      |          |                            |                        |
|                    |                                                                                   |      |          |                            |                        |
|                    |                                                                                   |      |          |                            |                        |
|                    |                                                                                   |      |          |                            |                        |
|                    |                                                                                   |      |          | Construction Cost:         | \$ 2,499,436.44        |
|                    |                                                                                   |      |          | PE (Design Phase):         | \$ 624,859.11          |
|                    |                                                                                   |      |          | Contingency (25%):         | \$ 781,073.89          |
|                    |                                                                                   |      |          | <b>TOTAL PROJECT COST:</b> | <b>\$ 3,905,369.44</b> |

SR 524 at Cox Road Median U-Turn Cost Estimate

[illegible]

*SR 524 at Cox Road Partial Displaced Left-Turn Cost Estimate*

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                       | UNIT | QUANTITY | UNIT COST           | COST            |
|--------------------|-----------------------------------------------------------------------------------|------|----------|---------------------|-----------------|
| 101-1              | Mobilization                                                                      | LS   | 1        | \$ 196,201.21       | \$ 196,201.21   |
| 102-1              | Maintenance of Traffic                                                            | LS   | 1        | \$ 196,201.21       | \$ 196,201.21   |
| 110-1-1            | Clearing and Grubbing                                                             | AC   | 7.2      | \$ 18,895.19        | \$ 135,636.58   |
| 110-4-10           | Removal of Existing Concrete                                                      | SY   | 11,577.5 | \$ 20.72            | \$ 239,886.26   |
| 160-4              | Type B Stabilization                                                              | SY   | 14,381.3 | \$ 5.83             | \$ 83,842.98    |
| 285-709            | Optional Base, Base Group 09                                                      | SY   | 14,381.3 | \$ 19.27            | \$ 277,127.65   |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)       | TN   | 1,186.5  | \$ 95.68            | \$ 113,520.23   |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12.5, PG 76-22 (165 lb/yd^2)      | TN   | 1,186.5  | \$ 114.05           | \$ 135,315.45   |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                    | LF   | 3,784.1  | \$ 23.65            | \$ 89,493.97    |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                    | LF   | 3,579.1  | \$ 26.67            | \$ 95,454.60    |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                             | SY   | 2,062.7  | \$ 43.68            | \$ 90,100.68    |
| 520-5-11           | Traffic Separator Concrete-Type I, 4' Wide                                        | LF   | 608.9    | \$ 51.53            | \$ 31,376.62    |
| 527-2              | Detectable Warnings                                                               | SF   | 300.8    | \$ 29.11            | \$ 8,756.29     |
| 570-1-2            | Performance Turf, Sod                                                             | SY   | 3,387.0  | \$ 2.62             | \$ 8,874.00     |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                           | LF   | 4,211.0  | \$ 8.74             | \$ 36,804.14    |
| 632-7-1            | Signal Cable - New Or Reconstructed Intersection, Furnish & Install               | PI   | 1.0      | \$ 6,178.01         | \$ 6,178.01     |
| 635-2-11           | Pull & Splice Box, F&I, 13" X 24" Cover Size                                      | EA   | 30.0     | \$ 753.91           | \$ 22,617.30    |
| 639-1-122          | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor         | AS   | 1.0      | \$ 3,390.41         | \$ 3,390.41     |
| 639-2-1            | Electrical Service Wire                                                           | LF   | 1,332.1  | \$ 5.23             | \$ 6,966.88     |
| 641-2-12           | Prestressed Concrete Pole, F&I, Type P-II Service Pole                            | EA   | 7.0      | \$ 1,651.12         | \$ 11,557.84    |
| 646-1-11           | Aluminum Signals Pole, Pedestal                                                   | EA   | 7.0      | \$ 1,625.89         | \$ 11,381.23    |
| 646-1-12           | Aluminum Signals Pole, F&I Pedestrian Detector Post                               | EA   | 7.0      | \$ 1,104.51         | \$ 7,731.57     |
| 649-21-3           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 40'                      | EA   | 3.0      | \$ 36,515.87        | \$ 109,547.61   |
| 649-21-6           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 50'                      | EA   | 3.0      | \$ 41,505.98        | \$ 124,517.94   |
| 649-21-10          | Steel Mast Arm Assembly, Furnish and Install, Single Arm 60'                      | EA   | 1.0      | \$ 45,379.53        | \$ 45,379.53    |
| 650-1-14           | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                      | AS   | 13.0     | \$ 1,029.91         | \$ 13,388.83    |
| 650-1-19           | Vehicular Traffic Signal, Furnish & Install Aluminum, 5 Section Cluster, 1 Way    | AS   | 1.0      | \$ 1,669.13         | \$ 1,669.13     |
| 653-1-11           | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                       | AS   | 4.0      | \$ 677.73           | \$ 2,710.92     |
| 660-4-11           | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment             | EA   | 8.0      | \$ 7,308.13         | \$ 58,465.04    |
| 660-4-12           | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment        | EA   | 8.0      | \$ 5,812.31         | \$ 46,498.48    |
| 665-1-11           | Pedestrian Detector, Furnish & Install, Standard                                  | EA   | 4.0      | \$ 292.89           | \$ 1,171.56     |
| 670-5-111          | Traffic Controller Assembly, F&I, Nema, 1 Preemption                              | AS   | 1.0      | \$ 30,363.51        | \$ 30,363.51    |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                              | GM   | 1.15     | \$ 1,008.98         | \$ 1,161.26     |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                             | LF   | 466      | \$ 0.91             | \$ 423.97       |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 2"  | LF   | 453      | \$ 3.60             | \$ 1,630.80     |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                               | GM   | 0.39     | \$ 479.38           | \$ 186.67       |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                                | EA   | 34       | \$ 61.25            | \$ 2,082.50     |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                             | GM   | 1.10     | \$ 1,038.01         | \$ 1,137.53     |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                 | LF   | 3,250    | \$ 2.12             | \$ 6,890.00     |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Max | EA   | 16       | \$ 5,501.51         | \$ 88,024.16    |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                 | EA   | 1.0      | \$ 10,750.00        | \$ 10,750.00    |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          | Construction Cost:  | \$ 2,354,414.53 |
|                    |                                                                                   |      |          | PE (Design Phase):  | \$ 588,603.63   |
|                    |                                                                                   |      |          | Contingency (25%):  | \$ 735,754.54   |
|                    |                                                                                   |      |          | TOTAL PROJECT COST: | \$ 3,678,772.71 |

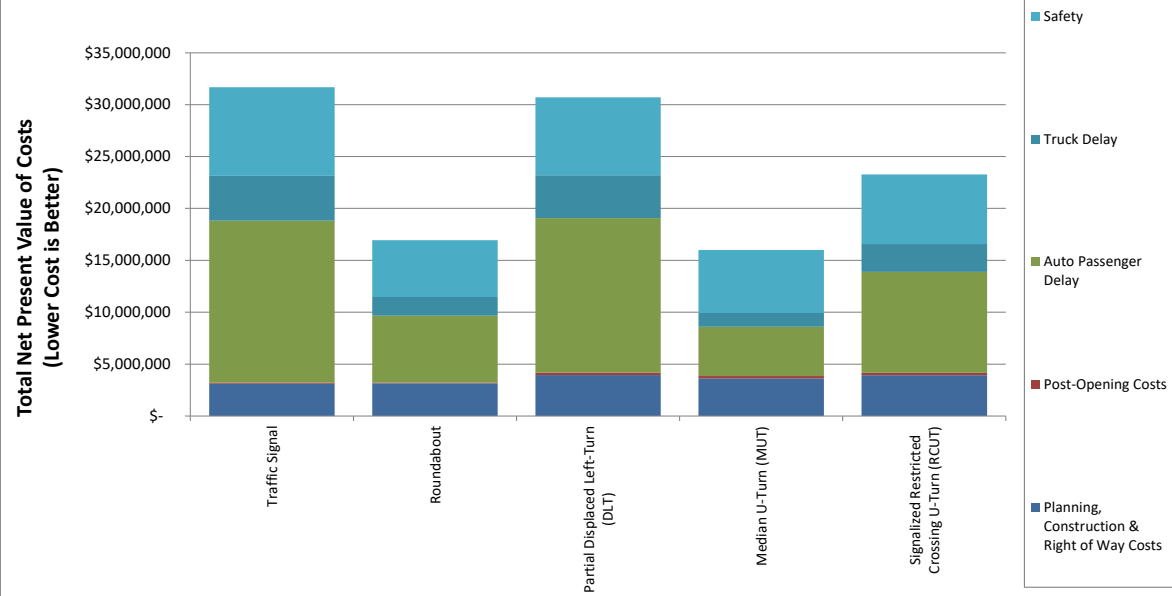
|                                               |                              |
|-----------------------------------------------|------------------------------|
| <b>Agency:</b>                                | FDOT - District 5            |
| <b>Project Name:</b>                          | SR 524 PD&E                  |
| <b>Project Reference:</b>                     | 14321                        |
| <b>Intersection:</b>                          | SR 524 at Cox Road           |
| <b>City:</b>                                  | Cocoa                        |
| <b>State:</b>                                 | Florida                      |
| <b>Performing Department or Organization:</b> | Department of Transportation |
| <b>Date:</b>                                  | 7/22/2021                    |
| <b>Analyst:</b>                               | Michael Zoellner             |
| <b>Analysis Type</b>                          | At-Grade Intersection        |

### Analysis Summary

| Cost Categories                             | Net Present Value of Costs |                     |                                   |                     |                                              |  |
|---------------------------------------------|----------------------------|---------------------|-----------------------------------|---------------------|----------------------------------------------|--|
|                                             | Traffic Signal             | Roundabout          | Partial Displaced Left-Turn (DLT) | Median U-Turn (MUT) | Signalized Restricted Crossing U-Turn (RCUT) |  |
| Planning, Construction & Right of Way Costs | \$ 3,130,498               | \$ 3,150,636        | \$ 3,960,751                      | \$ 3,624,441        | \$ 3,935,769                                 |  |
| Post-Opening Costs                          | \$ 98,229                  | \$ 72,952           | \$ 238,276                        | \$ 238,276          | \$ 238,276                                   |  |
| Auto Passenger Delay                        | \$ 15,589,107              | \$ 6,459,730        | \$ 14,873,225                     | \$ 4,745,688        | \$ 9,707,428                                 |  |
| Truck Delay                                 | \$ 4,318,887               | \$ 1,786,317        | \$ 4,122,942                      | \$ 1,314,310        | \$ 2,684,124                                 |  |
| Safety                                      | \$ 8,541,369               | \$ 5,468,599        | \$ 7,516,404                      | \$ 6,075,413        | \$ 6,707,280                                 |  |
| <b>Total cost</b>                           | <b>\$31,678,090</b>        | <b>\$16,938,233</b> | <b>\$30,711,599</b>               | <b>\$15,998,128</b> | <b>\$23,272,878</b>                          |  |

| Select Base Case for Benefit-Cost Comparison:<br>(Choose from list) | Traffic Signal                                      |                                                                                                  |                                   |                     |                                              |  |
|---------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------|---------------------|----------------------------------------------|--|
| Benefit Categories                                                  | Net Present Value of Benefits Relative to Base Case |                                                                                                  |                                   |                     |                                              |  |
|                                                                     | Traffic Signal                                      | Roundabout                                                                                       | Partial Displaced Left-Turn (DLT) | Median U-Turn (MUT) | Signalized Restricted Crossing U-Turn (RCUT) |  |
| Auto Passenger Delay                                                |                                                     | \$ 9,129,377                                                                                     | \$ 715,883                        | \$ 10,843,420       | \$ 5,881,679                                 |  |
| Truck Delay                                                         |                                                     | \$ 2,532,570                                                                                     | \$ 195,944                        | \$ 3,004,576        | \$ 1,634,762                                 |  |
| Safety                                                              |                                                     | \$ 3,072,770                                                                                     | \$ 1,024,964                      | \$ 2,465,956        | \$ 1,834,089                                 |  |
| Net Present Value of Benefits                                       |                                                     | \$ 14,734,717                                                                                    | \$ 1,936,791                      | \$ 16,313,952       | \$ 9,350,530                                 |  |
| Net Present Value of Costs                                          |                                                     | \$ (5,140)                                                                                       | \$ 970,300                        | \$ 633,990          | \$ 945,319                                   |  |
| Net Present Value of Improvement                                    |                                                     | \$ 14,739,857                                                                                    | \$ 966,491                        | \$ 15,679,961       | \$ 8,405,211                                 |  |
| Benefit-Cost (B/C) Ratio                                            |                                                     | Control strategy preferred. Benefits are greater than base case and cost is less than base case. | 2.00                              | 25.73               | 9.89                                         |  |
| Delay B/C                                                           |                                                     | Control strategy preferred. Benefits are greater than base case and cost is less than base case. | 0.94                              | 21.84               | 7.95                                         |  |
| Safety B/C                                                          |                                                     | Control strategy preferred. Benefits are greater than base case and cost is less than base case. | 1.06                              | 3.89                | 1.94                                         |  |

Net Present Value of Total Costs





| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT COX ROAD<br>SIGNALIZED INTERSECTION<br>CONCEPT PLAN | SHEET<br>NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|---------------------------------------------------------------|-----------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                               |                       |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                               |                       |



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT COX ROAD<br>ROUNDAABOUT CONCEPT PLAN | SHEET NO. |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|------------------------------------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                |           |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             | 1                                              |           |



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT COX ROAD<br>RESTRICTED CROSSING<br>U-TURN CONCEPT PLAN | SHEET NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|------------------------------------------------------------------|--------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                  |                    |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                                  |                    |



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT COX ROAD<br>MEDIAN U-TURN CONCEPT PLAN | SHEET NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|--------------------------------------------------|--------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                  |                    |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                  |                    |

\$USERS\$

\$DATES\$ \$TIMES\$ \$MODELNAME\$

\$FILES\$



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT COX ROAD<br>PARTIAL DISPLACED<br>LEFT-TURN CONCEPT PLAN | SHEET<br>NO. |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|-------------------------------------------------------------------|--------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                   |              |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             | 1                                                                 |              |

Attachment B  
SR 524 at London Boulevard

# Florida Department of Transportation

## Intersection Control Evaluation (ICE) Form

### Stage 2: Initial Control Strategy Assessment

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 2 (Intersection Control Strategy) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

|                                                                                    |                   |                |       |               |                  |
|------------------------------------------------------------------------------------|-------------------|----------------|-------|---------------|------------------|
| Project Name                                                                       | SR 524 PD&E Study | FDOT Project # | 14321 | Date          | 07/22/21         |
| Submitted By                                                                       | VHB               | Agency/Company | FDOT  | Email         | kfreeman@vhb.com |
| List all viable intersection control strategies identified in Stage 1 (Screening): |                   |                |       |               |                  |
| Signalized Control                                                                 |                   | Roundabout     |       | Median U-Turn |                  |
| RCUT (Signalized)                                                                  |                   |                |       |               |                  |

| Operational Analyses                                                                                                                                                                                                                                                                                                                              |                                          |              |                          |                 |                                          |                          |           |              |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------|--------------------------|-----------------|------------------------------------------|--------------------------|-----------|--------------|--------------------------|
| Summarize the results of the peak hour analysis performed for each control strategy. Select analysis year based on guidance in the ICE procedures document. Refer to Exhibit 19-8 of the <i>Highway Capacity Manual, 6th Edition</i> (HCM6) to determine the appropriate LOS based on intersection delay (hover over this cell for Exhibit 19-8). |                                          |              |                          |                 |                                          |                          |           |              |                          |
| Design Vehicle                                                                                                                                                                                                                                                                                                                                    | Florida Interstate Semitrailer (WB-62FL) |              |                          | Control Vehicle | Florida Interstate Semitrailer (WB-62FL) |                          |           |              |                          |
| Opening Year                                                                                                                                                                                                                                                                                                                                      | 2025                                     |              |                          |                 |                                          |                          |           |              |                          |
| Control Strategy                                                                                                                                                                                                                                                                                                                                  | Peak Hour                                |              | Weekday AM Peak          | Peak Hour       |                                          | Weekday PM Peak          | Peak Hour |              | Saturday Midday Peak     |
|                                                                                                                                                                                                                                                                                                                                                   | LOS                                      | Delay (sec.) | All Queues Accommodated? | LOS             | Delay (sec.)                             | All Queues Accommodated? | LOS       | Delay (sec.) | All Queues Accommodated? |
| Signalized Control                                                                                                                                                                                                                                                                                                                                | B                                        | 15.8         | Yes                      | B               | 11.5                                     | Yes                      |           |              |                          |
| Roundabout                                                                                                                                                                                                                                                                                                                                        | A                                        | 5.8          | Yes                      | A               | 6.4                                      | Yes                      |           |              |                          |
| Median U-Turn                                                                                                                                                                                                                                                                                                                                     | A                                        | 5.6          | Yes                      | A               | 6.0                                      | Yes                      |           |              |                          |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                 | A                                        | 9.2          | Yes                      | A               | 6.6                                      | Yes                      |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
| Design Year                                                                                                                                                                                                                                                                                                                                       | 2045                                     |              |                          |                 |                                          |                          |           |              |                          |
| Control Strategy                                                                                                                                                                                                                                                                                                                                  | Peak Hour                                |              | Weekday AM Peak          | Peak Hour       |                                          | Weekday PM Peak          | Peak Hour |              | Saturday Midday Peak     |
|                                                                                                                                                                                                                                                                                                                                                   | LOS                                      | Delay (sec.) | All Queues Accommodated? | LOS             | Delay (sec.)                             | All Queues Accommodated? | LOS       | Delay (sec.) | All Queues Accommodated? |
| Signalized Control                                                                                                                                                                                                                                                                                                                                | D                                        | 40.1         | Yes                      | C               | 34.5                                     | Yes                      |           |              |                          |
| Roundabout                                                                                                                                                                                                                                                                                                                                        | B                                        | 14.6         | Yes                      | B               | 12.5                                     | Yes                      |           |              |                          |
| Median U-Turn                                                                                                                                                                                                                                                                                                                                     | B                                        | 11.0         | Yes                      | A               | 7.4                                      | Yes                      |           |              |                          |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                 | B                                        | 11.5         | Yes                      | A               | 9.4                                      | Yes                      |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
| Provide any additional discussion necessary regarding the results of the operational analysis:                                                                                                                                                                                                                                                    |                                          |              |                          |                 |                                          |                          |           |              |                          |

| Safety Performance                                                                                                                                                                                                                                                                       |                                                                                                                        |                         |                                |                                          |                                |      |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------|------------------------------------------|--------------------------------|------|-------|
| Enter the most recent five (5) years of crash data from the CAR System.                                                                                                                                                                                                                  |                                                                                                                        |                         |                                | Most recent year of crash data available |                                |      | 2018  |
| Crash Type                                                                                                                                                                                                                                                                               |                                                                                                                        | 2014                    | 2015                           | 2016                                     | 2017                           | 2018 | Total |
| Combined                                                                                                                                                                                                                                                                                 | Total                                                                                                                  | 1                       | 3                              | 3                                        | 1                              | 3    | 11    |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           | 0                       | 1                              | 3                                        | 1                              | 2    | 7     |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                    | 1                       | 2                              | 0                                        | 0                              | 1    | 4     |
| Single-Vehicle                                                                                                                                                                                                                                                                           | Total                                                                                                                  |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                    |                         |                                |                                          |                                |      |       |
| Multi-Vehicle                                                                                                                                                                                                                                                                            | Total                                                                                                                  |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                    |                         |                                |                                          |                                |      |       |
| Vehicle-Pedestrian                                                                                                                                                                                                                                                                       | Fatal/Injury                                                                                                           | 0                       | 0                              | 0                                        | 0                              | 0    | 0     |
| Vehicle-Bicycle                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           | 0                       | 0                              | 0                                        | 0                              | 0    | 0     |
| Total                                                                                                                                                                                                                                                                                    | All                                                                                                                    | 1                       | 3                              | 3                                        | 1                              | 3    | 11    |
| Apply the FDOT SPICE Tool to model anticipated safety performance of each control strategy. For intersection types not accommodated in the tool, manually apply crash modification factors detailed in the ICE procedures document or qualitatively describe anticipated safety impacts. |                                                                                                                        |                         |                                |                                          |                                |      |       |
| Control Strategy                                                                                                                                                                                                                                                                         | Anticipated Impact on Safety Performance                                                                               | Opening Year            |                                | Design Year                              |                                |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        | Predicted Total Crashes | Predicted Fatal+Injury Crashes | Predicted Total Crashes                  | Predicted Fatal+Injury Crashes |      |       |
| Signalized Control                                                                                                                                                                                                                                                                       | No impact                                                                                                              | 6.17                    | 2.10                           | 10.05                                    | 3.55                           |      |       |
| Roundabout                                                                                                                                                                                                                                                                               | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control | 5.25                    | 0.95                           | 8.48                                     | 1.61                           |      |       |
| Median U-Turn                                                                                                                                                                                                                                                                            | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control | 5.24                    | 1.47                           | 8.54                                     | 2.49                           |      |       |
| RCUT (Signalized)                                                                                                                                                                                                                                                                        | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control | 5.24                    | 1.64                           | 8.54                                     | 2.77                           |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        |                         |                                |                                          |                                |      |       |

| Costs and Benefit/Cost Ratios                                                                                                                                                                                                                                                                                                                                                                                         |                |                         |                       |            |             |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|-----------------------|------------|-------------|-------------------|
| Remaining cognizant of the current level of detail of each control strategy's conceptual design, provide a cost estimate for each. You may want to include costs for preliminary engineering, required right-of-way acquisitions, construction, and a contingency. Apply the FDOT ICE Tool to determine the delay benefit-cost ratio (B/C), safety B/C, overall B/C, and net-present value for each control strategy. |                |                         |                       |            |             |                   |
| Control Strategy                                                                                                                                                                                                                                                                                                                                                                                                      | ROW Costs (\$) | Construction Costs (\$) | FDOT ICE Tool Outputs |            |             |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         | Delay B/C             | Safety B/C | Overall B/C | Net Present Value |
| Signalized Control                                                                                                                                                                                                                                                                                                                                                                                                    | \$0            | \$2,623,117             | -                     | -          | -           | -                 |
| Roundabout                                                                                                                                                                                                                                                                                                                                                                                                            | \$307,000      | \$2,370,961             | -                     | -          | -           | \$20,441,016      |
| Median U-Turn                                                                                                                                                                                                                                                                                                                                                                                                         | \$0            | \$3,155,872             | 24.52                 | 4.95       | 29.46       | \$19,150,813      |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                                                                                     | \$0            | \$3,164,954             | 21.77                 | 3.63       | 25.40       | \$16,640,024      |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         |                       |            |             |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         |                       |            |             |                   |

| Multimodal Accommodations                                                                                                                                                                           |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------|--------------|----------------------|--------------|----------------|----------|
| Note the existing/anticipated level of pedestrian/bicyclist activity at the study intersection during the peak hours of the typical day. See ICE procedures document for activity level thresholds: |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
| Peak Hour:                                                                                                                                                                                          | Weekday AM Peak                                                                              |              | Weekday PM Peak                                                                                                       |              | Saturday Midday Peak |              | Activity Level |          |
|                                                                                                                                                                                                     | Major Street                                                                                 | Minor Street | Major Street                                                                                                          | Minor Street | Major Street         | Minor Street | Ped.           | Bicycles |
| # of ped. crossings (both approaches, if app.):                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              | Low            | Low      |
| # of cyclists (both approaches, if app.):                                                                                                                                                           |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
| Summarize the ability of each viable control strategy to accommodate the existing/anticipated level of:                                                                                             |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
| Control Strategy                                                                                                                                                                                    | Pedestrians and Bicyclists                                                                   |              | Transit Services                                                                                                      |              | Freight Needs        |              |                |          |
| Signalized Control                                                                                                                                                                                  | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
| Roundabout                                                                                                                                                                                          | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
| Median U-Turn                                                                                                                                                                                       | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
| RCUT (Signalized)                                                                                                                                                                                   | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
|                                                                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
|                                                                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |

| Environmental, Utility, and Right-of-Way Impacts                                                                                                                                                           |                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Summarize any issues related to environmental, utility, or right-of-way (including relocation) impacts specific to each control strategy. Be sure to consider the NEPA requirements for each control type. |                                                      |
| Signalized Control                                                                                                                                                                                         |                                                      |
| Roundabout                                                                                                                                                                                                 | Some R/W will need to be acquired for the Roundabout |
| Median U-Turn                                                                                                                                                                                              |                                                      |
| RCUT (Signalized)                                                                                                                                                                                          |                                                      |
|                                                                                                                                                                                                            |                                                      |
|                                                                                                                                                                                                            |                                                      |

| Public Input/Feedback (if appropriate)                                 |
|------------------------------------------------------------------------|
| Summarize any agency or public input regarding the control strategies: |
| None performed to date.                                                |

| Control Strategy Evaluation                                                                                                                                                               |                          |                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Provide a brief justification as to why each of the following is either viable or not viable. If a single control strategy is recommended, select it as the only strategy to be advanced. |                          |                                                                                                                                                                                                                                                                            |
| Control Strategy                                                                                                                                                                          | Strategy to be Advanced? | Justification                                                                                                                                                                                                                                                              |
| Signalized Control                                                                                                                                                                        | No                       |                                                                                                                                                                                                                                                                            |
| Roundabout                                                                                                                                                                                | Yes                      | Provides ample capacity for the vehicular operations, and adequate pedestrian/bike facilities for the low anticipated volume of pedestrians. Provides the lowest anticipated fatal + injury crashes and highest Net Present Value compared to the other control strategies |
| Median U-Turn                                                                                                                                                                             | No                       |                                                                                                                                                                                                                                                                            |
| RCUT (Signalized)                                                                                                                                                                         | No                       |                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                           | No                       |                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                           | No                       |                                                                                                                                                                                                                                                                            |

| Resolution                                                                                        |  |           |  |      |  |
|---------------------------------------------------------------------------------------------------|--|-----------|--|------|--|
| <i>To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer</i> |  |           |  |      |  |
| Project Determination                                                                             |  |           |  |      |  |
| Comments                                                                                          |  |           |  |      |  |
| DTOE Name                                                                                         |  | Signature |  | Date |  |
| DDE Name                                                                                          |  | Signature |  | Date |  |

# HCM 6th Signalized Intersection Summary

## 11: SR 524 & London Boulevard

2025 AM.syn  
08/05/2019

|                                                                                                          |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                      |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                                   | 9                                                                                 | 711                                                                               | 24                                                                                | 31                                                                                | 528                                                                               | 39                                                                                | 21                                                                                 | 2                                                                                   | 33                                                                                  | 104                                                                                 | 2                                                                                   | 19                                                                                  |
| Future Volume (veh/h)                                                                                    | 9                                                                                 | 711                                                                               | 24                                                                                | 31                                                                                | 528                                                                               | 39                                                                                | 21                                                                                 | 2                                                                                   | 33                                                                                  | 104                                                                                 | 2                                                                                   | 19                                                                                  |
| Initial Q (Qb), veh                                                                                      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)                                                                                      | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                         | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                                    |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                                   | 1900                                                                              | 1811                                                                              | 1870                                                                              | 1870                                                                              | 1811                                                                              | 1856                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1900                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                                                     | 9                                                                                 | 748                                                                               | 25                                                                                | 33                                                                                | 556                                                                               | 0                                                                                 | 22                                                                                 | 2                                                                                   | 35                                                                                  | 109                                                                                 | 2                                                                                   | 20                                                                                  |
| Peak Hour Factor                                                                                         | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                                     | 0                                                                                 | 6                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                 | 3                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 0                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                               | 19                                                                                | 2301                                                                              | 1060                                                                              | 48                                                                                | 2357                                                                              |                                                                                   | 38                                                                                 | 3                                                                                   | 56                                                                                  | 134                                                                                 | 13                                                                                  | 131                                                                                 |
| Arrive On Green                                                                                          | 0.01                                                                              | 0.67                                                                              | 0.67                                                                              | 0.05                                                                              | 1.00                                                                              | 0.00                                                                              | 0.02                                                                               | 0.04                                                                                | 0.04                                                                                | 0.07                                                                                | 0.09                                                                                | 0.09                                                                                |
| Sat Flow, veh/h                                                                                          | 1810                                                                              | 3441                                                                              | 1585                                                                              | 1781                                                                              | 3441                                                                              | 1572                                                                              | 1781                                                                               | 86                                                                                  | 1512                                                                                | 1810                                                                                | 146                                                                                 | 1461                                                                                |
| Grp Volume(v), veh/h                                                                                     | 9                                                                                 | 748                                                                               | 25                                                                                | 33                                                                                | 556                                                                               | 0                                                                                 | 22                                                                                 | 0                                                                                   | 37                                                                                  | 109                                                                                 | 0                                                                                   | 22                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                                                                 | 1810                                                                              | 1721                                                                              | 1585                                                                              | 1781                                                                              | 1721                                                                              | 1572                                                                              | 1781                                                                               | 0                                                                                   | 1598                                                                                | 1810                                                                                | 0                                                                                   | 1607                                                                                |
| Q Serve(g_s), s                                                                                          | 0.6                                                                               | 12.0                                                                              | 0.7                                                                               | 2.4                                                                               | 0.0                                                                               | 0.0                                                                               | 1.6                                                                                | 0.0                                                                                 | 3.0                                                                                 | 7.7                                                                                 | 0.0                                                                                 | 1.6                                                                                 |
| Cycle Q Clear(g_c), s                                                                                    | 0.6                                                                               | 12.0                                                                              | 0.7                                                                               | 2.4                                                                               | 0.0                                                                               | 0.0                                                                               | 1.6                                                                                | 0.0                                                                                 | 3.0                                                                                 | 7.7                                                                                 | 0.0                                                                                 | 1.6                                                                                 |
| Prop In Lane                                                                                             | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.91                                                                                |
| Lane Grp Cap(c), veh/h                                                                                   | 19                                                                                | 2301                                                                              | 1060                                                                              | 48                                                                                | 2357                                                                              |                                                                                   | 38                                                                                 | 0                                                                                   | 59                                                                                  | 134                                                                                 | 0                                                                                   | 144                                                                                 |
| V/C Ratio(X)                                                                                             | 0.47                                                                              | 0.33                                                                              | 0.02                                                                              | 0.69                                                                              | 0.24                                                                              |                                                                                   | 0.59                                                                               | 0.00                                                                                | 0.63                                                                                | 0.82                                                                                | 0.00                                                                                | 0.15                                                                                |
| Avail Cap(c_a), veh/h                                                                                    | 70                                                                                | 2301                                                                              | 1060                                                                              | 192                                                                               | 2357                                                                              |                                                                                   | 178                                                                                | 0                                                                                   | 221                                                                                 | 181                                                                                 | 0                                                                                   | 224                                                                                 |
| HCM Platoon Ratio                                                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                                 | 63.9                                                                              | 9.1                                                                               | 7.2                                                                               | 61.0                                                                              | 0.0                                                                               | 0.0                                                                               | 63.1                                                                               | 0.0                                                                                 | 61.7                                                                                | 59.3                                                                                | 0.0                                                                                 | 54.6                                                                                |
| Incr Delay (d2), s/veh                                                                                   | 16.5                                                                              | 0.4                                                                               | 0.0                                                                               | 16.4                                                                              | 0.1                                                                               | 0.0                                                                               | 13.6                                                                               | 0.0                                                                                 | 10.6                                                                                | 18.4                                                                                | 0.0                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh                                                                                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln                                                                                 | 0.7                                                                               | 7.1                                                                               | 0.4                                                                               | 2.2                                                                               | 0.0                                                                               | 0.0                                                                               | 1.6                                                                                | 0.0                                                                                 | 2.5                                                                                 | 7.6                                                                                 | 0.0                                                                                 | 1.2                                                                                 |
| Unsig. Movement Delay, s/veh                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh                                                                                     | 80.4                                                                              | 9.5                                                                               | 7.3                                                                               | 77.4                                                                              | 0.1                                                                               | 0.0                                                                               | 76.7                                                                               | 0.0                                                                                 | 72.3                                                                                | 77.8                                                                                | 0.0                                                                                 | 55.1                                                                                |
| LnGrp LOS                                                                                                | F                                                                                 | A                                                                                 | A                                                                                 | E                                                                                 | A                                                                                 |                                                                                   | E                                                                                  | A                                                                                   | E                                                                                   | E                                                                                   | A                                                                                   | E                                                                                   |
| Approach Vol, veh/h                                                                                      |                                                                                   | 782                                                                               |                                                                                   |                                                                                   | 589                                                                               | A                                                                                 |                                                                                    | 59                                                                                  |                                                                                     |                                                                                     | 131                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                                    |                                                                                   | 10.2                                                                              |                                                                                   |                                                                                   | 4.4                                                                               |                                                                                   |                                                                                    | 73.9                                                                                |                                                                                     |                                                                                     | 74.0                                                                                |                                                                                     |
| Approach LOS                                                                                             |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                                     | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                                 | 9.5                                                                               | 94.1                                                                              | 8.7                                                                               | 17.6                                                                              | 7.4                                                                               | 96.2                                                                              | 15.6                                                                               | 10.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                                  | 6.0                                                                               | 7.2                                                                               | 6.0                                                                               | * 6                                                                               | 6.0                                                                               | * 7.2                                                                             | 6.0                                                                                | 6.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                              | 14.0                                                                              | 59.8                                                                              | 13.0                                                                              | * 18                                                                              | 5.0                                                                               | * 69                                                                              | 13.0                                                                               | 18.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                             | 4.4                                                                               | 14.0                                                                              | 3.6                                                                               | 3.6                                                                               | 2.6                                                                               | 2.0                                                                               | 9.7                                                                                | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                                  | 0.0                                                                               | 5.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 3.8                                                                               | 0.1                                                                                | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay                                                                                       |                                                                                   |                                                                                   | 15.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                                                                                              |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Notes</b>                                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 11: SR 524 & London Boulevard

2025 PM.syn  
08/05/2019

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 28                                                                                | 656                                                                               | 18                                                                                | 22                                                                                | 805                                                                               | 104                                                                               | 20                                                                                 | 2                                                                                   | 22                                                                                  | 72                                                                                  | 2                                                                                   | 11                                                                                  |
| Future Volume (veh/h)        | 28                                                                                | 656                                                                               | 18                                                                                | 22                                                                                | 805                                                                               | 104                                                                               | 20                                                                                 | 2                                                                                   | 22                                                                                  | 72                                                                                  | 2                                                                                   | 11                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1811                                                                              | 1870                                                                              | 1870                                                                              | 1811                                                                              | 1900                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1885                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 29                                                                                | 691                                                                               | 19                                                                                | 23                                                                                | 847                                                                               | 0                                                                                 | 21                                                                                 | 2                                                                                   | 23                                                                                  | 76                                                                                  | 2                                                                                   | 12                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 6                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                 | 0                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 1                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 44                                                                                | 2453                                                                              | 1130                                                                              | 38                                                                                | 2443                                                                              |                                                                                   | 36                                                                                 | 4                                                                                   | 48                                                                                  | 96                                                                                  | 15                                                                                  | 92                                                                                  |
| Arrive On Green              | 0.02                                                                              | 0.71                                                                              | 0.71                                                                              | 0.04                                                                              | 1.00                                                                              | 0.00                                                                              | 0.02                                                                               | 0.03                                                                                | 0.03                                                                                | 0.05                                                                                | 0.07                                                                                | 0.07                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3441                                                                              | 1585                                                                              | 1781                                                                              | 3441                                                                              | 1610                                                                              | 1781                                                                               | 128                                                                                 | 1476                                                                                | 1795                                                                                | 231                                                                                 | 1389                                                                                |
| Grp Volume(v), veh/h         | 29                                                                                | 691                                                                               | 19                                                                                | 23                                                                                | 847                                                                               | 0                                                                                 | 21                                                                                 | 0                                                                                   | 25                                                                                  | 76                                                                                  | 0                                                                                   | 14                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1721                                                                              | 1585                                                                              | 1781                                                                              | 1721                                                                              | 1610                                                                              | 1781                                                                               | 0                                                                                   | 1605                                                                                | 1795                                                                                | 0                                                                                   | 1620                                                                                |
| Q Serve(g_s), s              | 2.2                                                                               | 10.1                                                                              | 0.5                                                                               | 1.8                                                                               | 0.0                                                                               | 0.0                                                                               | 1.6                                                                                | 0.0                                                                                 | 2.1                                                                                 | 5.9                                                                                 | 0.0                                                                                 | 1.1                                                                                 |
| Cycle Q Clear(g_c), s        | 2.2                                                                               | 10.1                                                                              | 0.5                                                                               | 1.8                                                                               | 0.0                                                                               | 0.0                                                                               | 1.6                                                                                | 0.0                                                                                 | 2.1                                                                                 | 5.9                                                                                 | 0.0                                                                                 | 1.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.92                                                                                | 1.00                                                                                |                                                                                     | 0.86                                                                                |
| Lane Grp Cap(c), veh/h       | 44                                                                                | 2453                                                                              | 1130                                                                              | 38                                                                                | 2443                                                                              |                                                                                   | 36                                                                                 | 0                                                                                   | 52                                                                                  | 96                                                                                  | 0                                                                                   | 107                                                                                 |
| V/C Ratio(X)                 | 0.66                                                                              | 0.28                                                                              | 0.02                                                                              | 0.61                                                                              | 0.35                                                                              |                                                                                   | 0.59                                                                               | 0.00                                                                                | 0.48                                                                                | 0.79                                                                                | 0.00                                                                                | 0.13                                                                                |
| Avail Cap(c_a), veh/h        | 116                                                                               | 2453                                                                              | 1130                                                                              | 191                                                                               | 2443                                                                              |                                                                                   | 178                                                                                | 0                                                                                   | 206                                                                                 | 180                                                                                 | 0                                                                                   | 209                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 67.7                                                                              | 7.2                                                                               | 5.8                                                                               | 66.5                                                                              | 0.0                                                                               | 0.0                                                                               | 68.0                                                                               | 0.0                                                                                 | 66.6                                                                                | 65.5                                                                                | 0.0                                                                                 | 61.6                                                                                |
| Incr Delay (d2), s/veh       | 15.9                                                                              | 0.3                                                                               | 0.0                                                                               | 15.0                                                                              | 0.1                                                                               | 0.0                                                                               | 14.7                                                                               | 0.0                                                                                 | 6.8                                                                                 | 13.2                                                                                | 0.0                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln     | 2.1                                                                               | 5.7                                                                               | 0.3                                                                               | 1.7                                                                               | 0.1                                                                               | 0.0                                                                               | 1.6                                                                                | 0.0                                                                                 | 1.8                                                                                 | 5.5                                                                                 | 0.0                                                                                 | 0.9                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 83.6                                                                              | 7.5                                                                               | 5.9                                                                               | 81.5                                                                              | 0.1                                                                               | 0.0                                                                               | 82.7                                                                               | 0.0                                                                                 | 73.4                                                                                | 78.7                                                                                | 0.0                                                                                 | 62.1                                                                                |
| LnGrp LOS                    | F                                                                                 | A                                                                                 | A                                                                                 | F                                                                                 | A                                                                                 |                                                                                   | F                                                                                  | A                                                                                   | E                                                                                   | E                                                                                   | A                                                                                   | E                                                                                   |
| Approach Vol, veh/h          | 739                                                                               |                                                                                   |                                                                                   | 870                                                                               |                                                                                   |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | 46                                                                                  |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 10.4                                                                              |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 77.7                                                                               |                                                                                     |                                                                                     | 76.1                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.0                                                                               | 107.0                                                                             | 8.8                                                                               | 15.2                                                                              | 9.4                                                                               | 106.6                                                                             | 13.5                                                                               | 10.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 6.0                                                                               | 7.2                                                                               | 6.0                                                                               | * 6                                                                               | 6.0                                                                               | * 7.2                                                                             | 6.0                                                                                | 6.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.0                                                                              | 67.8                                                                              | 14.0                                                                              | * 18                                                                              | 9.0                                                                               | * 74                                                                              | 14.0                                                                               | 18.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.8                                                                               | 12.1                                                                              | 3.6                                                                               | 3.1                                                                               | 4.2                                                                               | 2.0                                                                               | 7.9                                                                                | 4.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 4.6                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 6.5                                                                               | 0.1                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 11.5

HCM 6th LOS B

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 11: SR 524 & London Boulevard

2045 AM.syn  
08/05/2019

|                              |  |                                                                                    |  |  |                                                                                    |  |  |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |  |  |   |  |  |  |  |  |   |  |
| Traffic Volume (veh/h)       | 15                                                                                | 1259                                                                                                                                                                | 103                                                                               | 135                                                                               | 1076                                                                                                                                                                | 64                                                                                | 90                                                                                 | 10                                                                                  | 143                                                                                 | 131                                                                                 | 10                                                                                                                                                                      | 30                                                                                  |
| Future Volume (veh/h)        | 15                                                                                | 1259                                                                                                                                                                | 103                                                                               | 135                                                                               | 1076                                                                                                                                                                | 64                                                                                | 90                                                                                 | 10                                                                                  | 143                                                                                 | 131                                                                                 | 10                                                                                                                                                                      | 30                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Work Zone On Approach        |                                                                                   | No                                                                                                                                                                  |                                                                                   |                                                                                   | No                                                                                                                                                                  |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     | No                                                                                                                                                                      |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1811                                                                                                                                                                | 1870                                                                              | 1870                                                                              | 1811                                                                                                                                                                | 1856                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1900                                                                                | 1870                                                                                                                                                                    | 1870                                                                                |
| Adj Flow Rate, veh/h         | 16                                                                                | 1325                                                                                                                                                                | 108                                                                               | 142                                                                               | 1133                                                                                                                                                                | 0                                                                                 | 95                                                                                 | 11                                                                                  | 151                                                                                 | 138                                                                                 | 11                                                                                                                                                                      | 32                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                |
| Percent Heavy Veh, %         | 0                                                                                 | 6                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 6                                                                                                                                                                   | 3                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 0                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 438                                                                               | 1460                                                                                                                                                                | 672                                                                               | 312                                                                               | 1232                                                                                                                                                                |                                                                                   | 118                                                                                | 13                                                                                  | 174                                                                                 | 163                                                                                 | 59                                                                                                                                                                      | 172                                                                                 |
| Arrive On Green              | 0.24                                                                              | 0.42                                                                                                                                                                | 0.42                                                                              | 0.35                                                                              | 0.72                                                                                                                                                                | 0.00                                                                              | 0.07                                                                               | 0.12                                                                                | 0.12                                                                                | 0.09                                                                                | 0.14                                                                                                                                                                    | 0.14                                                                                |
| Sat Flow, veh/h              | 1810                                                                              | 3441                                                                                                                                                                | 1585                                                                              | 1781                                                                              | 3441                                                                                                                                                                | 1572                                                                              | 1781                                                                               | 109                                                                                 | 1493                                                                                | 1810                                                                                | 422                                                                                                                                                                     | 1227                                                                                |
| Grp Volume(v), veh/h         | 16                                                                                | 1325                                                                                                                                                                | 108                                                                               | 142                                                                               | 1133                                                                                                                                                                | 0                                                                                 | 95                                                                                 | 0                                                                                   | 162                                                                                 | 138                                                                                 | 0                                                                                                                                                                       | 43                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1810                                                                              | 1721                                                                                                                                                                | 1585                                                                              | 1781                                                                              | 1721                                                                                                                                                                | 1572                                                                              | 1781                                                                               | 0                                                                                   | 1602                                                                                | 1810                                                                                | 0                                                                                                                                                                       | 1649                                                                                |
| Q Serve(g_s), s              | 0.9                                                                               | 46.9                                                                                                                                                                | 3.9                                                                               | 8.0                                                                               | 35.6                                                                                                                                                                | 0.0                                                                               | 6.8                                                                                | 0.0                                                                                 | 12.9                                                                                | 9.8                                                                                 | 0.0                                                                                                                                                                     | 3.0                                                                                 |
| Cycle Q Clear(g_c), s        | 0.9                                                                               | 46.9                                                                                                                                                                | 3.9                                                                               | 8.0                                                                               | 35.6                                                                                                                                                                | 0.0                                                                               | 6.8                                                                                | 0.0                                                                                 | 12.9                                                                                | 9.8                                                                                 | 0.0                                                                                                                                                                     | 3.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.93                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.74                                                                                |
| Lane Grp Cap(c), veh/h       | 438                                                                               | 1460                                                                                                                                                                | 672                                                                               | 312                                                                               | 1232                                                                                                                                                                |                                                                                   | 118                                                                                | 0                                                                                   | 187                                                                                 | 163                                                                                 | 0                                                                                                                                                                       | 232                                                                                 |
| V/C Ratio(X)                 | 0.04                                                                              | 0.91                                                                                                                                                                | 0.16                                                                              | 0.46                                                                              | 0.92                                                                                                                                                                |                                                                                   | 0.80                                                                               | 0.00                                                                                | 0.87                                                                                | 0.85                                                                                | 0.00                                                                                                                                                                    | 0.19                                                                                |
| Avail Cap(c_a), veh/h        | 438                                                                               | 1583                                                                                                                                                                | 729                                                                               | 312                                                                               | 1824                                                                                                                                                                |                                                                                   | 178                                                                                | 0                                                                                   | 222                                                                                 | 181                                                                                 | 0                                                                                                                                                                       | 232                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 2.00                                                                              | 2.00                                                                                                                                                                | 2.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 0.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 37.7                                                                              | 35.0                                                                                                                                                                | 11.6                                                                              | 37.4                                                                              | 16.9                                                                                                                                                                | 0.0                                                                               | 59.9                                                                               | 0.0                                                                                 | 56.4                                                                                | 58.2                                                                                | 0.0                                                                                                                                                                     | 49.3                                                                                |
| Incr Delay (d2), s/veh       | 0.0                                                                               | 9.8                                                                                                                                                                 | 0.5                                                                               | 1.0                                                                               | 5.8                                                                                                                                                                 | 0.0                                                                               | 14.5                                                                               | 0.0                                                                                 | 25.6                                                                                | 27.2                                                                                | 0.0                                                                                                                                                                     | 0.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln     | 0.7                                                                               | 27.4                                                                                                                                                                | 3.8                                                                               | 5.8                                                                               | 11.0                                                                                                                                                                | 0.0                                                                               | 6.4                                                                                | 0.0                                                                                 | 10.8                                                                                | 9.7                                                                                 | 0.0                                                                                                                                                                     | 2.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| LnGrp Delay(d),s/veh         | 37.7                                                                              | 44.8                                                                                                                                                                | 12.1                                                                              | 38.5                                                                              | 22.7                                                                                                                                                                | 0.0                                                                               | 74.3                                                                               | 0.0                                                                                 | 82.0                                                                                | 85.5                                                                                | 0.0                                                                                                                                                                     | 49.7                                                                                |
| LnGrp LOS                    | D                                                                                 | D                                                                                                                                                                   | B                                                                                 | D                                                                                 | C                                                                                                                                                                   |                                                                                   | E                                                                                  | A                                                                                   | F                                                                                   | F                                                                                   | A                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 1449                                                                                                                                                                |                                                                                   |                                                                                   | 1275                                                                                                                                                                | A                                                                                 |                                                                                    | 257                                                                                 |                                                                                     |                                                                                     | 181                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 42.3                                                                                                                                                                |                                                                                   |                                                                                   | 24.5                                                                                                                                                                |                                                                                   |                                                                                    | 79.2                                                                                |                                                                                     |                                                                                     | 77.0                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                    | E                                                                                   |                                                                                     |                                                                                     | E                                                                                                                                                                       |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 28.8                                                                              | 62.3                                                                                                                                                                | 14.6                                                                              | 24.3                                                                              | 37.5                                                                                                                                                                | 53.7                                                                              | 17.7                                                                               | 21.2                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 6.0                                                                               | 7.2                                                                                                                                                                 | 6.0                                                                               | * 6                                                                               | 6.0                                                                                                                                                                 | 7.1                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 14.0                                                                              | 59.8                                                                                                                                                                | 13.0                                                                              | * 18                                                                              | 5.0                                                                                                                                                                 | 68.9                                                                              | 13.0                                                                               | 18.0                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 10.0                                                                              | 48.9                                                                                                                                                                | 8.8                                                                               | 5.0                                                                               | 2.9                                                                                                                                                                 | 37.6                                                                              | 11.8                                                                               | 14.9                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 6.3                                                                                                                                                                 | 0.1                                                                               | 0.1                                                                               | 0.0                                                                                                                                                                 | 9.0                                                                               | 0.0                                                                                | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 40.1 |
| HCM 6th LOS        | D    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 11: SR 524 & London Boulevard

2045 PM.syn  
08/05/2019

|                                                                                                          |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                      |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                                   | 46                                                                                | 1045                                                                              | 79                                                                                | 95                                                                                | 1313                                                                              | 114                                                                               | 88                                                                                 | 7                                                                                   | 97                                                                                  | 86                                                                                  | 7                                                                                   | 16                                                                                  |
| Future Volume (veh/h)                                                                                    | 46                                                                                | 1045                                                                              | 79                                                                                | 95                                                                                | 1313                                                                              | 114                                                                               | 88                                                                                 | 7                                                                                   | 97                                                                                  | 86                                                                                  | 7                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh                                                                                      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)                                                                                      | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                         | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                                    |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                                   | 1900                                                                              | 1811                                                                              | 1870                                                                              | 1870                                                                              | 1811                                                                              | 1900                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1885                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                                                     | 48                                                                                | 1100                                                                              | 83                                                                                | 100                                                                               | 1382                                                                              | 0                                                                                 | 93                                                                                 | 7                                                                                   | 102                                                                                 | 91                                                                                  | 7                                                                                   | 17                                                                                  |
| Peak Hour Factor                                                                                         | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                                     | 0                                                                                 | 6                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                 | 0                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 1                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                               | 432                                                                               | 1263                                                                              | 582                                                                               | 547                                                                               | 1501                                                                              |                                                                                   | 115                                                                                | 9                                                                                   | 124                                                                                 | 113                                                                                 | 39                                                                                  | 96                                                                                  |
| Arrive On Green                                                                                          | 0.24                                                                              | 0.37                                                                              | 0.37                                                                              | 0.61                                                                              | 0.87                                                                              | 0.00                                                                              | 0.06                                                                               | 0.08                                                                                | 0.08                                                                                | 0.06                                                                                | 0.08                                                                                | 0.08                                                                                |
| Sat Flow, veh/h                                                                                          | 1810                                                                              | 3441                                                                              | 1585                                                                              | 1781                                                                              | 3441                                                                              | 1610                                                                              | 1781                                                                               | 103                                                                                 | 1498                                                                                | 1795                                                                                | 484                                                                                 | 1175                                                                                |
| Grp Volume(v), veh/h                                                                                     | 48                                                                                | 1100                                                                              | 83                                                                                | 100                                                                               | 1382                                                                              | 0                                                                                 | 93                                                                                 | 0                                                                                   | 109                                                                                 | 91                                                                                  | 0                                                                                   | 24                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                                                                 | 1810                                                                              | 1721                                                                              | 1585                                                                              | 1781                                                                              | 1721                                                                              | 1610                                                                              | 1781                                                                               | 0                                                                                   | 1601                                                                                | 1795                                                                                | 0                                                                                   | 1659                                                                                |
| Q Serve(g_s), s                                                                                          | 2.9                                                                               | 41.6                                                                              | 3.7                                                                               | 3.4                                                                               | 36.5                                                                              | 0.0                                                                               | 7.2                                                                                | 0.0                                                                                 | 9.4                                                                                 | 7.0                                                                                 | 0.0                                                                                 | 1.9                                                                                 |
| Cycle Q Clear(g_c), s                                                                                    | 2.9                                                                               | 41.6                                                                              | 3.7                                                                               | 3.4                                                                               | 36.5                                                                              | 0.0                                                                               | 7.2                                                                                | 0.0                                                                                 | 9.4                                                                                 | 7.0                                                                                 | 0.0                                                                                 | 1.9                                                                                 |
| Prop In Lane                                                                                             | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.94                                                                                | 1.00                                                                                |                                                                                     | 0.71                                                                                |
| Lane Grp Cap(c), veh/h                                                                                   | 432                                                                               | 1263                                                                              | 582                                                                               | 547                                                                               | 1501                                                                              |                                                                                   | 115                                                                                | 0                                                                                   | 133                                                                                 | 113                                                                                 | 0                                                                                   | 135                                                                                 |
| V/C Ratio(X)                                                                                             | 0.11                                                                              | 0.87                                                                              | 0.14                                                                              | 0.18                                                                              | 0.92                                                                              |                                                                                   | 0.81                                                                               | 0.00                                                                                | 0.82                                                                                | 0.80                                                                                | 0.00                                                                                | 0.18                                                                                |
| Avail Cap(c_a), veh/h                                                                                    | 432                                                                               | 1666                                                                              | 768                                                                               | 547                                                                               | 1816                                                                              |                                                                                   | 178                                                                                | 0                                                                                   | 206                                                                                 | 180                                                                                 | 0                                                                                   | 214                                                                                 |
| HCM Platoon Ratio                                                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                                 | 41.7                                                                              | 41.2                                                                              | 16.6                                                                              | 19.4                                                                              | 7.4                                                                               | 0.0                                                                               | 64.6                                                                               | 0.0                                                                                 | 63.2                                                                                | 64.7                                                                                | 0.0                                                                                 | 59.9                                                                                |
| Incr Delay (d2), s/veh                                                                                   | 0.1                                                                               | 8.4                                                                               | 0.5                                                                               | 0.2                                                                               | 7.3                                                                               | 0.0                                                                               | 14.2                                                                               | 0.0                                                                                 | 13.8                                                                                | 13.0                                                                                | 0.0                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh                                                                                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln                                                                                 | 2.3                                                                               | 25.1                                                                              | 3.5                                                                               | 2.5                                                                               | 8.2                                                                               | 0.0                                                                               | 6.7                                                                                | 0.0                                                                                 | 7.8                                                                                 | 6.6                                                                                 | 0.0                                                                                 | 1.5                                                                                 |
| Unsig. Movement Delay, s/veh                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh                                                                                     | 41.8                                                                              | 49.6                                                                              | 17.1                                                                              | 19.5                                                                              | 14.6                                                                              | 0.0                                                                               | 78.9                                                                               | 0.0                                                                                 | 77.0                                                                                | 77.7                                                                                | 0.0                                                                                 | 60.5                                                                                |
| LnGrp LOS                                                                                                | D                                                                                 | D                                                                                 | B                                                                                 | B                                                                                 | B                                                                                 |                                                                                   | E                                                                                  | A                                                                                   | E                                                                                   | E                                                                                   | A                                                                                   | E                                                                                   |
| Approach Vol, veh/h                                                                                      |                                                                                   | 1231                                                                              |                                                                                   |                                                                                   | 1482                                                                              | A                                                                                 |                                                                                    | 202                                                                                 |                                                                                     |                                                                                     | 115                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                                    |                                                                                   | 47.1                                                                              |                                                                                   |                                                                                   | 15.0                                                                              |                                                                                   |                                                                                    | 77.8                                                                                |                                                                                     |                                                                                     | 74.1                                                                                |                                                                                     |
| Approach LOS                                                                                             |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                    | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                                     | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                                 | 49.0                                                                              | 58.6                                                                              | 15.0                                                                              | 17.4                                                                              | 44.5                                                                              | 63.1                                                                              | 14.8                                                                               | 17.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                                  | 6.0                                                                               | 7.2                                                                               | 6.0                                                                               | * 6                                                                               | 6.0                                                                               | 7.1                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                              | 15.0                                                                              | 67.8                                                                              | 14.0                                                                              | * 18                                                                              | 9.0                                                                               | 73.9                                                                              | 14.0                                                                               | 18.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                             | 5.4                                                                               | 43.6                                                                              | 9.2                                                                               | 3.9                                                                               | 4.9                                                                               | 38.5                                                                              | 9.0                                                                                | 11.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                                  | 0.1                                                                               | 7.7                                                                               | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 12.4                                                                              | 0.1                                                                                | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay                                                                                       |                                                                                   |                                                                                   | 34.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                                                                                              |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Notes</b>                                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# LANE SUMMARY

 **Site: 102 [London Blvd 2025 AM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 59                       | 2.0              | 641           | 0.092               | 100                | 6.6                     | LOS A               | 0.3                | 7.9                 | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 59                       | 2.0              |               | 0.092               |                    | 6.6                     | LOS A               | 0.3                | 7.9                 |                |                      |                   |                      |
| East: SR 524             |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 306                      | 5.6              | 1239          | 0.247               | 100                | 5.1                     | LOS A               | 1.1                | 29.2                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 323                      | 5.6              | 1306          | 0.247               | 100                | 4.9                     | LOS A               | 1.1                | 28.4                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 629                      | 5.6              |               | 0.247               |                    | 5.0                     | LOS A               | 1.1                | 29.2                |                |                      |                   |                      |
| North: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 132                      | 0.9              | 813           | 0.162               | 100                | 6.1                     | LOS A               | 0.6                | 15.1                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 132                      | 0.9              |               | 0.162               |                    | 6.1                     | LOS A               | 0.6                | 15.1                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 380                      | 5.9              | 1116          | 0.340               | 100                | 6.6                     | LOS A               | 1.6                | 42.7                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 404                      | 5.7              | 1187          | 0.340               | 100                | 6.3                     | LOS A               | 1.6                | 41.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 783                      | 5.8              |               | 0.340               |                    | 6.4                     | LOS A               | 1.6                | 42.7                |                |                      |                   |                      |
| Intersection             | 1603                     | 5.2              |               | 0.340               |                    | 5.8                     | LOS A               | 1.6                | 42.7                |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

 **Site: 202 [London Blvd 2025 PM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 46                       | 2.0              | 683           | 0.068               | 100                | 6.0                     | LOS A               | 0.2                | 5.8                 | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 46                       | 2.0              |               | 0.068               |                    | 6.0                     | LOS A               | 0.2                | 5.8                 |                |                      |                   |                      |
| East: SR 524             |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 474                      | 5.8              | 1215          | 0.390               | 100                | 6.8                     | LOS A               | 2.1                | 54.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 506                      | 4.7              | 1296          | 0.390               | 100                | 6.5                     | LOS A               | 2.1                | 53.8                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 980                      | 5.2              |               | 0.390               |                    | 6.6                     | LOS A               | 2.1                | 54.8                |                |                      |                   |                      |
| North: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 89                       | 2.2              | 623           | 0.144               | 100                | 7.5                     | LOS A               | 0.5                | 12.6                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 89                       | 2.2              |               | 0.144               |                    | 7.5                     | LOS A               | 0.5                | 12.6                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 359                      | 5.5              | 1165          | 0.309               | 100                | 6.0                     | LOS A               | 1.5                | 38.2                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 380                      | 5.8              | 1230          | 0.309               | 100                | 5.8                     | LOS A               | 1.4                | 37.2                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 739                      | 5.7              |               | 0.309               |                    | 5.9                     | LOS A               | 1.5                | 38.2                |                |                      |                   |                      |
| Intersection             | 1855                     | 5.2              |               | 0.390               |                    | 6.4                     | LOS A               | 2.1                | 54.8                |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

 **Site: 302 [London Blvd 2045 AM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 256                      | 2.0              | 370           | 0.691               | 100                | 32.3                    | LOS D               | 3.7                | 95.2                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 256                      | 2.0              |               | 0.691               |                    | 32.3                    | LOS D               | 3.7                | 95.2                |                |                      |                   |                      |
| East: SR 524             |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 653                      | 5.1              | 1147          | 0.570               | 100                | 10.1                    | LOS B               | 3.8                | 100.0               | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 689                      | 5.7              | 1210          | 0.570               | 100                | 9.7                     | LOS A               | 3.7                | 97.6                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1342                     | 5.4              |               | 0.570               |                    | 9.9                     | LOS A               | 3.8                | 100.0               |                |                      |                   |                      |
| North: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 180                      | 1.2              | 412           | 0.437               | 100                | 17.5                    | LOS C               | 1.8                | 46.1                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 180                      | 1.2              |               | 0.437               |                    | 17.5                    | LOS C               | 1.8                | 46.1                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 697                      | 5.9              | 973           | 0.717               | 100                | 16.0                    | LOS C               | 10.9               | 285.6               | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 752                      | 5.4              | 1049          | 0.717               | 100                | 15.2                    | LOS C               | 11.1               | 288.7               | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1449                     | 5.6              |               | 0.717               |                    | 15.6                    | LOS C               | 11.1               | 288.7               |                |                      |                   |                      |
| Intersection             | 3227                     | 5.0              |               | 0.717               |                    | 14.6                    | LOS B               | 11.1               | 288.7               |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

 **Site: 402 [London Blvd 2045 PM]**

New Site  
Roundabout

| Lane Use and Performance |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
|--------------------------|--------------------------|------------------|---------------|---------------------|--------------------|-------------------------|---------------------|--------------------|---------------------|----------------|----------------------|-------------------|----------------------|
|                          | Demand<br>Total<br>veh/h | Flows<br>HV<br>% | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Average<br>Delay<br>sec | Level of<br>Service | 95% Back of<br>Veh | Queue<br>Dist<br>ft | Lane<br>Config | Lane<br>Length<br>ft | Cap.<br>Adj.<br>% | Prob.<br>Block.<br>% |
| South: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 202                      | 2.0              | 459           | 0.440               | 100                | 16.1                    | LOS C               | 1.9                | 48.6                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 202                      | 2.0              |               | 0.440               |                    | 16.1                    | LOS C               | 1.9                | 48.6                |                |                      |                   |                      |
| East: SR 524             |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 775                      | 5.5              | 1114          | 0.696               | 100                | 13.7                    | LOS B               | 5.8                | 150.6               | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 827                      | 5.1              | 1189          | 0.696               | 100                | 13.1                    | LOS B               | 5.6                | 146.7               | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1602                     | 5.3              |               | 0.696               |                    | 13.4                    | LOS B               | 5.8                | 150.6               |                |                      |                   |                      |
| North: London Boulevard  |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1 <sup>d</sup>      | 115                      | 2.4              | 338           | 0.340               | 100                | 17.7                    | LOS C               | 1.2                | 30.7                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 115                      | 2.4              |               | 0.340               |                    | 17.7                    | LOS C               | 1.2                | 30.7                |                |                      |                   |                      |
| SouthWest: SR 524        |                          |                  |               |                     |                    |                         |                     |                    |                     |                |                      |                   |                      |
| Lane 1                   | 596                      | 5.5              | 1064          | 0.560               | 100                | 10.4                    | LOS B               | 3.5                | 90.1                | Full           | 1600                 | 0.0               | 0.0                  |
| Lane 2 <sup>d</sup>      | 636                      | 5.5              | 1135          | 0.560               | 100                | 9.9                     | LOS A               | 3.4                | 88.9                | Full           | 1600                 | 0.0               | 0.0                  |
| Approach                 | 1232                     | 5.5              |               | 0.560               |                    | 10.2                    | LOS B               | 3.5                | 90.1                |                |                      |                   |                      |
| Intersection             | 3151                     | 5.1              |               | 0.696               |                    | 12.5                    | LOS B               | 5.8                | 150.6               |                |                      |                   |                      |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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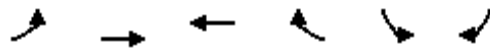
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# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

London Signalized RCUT 2025 AM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↵                         |      |
| Traffic Volume (vph)              | 0    | 744   | 0     | 0    | 106                       | 0    |
| Future Volume (vph)               | 0    | 744   | 0     | 0    | 106                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3495  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3495  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 783   | 0     | 0    | 112                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 105                       | 0    |
| Lane Group Flow (vph)             | 0    | 783   | 0     | 0    | 7                         | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 74.2  |       |      | 5.8                       |      |
| Effective Green, g (s)            |      | 74.2  |       |      | 5.8                       |      |
| Actuated g/C Ratio                |      | 0.82  |       |      | 0.06                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 2881  |       |      | 104                       |      |
| v/s Ratio Prot                    |      | c0.22 |       |      | c0.00                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.27  |       |      | 0.07                      |      |
| Uniform Delay, d1                 |      | 1.8   |       |      | 39.6                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 0.2   |       |      | 0.3                       |      |
| Delay (s)                         |      | 2.0   |       |      | 39.8                      |      |
| Level of Service                  |      | A     |       |      | D                         |      |
| Approach Delay (s)                |      | 2.0   | 0.0   |      | 39.8                      |      |
| Approach LOS                      |      | A     | A     |      | D                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 6.8   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.26  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 42.8% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: London Boulevard

London Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↗                                                                                   | ↗                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 815                                                                               | 26                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 56                                                                                  | 31                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 815                                                                               | 26                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 56                                                                                  | 31                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 858                                                                               | 27                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 59                                                                                  | 33                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 6                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 858                                                                               | 21                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 59                                                                                  | 33                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 70.6                                                                              | 70.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 9.4                                                                                 | 9.4                                                                                 |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 70.6                                                                              | 70.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 9.4                                                                                 | 9.4                                                                                 |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.78                                                                              | 0.78                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.10                                                                                | 0.10                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2768                                                                              | 1274                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 172                                                                                 | 189                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.24                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.02                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.04                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.31                                                                              | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.34                                                                                | 0.17                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 2.8                                                                               | 2.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 37.4                                                                                | 36.8                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.78                                                                              | 0.21                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.3                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.2                                                                                 | 0.4                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 2.5                                                                               | 0.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 38.6                                                                                | 37.2                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 2.4                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 38.6                                                                                |                                                                                     |                                                                                     | 37.2                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.31                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 33.7%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: London Boulevard

London Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 549                                                                               | 41                                                                                | 0                                                                                  | 0                                                                                   | 125                                                                                 | 9                                                                                   | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 549                                                                               | 41                                                                                | 0                                                                                  | 0                                                                                   | 125                                                                                 | 9                                                                                   | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 578                                                                               | 43                                                                                | 0                                                                                  | 0                                                                                   | 132                                                                                 | 9                                                                                   | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 9                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 578                                                                               | 34                                                                                | 0                                                                                  | 0                                                                                   | 132                                                                                 | 9                                                                                   | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 3%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 95.0                                                                              | 95.0                                                                              |                                                                                    |                                                                                     | 15.0                                                                                | 15.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 95.0                                                                              | 95.0                                                                              |                                                                                    |                                                                                     | 15.0                                                                                | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.79                                                                              | 0.79                                                                              |                                                                                    |                                                                                     | 0.12                                                                                | 0.12                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2766                                                                              | 1273                                                                              |                                                                                    |                                                                                     | 206                                                                                 | 227                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.17                                                                             |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                    |                                                                                     | c0.08                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.21                                                                              | 0.03                                                                              |                                                                                    |                                                                                     | 0.64                                                                                | 0.04                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.1                                                                               | 2.7                                                                               |                                                                                    |                                                                                     | 49.9                                                                                | 46.2                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.87                                                                              | 0.60                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.0                                                                               |                                                                                    |                                                                                     | 6.6                                                                                 | 0.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2.9                                                                               | 1.6                                                                               |                                                                                    |                                                                                     | 56.6                                                                                | 46.2                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 2.8                                                                               |                                                                                   | 56.6                                                                               |                                                                                     |                                                                                     | 46.2                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 12.6                                                                              |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.27                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     | 10.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 30.7%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

London Signalized RCUT 2025 AM.syn

11/18/2019

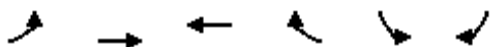
|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 598                                                                               | 23                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 598                                                                               | 23                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 629                                                                               | 24                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 23                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 629                                                                               | 1                                                                                 | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 108.7                                                                             | 3.3                                                                               |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 108.7                                                                             | 3.3                                                                               |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.91                                                                              | 0.03                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 3165                                                                              | 44                                                                                |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                             | c0.00                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.20                                                                              | 0.02                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 0.6                                                                               | 56.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.1                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 0.8                                                                               | 56.9                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 0.8                                                                               | 56.9                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 2.9                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 26.1%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

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11/18/2019



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↱     |      |
| Traffic Volume (vph)              | 0    | 702   | 0    | 0                         | 74    | 0    |
| Future Volume (vph)               | 0    | 702   | 0    | 0                         | 74    | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 5.0   |      |                           | 5.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3495  |      |                           | 1625  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3495  |      |                           | 1625  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 739   | 0    | 0                         | 78    | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 74    | 0    |
| Lane Group Flow (vph)             | 0    | 739   | 0    | 0                         | 4     | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%   | 2%                        | 2%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 2     |      |                           | 4     |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 75.4  |      |                           | 4.6   |      |
| Effective Green, g (s)            |      | 75.4  |      |                           | 4.6   |      |
| Actuated g/C Ratio                |      | 0.84  |      |                           | 0.05  |      |
| Clearance Time (s)                |      | 5.0   |      |                           | 5.0   |      |
| Vehicle Extension (s)             |      | 3.0   |      |                           | 3.0   |      |
| Lane Grp Cap (vph)                |      | 2928  |      |                           | 83    |      |
| v/s Ratio Prot                    |      | c0.21 |      |                           | c0.00 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.25  |      |                           | 0.05  |      |
| Uniform Delay, d1                 |      | 1.5   |      |                           | 40.6  |      |
| Progression Factor                |      | 1.00  |      |                           | 1.00  |      |
| Incremental Delay, d2             |      | 0.2   |      |                           | 0.2   |      |
| Delay (s)                         |      | 1.7   |      |                           | 40.9  |      |
| Level of Service                  |      | A     |      |                           | D     |      |
| Approach Delay (s)                |      | 1.7   | 0.0  |                           | 40.9  |      |
| Approach LOS                      |      | A     | A    |                           | D     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 5.4   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.24  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 90.0  |      | Sum of lost time (s)      |       | 10.0 |
| Intersection Capacity Utilization |      | 48.9% |      | ICU Level of Service      |       | A    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| <b>c Critical Lane Group</b>      |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 130: London Boulevard

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11/18/2019



| Movement                          | EBL  | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBR  | NBR2  | SWL  | SWR  |
|-----------------------------------|------|-------|-------|------|------|------|---------------------------|------|-------|------|------|
| Lane Configurations               |      | ↑↑    | ↗     |      |      |      |                           |      | ↗     | ↗    |      |
| Traffic Volume (vph)              | 0    | 728   | 20    | 0    | 0    | 0    | 0                         | 0    | 44    | 22   | 0    |
| Future Volume (vph)               | 0    | 728   | 20    | 0    | 0    | 0    | 0                         | 0    | 44    | 22   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950 | 1950 | 1950                      | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |      | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Lane Util. Factor                 |      | 0.95  | 1.00  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Frt                               |      | 1.00  | 0.85  |      |      |      |                           |      | 0.86  | 1.00 |      |
| Flt Protected                     |      | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (prot)                 |      | 3495  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Flt Permitted                     |      | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (perm)                 |      | 3495  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95 | 0.95 | 0.95                      | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0    | 766   | 21    | 0    | 0    | 0    | 0                         | 0    | 46    | 23   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 4     | 0    | 0    | 0    | 0                         | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0    | 766   | 17    | 0    | 0    | 0    | 0                         | 0    | 46    | 23   | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%    | 2%   | 2%   | 2%   | 2%                        | 2%   | 2%    | 2%   | 2%   |
| Turn Type                         |      | NA    | Perm  |      |      |      |                           |      | Perm  | Prot |      |
| Protected Phases                  |      | 2     |       |      |      |      |                           |      |       | 4    |      |
| Permitted Phases                  |      |       | 2     |      |      |      |                           |      | 8     |      |      |
| Actuated Green, G (s)             |      | 72.4  | 72.4  |      |      |      |                           |      | 7.6   | 7.6  |      |
| Effective Green, g (s)            |      | 72.4  | 72.4  |      |      |      |                           |      | 7.6   | 7.6  |      |
| Actuated g/C Ratio                |      | 0.80  | 0.80  |      |      |      |                           |      | 0.08  | 0.08 |      |
| Clearance Time (s)                |      | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Vehicle Extension (s)             |      | 3.0   | 3.0   |      |      |      |                           |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |      | 2811  | 1307  |      |      |      |                           |      | 139   | 153  |      |
| v/s Ratio Prot                    |      | c0.22 |       |      |      |      |                           |      |       | 0.01 |      |
| v/s Ratio Perm                    |      |       | 0.01  |      |      |      |                           |      | c0.03 |      |      |
| v/c Ratio                         |      | 0.27  | 0.01  |      |      |      |                           |      | 0.33  | 0.15 |      |
| Uniform Delay, d1                 |      | 2.2   | 1.7   |      |      |      |                           |      | 38.8  | 38.2 |      |
| Progression Factor                |      | 0.81  | 1.00  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |      | 0.2   | 0.0   |      |      |      |                           |      | 1.4   | 0.5  |      |
| Delay (s)                         |      | 2.0   | 1.8   |      |      |      |                           |      | 40.2  | 38.7 |      |
| Level of Service                  |      | A     | A     |      |      |      |                           |      | D     | D    |      |
| Approach Delay (s)                |      | 2.0   |       |      | 0.0  |      | 40.2                      |      |       | 38.7 |      |
| Approach LOS                      |      | A     |       |      | A    |      | D                         |      |       | D    |      |
| <b>Intersection Summary</b>       |      |       |       |      |      |      |                           |      |       |      |      |
| HCM 2000 Control Delay            |      |       | 5.1   |      |      |      | HCM 2000 Level of Service |      |       | A    |      |
| HCM 2000 Volume to Capacity ratio |      |       | 0.28  |      |      |      |                           |      |       |      |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      |      |      | Sum of lost time (s)      |      |       | 10.0 |      |
| Intersection Capacity Utilization |      |       | 31.3% |      |      |      | ICU Level of Service      |      |       | A    |      |
| Analysis Period (min)             |      |       | 15    |      |      |      |                           |      |       |      |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |      |      |                           |      |       |      |      |

# HCM Signalized Intersection Capacity Analysis

## 220: London Boulevard

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11/18/2019



| Movement                          | EBL  | EBT  | EBR   | WBL                       | WBT   | WBR  | SBL  | SBR  | SBR2  | NEL  | NER  |
|-----------------------------------|------|------|-------|---------------------------|-------|------|------|------|-------|------|------|
| Lane Configurations               |      |      |       |                           | ↑↑    | ↑    |      |      | ↑     | ↑    |      |
| Traffic Volume (vph)              | 0    | 0    | 0     | 0                         | 825   | 106  | 0    | 0    | 85    | 28   | 0    |
| Future Volume (vph)               | 0    | 0    | 0     | 0                         | 825   | 106  | 0    | 0    | 85    | 28   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950 | 1950  | 1950                      | 1950  | 1950 | 1950 | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |      |      |       |                           | 5.0   | 5.0  |      |      | 5.0   | 5.0  |      |
| Lane Util. Factor                 |      |      |       |                           | 0.95  | 1.00 |      |      | 1.00  | 1.00 |      |
| Frt                               |      |      |       |                           | 1.00  | 0.85 |      |      | 0.86  | 1.00 |      |
| Flt Protected                     |      |      |       |                           | 1.00  | 1.00 |      |      | 1.00  | 0.95 |      |
| Satd. Flow (prot)                 |      |      |       |                           | 3495  | 1625 |      |      | 1654  | 1816 |      |
| Flt Permitted                     |      |      |       |                           | 1.00  | 1.00 |      |      | 1.00  | 0.95 |      |
| Satd. Flow (perm)                 |      |      |       |                           | 3495  | 1625 |      |      | 1654  | 1816 |      |
| Peak-hour factor, PHF             | 0.95 | 0.95 | 0.95  | 0.95                      | 0.95  | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0    | 0    | 0     | 0                         | 868   | 112  | 0    | 0    | 89    | 29   | 0    |
| RTOR Reduction (vph)              | 0    | 0    | 0     | 0                         | 0     | 11   | 0    | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0    | 0    | 0     | 0                         | 868   | 101  | 0    | 0    | 89    | 29   | 0    |
| Heavy Vehicles (%)                | 2%   | 2%   | 2%    | 2%                        | 6%    | 2%   | 2%   | 2%   | 2%    | 2%   | 2%   |
| Turn Type                         |      |      |       |                           | NA    | Perm |      |      | Perm  | Prot |      |
| Protected Phases                  |      |      |       |                           | 6     |      |      |      |       | 8    |      |
| Permitted Phases                  |      |      |       |                           |       | 6    |      |      | 4     |      |      |
| Actuated Green, G (s)             |      |      |       |                           | 97.3  | 97.3 |      |      | 12.7  | 12.7 |      |
| Effective Green, g (s)            |      |      |       |                           | 97.3  | 97.3 |      |      | 12.7  | 12.7 |      |
| Actuated g/C Ratio                |      |      |       |                           | 0.81  | 0.81 |      |      | 0.11  | 0.11 |      |
| Clearance Time (s)                |      |      |       |                           | 5.0   | 5.0  |      |      | 5.0   | 5.0  |      |
| Vehicle Extension (s)             |      |      |       |                           | 3.0   | 3.0  |      |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |      |      |       |                           | 2833  | 1317 |      |      | 175   | 192  |      |
| v/s Ratio Prot                    |      |      |       |                           | c0.25 |      |      |      |       | 0.02 |      |
| v/s Ratio Perm                    |      |      |       |                           |       | 0.06 |      |      | c0.05 |      |      |
| v/c Ratio                         |      |      |       |                           | 0.31  | 0.08 |      |      | 0.51  | 0.15 |      |
| Uniform Delay, d1                 |      |      |       |                           | 2.9   | 2.3  |      |      | 50.7  | 48.8 |      |
| Progression Factor                |      |      |       |                           | 0.87  | 0.83 |      |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |      |      |       |                           | 0.3   | 0.1  |      |      | 2.3   | 0.4  |      |
| Delay (s)                         |      |      |       |                           | 2.7   | 2.0  |      |      | 53.0  | 49.1 |      |
| Level of Service                  |      |      |       |                           | A     | A    |      |      | D     | D    |      |
| Approach Delay (s)                |      | 0.0  |       |                           | 2.7   |      | 53.0 |      |       | 49.1 |      |
| Approach LOS                      |      | A    |       |                           | A     |      | D    |      |       | D    |      |
| Intersection Summary              |      |      |       |                           |       |      |      |      |       |      |      |
| HCM 2000 Control Delay            |      |      | 8.0   | HCM 2000 Level of Service |       |      | A    |      |       |      |      |
| HCM 2000 Volume to Capacity ratio |      |      | 0.33  |                           |       |      |      |      |       |      |      |
| Actuated Cycle Length (s)         |      |      | 120.0 | Sum of lost time (s)      |       |      | 10.0 |      |       |      |      |
| Intersection Capacity Utilization |      |      | 35.7% | ICU Level of Service      |       |      | A    |      |       |      |      |
| Analysis Period (min)             |      |      | 15    |                           |       |      |      |      |       |      |      |
| c Critical Lane Group             |      |      |       |                           |       |      |      |      |       |      |      |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

London Signalized RCUT 2025 PM.syn

11/18/2019

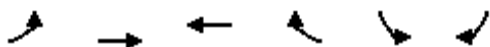
|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 931                                                                               | 22                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 931                                                                               | 22                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 980                                                                               | 23                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 22                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 980                                                                               | 1                                                                                 | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 108.7                                                                             | 3.3                                                                               |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 108.7                                                                             | 3.3                                                                               |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.91                                                                              | 0.03                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 3196                                                                              | 44                                                                                |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.28                                                                             | c0.00                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.31                                                                              | 0.01                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 0.7                                                                               | 56.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.1                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 1.0                                                                               | 56.9                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 1.0                                                                               | 56.9                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 2.3                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.30                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 35.1%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

London Signalized RCUT 2045 AM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↱                         |      |
| Traffic Volume (vph)              | 0    | 1377  | 0     | 0    | 141                       | 0    |
| Future Volume (vph)               | 0    | 1377  | 0     | 0    | 141                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3495  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3495  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 1449  | 0     | 0    | 148                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 12                        | 0    |
| Lane Group Flow (vph)             | 0    | 1449  | 0     | 0    | 136                       | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 67.1  |       |      | 12.9                      |      |
| Effective Green, g (s)            |      | 67.1  |       |      | 12.9                      |      |
| Actuated g/C Ratio                |      | 0.75  |       |      | 0.14                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 2605  |       |      | 232                       |      |
| v/s Ratio Prot                    |      | c0.41 |       |      | c0.08                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.56  |       |      | 0.59                      |      |
| Uniform Delay, d1                 |      | 5.0   |       |      | 36.1                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 0.9   |       |      | 3.7                       |      |
| Delay (s)                         |      | 5.8   |       |      | 39.8                      |      |
| Level of Service                  |      | A     |       |      | D                         |      |
| Approach Delay (s)                |      | 5.8   | 0.0   |      | 39.8                      |      |
| Approach LOS                      |      | A     | A     |      | D                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 9.0   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.56  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 76.8% |      | ICU Level of Service      | D    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: London Boulevard

London Signalized RCUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↗                                                                                   | ↗                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1390                                                                              | 113                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 243                                                                                 | 135                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1390                                                                              | 113                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 243                                                                                 | 135                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1463                                                                              | 119                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 256                                                                                 | 142                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 20                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1463                                                                              | 99                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 256                                                                                 | 142                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 60.3                                                                              | 60.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 19.7                                                                                | 19.7                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 60.3                                                                              | 60.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 19.7                                                                                | 19.7                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.67                                                                              | 0.67                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.22                                                                                | 0.22                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2364                                                                              | 1088                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 362                                                                                 | 397                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.41                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.08                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.06                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.15                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.62                                                                              | 0.09                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.71                                                                                | 0.36                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 8.4                                                                               | 5.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 32.5                                                                                | 29.8                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.60                                                                              | 0.60                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 1.1                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 6.2                                                                                 | 0.6                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 6.1                                                                               | 3.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 38.7                                                                                | 30.3                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 5.9                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 38.7                                                                                |                                                                                     |                                                                                     | 30.3                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 11.9                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.64                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 60.4%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: London Boulevard

London Signalized RCUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑                                                                                   | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1166                                                                              | 74                                                                                | 0                                                                                  | 0                                                                                   | 171                                                                                 | 15                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1166                                                                              | 74                                                                                | 0                                                                                  | 0                                                                                   | 171                                                                                 | 15                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1609                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1227                                                                              | 78                                                                                | 0                                                                                  | 0                                                                                   | 180                                                                                 | 16                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 14                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1227                                                                              | 64                                                                                | 0                                                                                  | 0                                                                                   | 180                                                                                 | 16                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 3%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 91.4                                                                              | 91.4                                                                              |                                                                                    |                                                                                     | 18.6                                                                                | 18.6                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 91.4                                                                              | 91.4                                                                              |                                                                                    |                                                                                     | 18.6                                                                                | 18.6                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.76                                                                              | 0.76                                                                              |                                                                                    |                                                                                     | 0.16                                                                                | 0.16                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2662                                                                              | 1225                                                                              |                                                                                    |                                                                                     | 256                                                                                 | 281                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.35                                                                             |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.01                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.04                                                                              |                                                                                    |                                                                                     | c0.11                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.46                                                                              | 0.05                                                                              |                                                                                    |                                                                                     | 0.70                                                                                | 0.06                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.3                                                                               | 3.5                                                                               |                                                                                    |                                                                                     | 48.1                                                                                | 43.2                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.75                                                                              | 0.68                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.5                                                                               | 0.1                                                                               |                                                                                    |                                                                                     | 8.5                                                                                 | 0.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.5                                                                               | 2.5                                                                               |                                                                                    |                                                                                     | 56.5                                                                                | 43.3                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 4.3                                                                               |                                                                                   | 56.5                                                                               |                                                                                     |                                                                                     | 43.3                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 11.0                                                                              |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.50                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 50.1%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

London Signalized RCUT 2045 AM.syn

11/18/2019

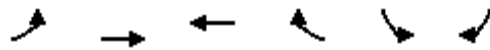
|                                   |      |      |       |                           |       |      |
|-----------------------------------|------|------|-------|---------------------------|-------|------|
|                                   | →    | ↘    | ↙     | ←                         | ↖     | ↗    |
| Movement                          | EBT  | EBR  | WBL   | WBT                       | NBL   | NBR  |
| Lane Configurations               |      |      |       | ↑↑                        | ↖     |      |
| Traffic Volume (vph)              | 0    | 0    | 0     | 1275                      | 100   | 0    |
| Future Volume (vph)               | 0    | 0    | 0     | 1275                      | 100   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950 | 1950  | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      |      |       | 4.0                       | 4.0   |      |
| Lane Util. Factor                 |      |      |       | 0.95                      | 1.00  |      |
| Frt                               |      |      |       | 1.00                      | 1.00  |      |
| Flt Protected                     |      |      |       | 1.00                      | 0.85  |      |
| Satd. Flow (prot)                 |      |      |       | 3529                      | 1625  |      |
| Flt Permitted                     |      |      |       | 1.00                      | 0.85  |      |
| Satd. Flow (perm)                 |      |      |       | 3529                      | 1625  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95 | 0.95  | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 0    | 0     | 1342                      | 105   | 0    |
| RTOR Reduction (vph)              | 0    | 0    | 0     | 0                         | 48    | 0    |
| Lane Group Flow (vph)             | 0    | 0    | 0     | 1342                      | 57    | 0    |
| Heavy Vehicles (%)                | 2%   | 2%   | 2%    | 5%                        | 2%    | 2%   |
| Turn Type                         |      |      |       | NA                        | Prot  |      |
| Protected Phases                  |      |      |       | 6                         | 8     |      |
| Permitted Phases                  |      |      |       |                           |       |      |
| Actuated Green, G (s)             |      |      |       | 102.3                     | 9.7   |      |
| Effective Green, g (s)            |      |      |       | 102.3                     | 9.7   |      |
| Actuated g/C Ratio                |      |      |       | 0.85                      | 0.08  |      |
| Clearance Time (s)                |      |      |       | 4.0                       | 4.0   |      |
| Vehicle Extension (s)             |      |      |       | 3.0                       | 3.0   |      |
| Lane Grp Cap (vph)                |      |      |       | 3008                      | 131   |      |
| v/s Ratio Prot                    |      |      |       | c0.38                     | c0.04 |      |
| v/s Ratio Perm                    |      |      |       |                           |       |      |
| v/c Ratio                         |      |      |       | 0.45                      | 0.44  |      |
| Uniform Delay, d1                 |      |      |       | 2.1                       | 52.5  |      |
| Progression Factor                |      |      |       | 1.00                      | 1.00  |      |
| Incremental Delay, d2             |      |      |       | 0.5                       | 2.3   |      |
| Delay (s)                         |      |      |       | 2.6                       | 54.9  |      |
| Level of Service                  |      |      |       | A                         | D     |      |
| Approach Delay (s)                | 0.0  |      |       | 2.6                       | 54.9  |      |
| Approach LOS                      | A    |      |       | A                         | D     |      |
| Intersection Summary              |      |      |       |                           |       |      |
| HCM 2000 Control Delay            |      |      | 6.4   | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      |      | 0.45  |                           |       |      |
| Actuated Cycle Length (s)         |      |      | 120.0 | Sum of lost time (s)      |       | 8.0  |
| Intersection Capacity Utilization |      |      | 46.4% | ICU Level of Service      |       | A    |
| Analysis Period (min)             |      |      | 15    |                           |       |      |
| c Critical Lane Group             |      |      |       |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

London Signalized RCUT 2045 PM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↱                         |      |
| Traffic Volume (vph)              | 0    | 1170  | 0     | 0    | 93                        | 0    |
| Future Volume (vph)               | 0    | 1170  | 0     | 0    | 93                        | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3529  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3529  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 1232  | 0     | 0    | 98                        | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 25                        | 0    |
| Lane Group Flow (vph)             | 0    | 1232  | 0     | 0    | 73                        | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 71.6  |       |      | 8.4                       |      |
| Effective Green, g (s)            |      | 71.6  |       |      | 8.4                       |      |
| Actuated g/C Ratio                |      | 0.80  |       |      | 0.09                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 2807  |       |      | 151                       |      |
| v/s Ratio Prot                    |      | c0.35 |       |      | c0.04                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.44  |       |      | 0.48                      |      |
| Uniform Delay, d1                 |      | 2.9   |       |      | 38.7                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 0.5   |       |      | 2.4                       |      |
| Delay (s)                         |      | 3.4   |       |      | 41.1                      |      |
| Level of Service                  |      | A     |       |      | D                         |      |
| Approach Delay (s)                |      | 3.4   | 0.0   |      | 41.1                      |      |
| Approach LOS                      |      | A     | A     |      | D                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 6.2   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.44  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 77.2% |      | ICU Level of Service      | D    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: London Boulevard

London Signalized RCUT 2045 PM.syn

11/18/2019

|                                   |  |       |       |      |      |      |                           |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|---------------------------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBR  | NBR2  | SWL  | SWR  |
| Lane Configurations               |                                                                                    | ↑↑    | ↑     |      |      |      |                           |      | ↑     | ↑    |      |
| Traffic Volume (vph)              | 0                                                                                  | 1131  | 86    | 0    | 0    | 0    | 0                         | 0    | 192   | 95   | 0    |
| Future Volume (vph)               | 0                                                                                  | 1131  | 86    | 0    | 0    | 0    | 0                         | 0    | 192   | 95   | 0    |
| Ideal Flow (vphpl)                | 1950                                                                               | 1950  | 1950  | 1950 | 1950 | 1950 | 1950                      | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |                                                                                    | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Lane Util. Factor                 |                                                                                    | 0.95  | 1.00  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Frt                               |                                                                                    | 1.00  | 0.85  |      |      |      |                           |      | 0.86  | 1.00 |      |
| Flt Protected                     |                                                                                    | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (prot)                 |                                                                                    | 3495  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Flt Permitted                     |                                                                                    | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (perm)                 |                                                                                    | 3495  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Peak-hour factor, PHF             | 0.95                                                                               | 0.95  | 0.95  | 0.95 | 0.95 | 0.95 | 0.95                      | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0                                                                                  | 1191  | 91    | 0    | 0    | 0    | 0                         | 0    | 202   | 100  | 0    |
| RTOR Reduction (vph)              | 0                                                                                  | 0     | 18    | 0    | 0    | 0    | 0                         | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 1191  | 73    | 0    | 0    | 0    | 0                         | 0    | 202   | 100  | 0    |
| Heavy Vehicles (%)                | 2%                                                                                 | 6%    | 2%    | 2%   | 2%   | 2%   | 2%                        | 2%   | 2%    | 2%   | 2%   |
| Turn Type                         |                                                                                    | NA    | Perm  |      |      |      |                           |      | Perm  | Prot |      |
| Protected Phases                  |                                                                                    | 2     |       |      |      |      |                           |      |       | 4    |      |
| Permitted Phases                  |                                                                                    |       | 2     |      |      |      |                           |      | 8     |      |      |
| Actuated Green, G (s)             |                                                                                    | 63.5  | 63.5  |      |      |      |                           |      | 16.5  | 16.5 |      |
| Effective Green, g (s)            |                                                                                    | 63.5  | 63.5  |      |      |      |                           |      | 16.5  | 16.5 |      |
| Actuated g/C Ratio                |                                                                                    | 0.71  | 0.71  |      |      |      |                           |      | 0.18  | 0.18 |      |
| Clearance Time (s)                |                                                                                    | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Vehicle Extension (s)             |                                                                                    | 3.0   | 3.0   |      |      |      |                           |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 2465  | 1146  |      |      |      |                           |      | 303   | 332  |      |
| v/s Ratio Prot                    |                                                                                    | c0.34 |       |      |      |      |                           |      |       | 0.06 |      |
| v/s Ratio Perm                    |                                                                                    |       | 0.05  |      |      |      |                           |      | c0.12 |      |      |
| v/c Ratio                         |                                                                                    | 0.48  | 0.06  |      |      |      |                           |      | 0.67  | 0.30 |      |
| Uniform Delay, d1                 |                                                                                    | 5.9   | 4.1   |      |      |      |                           |      | 34.2  | 31.8 |      |
| Progression Factor                |                                                                                    | 0.67  | 0.63  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |                                                                                    | 0.6   | 0.1   |      |      |      |                           |      | 5.5   | 0.5  |      |
| Delay (s)                         |                                                                                    | 4.6   | 2.7   |      |      |      |                           |      | 39.6  | 32.3 |      |
| Level of Service                  |                                                                                    | A     | A     |      |      |      |                           |      | D     | C    |      |
| Approach Delay (s)                |                                                                                    | 4.5   |       |      | 0.0  |      | 39.6                      |      |       | 32.3 |      |
| Approach LOS                      |                                                                                    | A     |       |      | A    |      | D                         |      |       | C    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |                           |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 10.7  |      |      |      | HCM 2000 Level of Service |      |       | B    |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.52  |      |      |      |                           |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 90.0  |      |      |      | Sum of lost time (s)      |      | 10.0  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 50.4% |      |      |      | ICU Level of Service      |      | A     |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |                           |      |       |      |      |
| <b>c Critical Lane Group</b>      |                                                                                    |       |       |      |      |      |                           |      |       |      |      |

# HCM Signalized Intersection Capacity Analysis

## 220: London Boulevard

London Signalized RCUT 2045 PM.syn

11/18/2019

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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |   |  |                                                                                    |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1401                                                                                                                                                                | 121                                                                               | 0                                                                                  | 0                                                                                   | 109                                                                                 | 46                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1401                                                                                                                                                                | 121                                                                               | 0                                                                                  | 0                                                                                   | 109                                                                                 | 46                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                                                                                                | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                                                                                                                 | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 0.85                                                                              |                                                                                    |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                                                                                                                | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                                                                                                                | 1625                                                                              |                                                                                    |                                                                                     | 1654                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1475                                                                                                                                                                | 127                                                                               | 0                                                                                  | 0                                                                                   | 115                                                                                 | 48                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 12                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1475                                                                                                                                                                | 115                                                                               | 0                                                                                  | 0                                                                                   | 115                                                                                 | 48                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                                                                                                  | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                                                                                                  | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 95.9                                                                                                                                                                | 95.9                                                                              |                                                                                    |                                                                                     | 14.1                                                                                | 14.1                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 95.9                                                                                                                                                                | 95.9                                                                              |                                                                                    |                                                                                     | 14.1                                                                                | 14.1                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.80                                                                                                                                                                | 0.80                                                                              |                                                                                    |                                                                                     | 0.12                                                                                | 0.12                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                                                                                                                 | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                                                                                                                 | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2793                                                                                                                                                                | 1298                                                                              |                                                                                    |                                                                                     | 194                                                                                 | 213                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.42                                                                                                                                                               |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.03                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     | 0.07                                                                              |                                                                                    |                                                                                     | c0.07                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.53                                                                                                                                                                | 0.09                                                                              |                                                                                    |                                                                                     | 0.59                                                                                | 0.23                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.2                                                                                                                                                                 | 2.6                                                                               |                                                                                    |                                                                                     | 50.2                                                                                | 48.0                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.70                                                                                                                                                                | 0.79                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.6                                                                                                                                                                 | 0.1                                                                               |                                                                                    |                                                                                     | 4.8                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.5                                                                                                                                                                 | 2.2                                                                               |                                                                                    |                                                                                     | 55.0                                                                                | 48.5                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                                                                                                   | A                                                                                 |                                                                                    |                                                                                     | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 3.4                                                                                                                                                                 |                                                                                   | 55.0                                                                               |                                                                                     |                                                                                     | 48.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.0                                                                               |                                                                                   | HCM 2000 Level of Service                                                                                                                                           |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.54                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 52.6%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

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| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1522                                                                              | 95                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1522                                                                              | 95                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1602                                                                              | 100                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 25                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1602                                                                              | 75                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 101.2                                                                             | 10.8                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 101.2                                                                             | 10.8                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.84                                                                              | 0.09                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2976                                                                              | 146                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.45                                                                             | c0.05                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                              | 0.51                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 2.7                                                                               | 52.1                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.7                                                                               | 3.0                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 3.4                                                                               | 55.1                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 3.4                                                                               | 55.1                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 6.4                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.54                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 52.8%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & London Boulevard

London MUT 2025 AM.syn

08/09/2019

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| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                     | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 580                                                                               | 40                                                                                | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 123                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 580                                                                               | 40                                                                                | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 123                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                     | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                     | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                     | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 611                                                                               | 42                                                                                | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 129                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 20                                                                                | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 40                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 611                                                                               | 22                                                                                | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 89                                                                                  |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                     | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 23.8                                                                              | 23.8                                                                              |                                                                                     | 14.9                                                                                |                                                                                     |                                                                                     | 9.4                                                                                 | 9.4                                                                                 |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 24.8                                                                              | 24.8                                                                              |                                                                                     | 15.9                                                                                |                                                                                     |                                                                                     | 15.9                                                                                | 15.9                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.53                                                                              | 0.53                                                                              |                                                                                     | 0.34                                                                                |                                                                                     |                                                                                     | 0.34                                                                                | 0.34                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                     | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                     | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1856                                                                              | 862                                                                               |                                                                                     | 650                                                                                 |                                                                                     |                                                                                     | 650                                                                                 | 553                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.17                                                                             |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.01                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.06                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.33                                                                              | 0.03                                                                              |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                | 0.16                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.2                                                                               | 5.2                                                                               |                                                                                     | 10.2                                                                                |                                                                                     |                                                                                     | 10.2                                                                                | 10.7                                                                                |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.26                                                                              | 0.16                                                                              |                                                                                     | 0.20                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.0                                                                               |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.1                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.7                                                                               | 0.8                                                                               |                                                                                     | 2.1                                                                                 |                                                                                     |                                                                                     | 10.2                                                                                | 10.9                                                                                |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   | B                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 1.7                                                                               |                                                                                   |                                                                                     | 2.1                                                                                 |                                                                                     |                                                                                     | 10.9                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 3.2                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 46.7                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 35.5%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

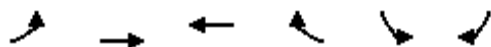
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|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↱                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 598                                                                               | 30                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 598                                                                               | 30                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 629                                                                               | 32                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 24                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 629                                                                               | 8                                                                                 | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 27.5                                                                              | 11.2                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 28.5                                                                              | 12.2                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.61                                                                              | 0.26                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2132                                                                              | 424                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                             | c0.01                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.30                                                                              | 0.02                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 4.3                                                                               | 12.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.0                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 4.4                                                                               | 12.8                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 4.4                                                                               | 12.8                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 4.8                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.28                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 46.7                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 45.6%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

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| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↱     |      |
| Traffic Volume (vph)              | 0    | 744   | 0    | 0                         | 135   | 0    |
| Future Volume (vph)               | 0    | 744   | 0    | 0                         | 135   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 3.0   |      |                           | 3.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3495  |      |                           | 1625  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3495  |      |                           | 1625  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 783   | 0    | 0                         | 142   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 81    | 0    |
| Lane Group Flow (vph)             | 0    | 783   | 0    | 0                         | 61    | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%   | 2%                        | 2%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 1 7   |      |                           | 3 5   |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 27.5  |      |                           | 11.2  |      |
| Effective Green, g (s)            |      | 28.5  |      |                           | 12.2  |      |
| Actuated g/C Ratio                |      | 0.61  |      |                           | 0.26  |      |
| Clearance Time (s)                |      |       |      |                           |       |      |
| Vehicle Extension (s)             |      |       |      |                           |       |      |
| Lane Grp Cap (vph)                |      | 2132  |      |                           | 424   |      |
| v/s Ratio Prot                    |      | c0.22 |      |                           | c0.04 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.37  |      |                           | 0.14  |      |
| Uniform Delay, d1                 |      | 4.6   |      |                           | 13.2  |      |
| Progression Factor                |      | 1.00  |      |                           | 0.79  |      |
| Incremental Delay, d2             |      | 0.1   |      |                           | 0.2   |      |
| Delay (s)                         |      | 4.7   |      |                           | 10.7  |      |
| Level of Service                  |      | A     |      |                           | B     |      |
| Approach Delay (s)                |      | 4.7   | 0.0  |                           | 10.7  |      |
| Approach LOS                      |      | A     | A    |                           | B     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 5.6   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.39  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 46.7  |      | Sum of lost time (s)      |       | 15.5 |
| Intersection Capacity Utilization |      | 42.0% |      | ICU Level of Service      |       | A    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| <b>c Critical Lane Group</b>      |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 5: London Boulevard & SR 524

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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | ↑                                                                                   | ↗                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 824                                                                               | 55                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 2                                                                                   | 54                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 824                                                                               | 55                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 2                                                                                   | 54                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 867                                                                               | 58                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 2                                                                                   | 57                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 27                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 38                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 867                                                                               | 31                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 2                                                                                   | 19                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 23.8                                                                              | 23.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.4                                                                                 | 9.4                                                                                 |                                                                                     | 14.9                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 24.8                                                                              | 24.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 15.9                                                                                | 15.9                                                                                |                                                                                     | 15.9                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.53                                                                              | 0.53                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.34                                                                                | 0.34                                                                                |                                                                                     | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1874                                                                              | 862                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 650                                                                                 | 553                                                                                 |                                                                                     | 650                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.25                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.01                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.46                                                                              | 0.04                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                | 0.04                                                                                |                                                                                     | 0.00                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 6.8                                                                               | 5.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 10.2                                                                                | 10.3                                                                                |                                                                                     | 10.2                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.53                                                                              | 0.16                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.20                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.2                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 3.8                                                                               | 0.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 10.2                                                                                | 10.3                                                                                |                                                                                     | 2.1                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 3.6                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                     | 10.3                                                                                |                                                                                     |                                                                                     | 2.1                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 4.0                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.39                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 46.7                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 35.5%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & London Boulevard

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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 847                                                                               | 50                                                                                | 0                                                                                  | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 83                                                                                  |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 847                                                                               | 50                                                                                | 0                                                                                  | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 83                                                                                  |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 892                                                                               | 53                                                                                | 0                                                                                  | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 87                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 24                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 40                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 892                                                                               | 29                                                                                | 0                                                                                  | 2                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 47                                                                                  |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 24.5                                                                              | 24.5                                                                              |                                                                                    | 14.3                                                                                |                                                                                     |                                                                                     | 8.8                                                                                 | 8.8                                                                                 |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 25.5                                                                              | 25.5                                                                              |                                                                                    | 15.3                                                                                |                                                                                     |                                                                                     | 15.3                                                                                | 15.3                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                              | 0.54                                                                              |                                                                                    | 0.33                                                                                |                                                                                     |                                                                                     | 0.33                                                                                | 0.33                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                    | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1904                                                                              | 885                                                                               |                                                                                    | 625                                                                                 |                                                                                     |                                                                                     | 625                                                                                 | 531                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.26                                                                             |                                                                                   |                                                                                    | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.03                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.47                                                                              | 0.03                                                                              |                                                                                    | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                | 0.09                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.5                                                                               | 4.9                                                                               |                                                                                    | 10.6                                                                                |                                                                                     |                                                                                     | 10.6                                                                                | 10.9                                                                                |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.22                                                                              | 0.01                                                                              |                                                                                    | 0.18                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.0                                                                               |                                                                                    | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.1                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.6                                                                               | 0.1                                                                               |                                                                                    | 1.9                                                                                 |                                                                                     |                                                                                     | 10.6                                                                                | 11.0                                                                                |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   | B                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 1.5                                                                               |                                                                                   |                                                                                    | 1.9                                                                                 |                                                                                     |                                                                                     | 11.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 2.3                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.43                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 46.8                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.1%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

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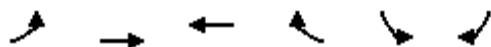
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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 931                                                                               | 48                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 931                                                                               | 48                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 980                                                                               | 51                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 38                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 980                                                                               | 13                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 27.6                                                                              | 11.2                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 28.6                                                                              | 12.2                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.61                                                                              | 0.26                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2156                                                                              | 423                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.28                                                                             | c0.01                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.45                                                                              | 0.03                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 4.9                                                                               | 12.9                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.92                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.2                                                                               | 0.0                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 5.1                                                                               | 11.9                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 5.1                                                                               | 11.9                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.4                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.43                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 46.8                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 51.9%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

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| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↱                         |      |
| Traffic Volume (vph)              | 0    | 702   | 0     | 0    | 94                        | 0    |
| Future Volume (vph)               | 0    | 702   | 0     | 0    | 94                        | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 3.0   |       |      | 3.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3495  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3495  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 739   | 0     | 0    | 99                        | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 73                        | 0    |
| Lane Group Flow (vph)             | 0    | 739   | 0     | 0    | 26                        | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 1 7   |       |      | 3 5                       |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 27.6  |       |      | 11.2                      |      |
| Effective Green, g (s)            |      | 28.6  |       |      | 12.2                      |      |
| Actuated g/C Ratio                |      | 0.61  |       |      | 0.26                      |      |
| Clearance Time (s)                |      |       |       |      |                           |      |
| Vehicle Extension (s)             |      |       |       |      |                           |      |
| Lane Grp Cap (vph)                |      | 2135  |       |      | 423                       |      |
| v/s Ratio Prot                    |      | c0.21 |       |      | c0.02                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.35  |       |      | 0.06                      |      |
| Uniform Delay, d1                 |      | 4.5   |       |      | 13.0                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.25                      |      |
| Incremental Delay, d2             |      | 0.1   |       |      | 0.1                       |      |
| Delay (s)                         |      | 4.6   |       |      | 16.4                      |      |
| Level of Service                  |      | A     |       |      | B                         |      |
| Approach Delay (s)                |      | 4.6   | 0.0   |      | 16.4                      |      |
| Approach LOS                      |      | A     | A     |      | B                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 6.0   |      | HCM 2000 Level of Service | A    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.34  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 46.8  |      | Sum of lost time (s)      | 15.5 |
| Intersection Capacity Utilization |      |       | 48.1% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| <b>c Critical Lane Group</b>      |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 5: London Boulevard & SR 524

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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | ↑                                                                                   | ↗                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 756                                                                               | 40                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 2                                                                                   | 42                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 756                                                                               | 40                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 2                                                                                   | 42                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 796                                                                               | 42                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 2                                                                                   | 44                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 19                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 30                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 796                                                                               | 23                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 2                                                                                   | 14                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 24.5                                                                              | 24.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 8.8                                                                                 | 8.8                                                                                 |                                                                                     | 14.3                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 25.5                                                                              | 25.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 15.3                                                                                | 15.3                                                                                |                                                                                     | 15.3                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.54                                                                              | 0.54                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.33                                                                                | 0.33                                                                                |                                                                                     | 0.33                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1922                                                                              | 885                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 625                                                                                 | 531                                                                                 |                                                                                     | 625                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.23                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | c0.01                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.41                                                                              | 0.03                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.00                                                                                | 0.03                                                                                |                                                                                     | 0.00                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 6.3                                                                               | 4.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.6                                                                                | 10.7                                                                                |                                                                                     | 10.6                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.38                                                                              | 0.04                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.18                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.2                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 2.6                                                                               | 0.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.6                                                                                | 10.7                                                                                |                                                                                     | 1.9                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 2.4                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                    | 10.7                                                                                |                                                                                     |                                                                                     | 1.9                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 2.9                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.36                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 46.8                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.1%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & London Boulevard

London MUT 2045 AM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                    | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↗                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1301                                                                              | 150                                                                               | 0                                                                                  | 10                                                                                  | 0                                                                                   | 0                                                                                   | 10                                                                                  | 161                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1301                                                                              | 150                                                                               | 0                                                                                  | 10                                                                                  | 0                                                                                   | 0                                                                                   | 10                                                                                  | 161                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                    | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1369                                                                              | 158                                                                               | 0                                                                                  | 11                                                                                  | 0                                                                                   | 0                                                                                   | 11                                                                                  | 169                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 29                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 38                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1369                                                                              | 129                                                                               | 0                                                                                  | 11                                                                                  | 0                                                                                   | 0                                                                                   | 11                                                                                  | 131                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 26.2                                                                              | 26.2                                                                              |                                                                                    | 18.5                                                                                |                                                                                     |                                                                                     | 13.0                                                                                | 13.0                                                                                |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 27.2                                                                              | 27.2                                                                              |                                                                                    | 19.5                                                                                |                                                                                     |                                                                                     | 19.5                                                                                | 19.5                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.52                                                                              | 0.52                                                                              |                                                                                    | 0.37                                                                                |                                                                                     |                                                                                     | 0.37                                                                                | 0.37                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                    | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1821                                                                              | 838                                                                               |                                                                                    | 707                                                                                 |                                                                                     |                                                                                     | 707                                                                                 | 601                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.39                                                                             |                                                                                   |                                                                                    | 0.01                                                                                |                                                                                     |                                                                                     | 0.01                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.08                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.08                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.75                                                                              | 0.15                                                                              |                                                                                    | 0.02                                                                                |                                                                                     |                                                                                     | 0.02                                                                                | 0.22                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 10.1                                                                              | 6.7                                                                               |                                                                                    | 10.5                                                                                |                                                                                     |                                                                                     | 10.5                                                                                | 11.4                                                                                |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.28                                                                              | 0.05                                                                              |                                                                                    | 0.11                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.4                                                                               | 0.1                                                                               |                                                                                    | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.2                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.3                                                                               | 0.4                                                                               |                                                                                    | 1.2                                                                                 |                                                                                     |                                                                                     | 10.5                                                                                | 11.6                                                                                |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   | B                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 3.9                                                                               |                                                                                   |                                                                                    | 1.2                                                                                 |                                                                                     |                                                                                     | 11.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.67                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 52.7                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 58.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

London MUT 2045 AM.syn

08/09/2019

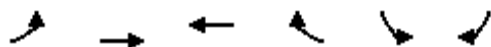
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|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1275                                                                              | 105                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1275                                                                              | 105                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1342                                                                              | 111                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 12                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1342                                                                              | 99                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 27.2                                                                              | 17.5                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 28.2                                                                              | 18.5                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                              | 0.35                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 1870                                                                              | 570                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.38                                                                             | c0.06                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.72                                                                              | 0.17                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 9.2                                                                               | 11.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.40                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 1.4                                                                               | 0.1                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 10.6                                                                              | 4.8                                                                               |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 10.6                                                                              | 4.8                                                                               |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 10.2                                                                              | HCM 2000 Level of Service                                                         |                                                                                   | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.63                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 52.7                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 82.3%                                                                             | ICU Level of Service                                                              |                                                                                   | E                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 4: SR 524 & W U-Turn

London MUT 2045 AM.syn

08/09/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↵                         |      |
| Traffic Volume (vph)              | 0    | 1377  | 0     | 0    | 266                       | 0    |
| Future Volume (vph)               | 0    | 1377  | 0     | 0    | 266                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 3.0   |       |      | 3.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3495  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3495  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 1449  | 0     | 0    | 280                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 8                         | 0    |
| Lane Group Flow (vph)             | 0    | 1449  | 0     | 0    | 272                       | 0    |
| Heavy Vehicles (%)                | 2%   | 6%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 1 7   |       |      | 3 5                       |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 27.2  |       |      | 17.5                      |      |
| Effective Green, g (s)            |      | 28.2  |       |      | 18.5                      |      |
| Actuated g/C Ratio                |      | 0.54  |       |      | 0.35                      |      |
| Clearance Time (s)                |      |       |       |      |                           |      |
| Vehicle Extension (s)             |      |       |       |      |                           |      |
| Lane Grp Cap (vph)                |      | 1870  |       |      | 570                       |      |
| v/s Ratio Prot                    |      | c0.41 |       |      | c0.17                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.77  |       |      | 0.48                      |      |
| Uniform Delay, d1                 |      | 9.7   |       |      | 13.3                      |      |
| Progression Factor                |      | 1.00  |       |      | 0.49                      |      |
| Incremental Delay, d2             |      | 2.1   |       |      | 0.4                       |      |
| Delay (s)                         |      | 11.8  |       |      | 7.0                       |      |
| Level of Service                  |      | B     |       |      | A                         |      |
| Approach Delay (s)                |      | 11.8  | 0.0   |      | 7.0                       |      |
| Approach LOS                      |      | B     | A     |      | A                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 11.0  |      | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.82  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 52.7  |      | Sum of lost time (s)      | 15.5 |
| Intersection Capacity Utilization |      |       | 76.0% |      | ICU Level of Service      | D    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 5: London Boulevard & SR 524

London MUT 2045 AM.syn

08/09/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | ↑                                                                                   | ↗                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1405                                                                              | 238                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 10                                                                                  | 233                                                                                 | 0                                                                                   | 10                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1405                                                                              | 238                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 10                                                                                  | 233                                                                                 | 0                                                                                   | 10                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1479                                                                              | 251                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 11                                                                                  | 245                                                                                 | 0                                                                                   | 11                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 29                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 38                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1479                                                                              | 222                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 11                                                                                  | 207                                                                                 | 0                                                                                   | 11                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 26.2                                                                              | 26.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 13.0                                                                                | 13.0                                                                                |                                                                                     | 18.5                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 27.2                                                                              | 27.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 19.5                                                                                | 19.5                                                                                |                                                                                     | 19.5                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.52                                                                              | 0.52                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.37                                                                                | 0.37                                                                                |                                                                                     | 0.37                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1821                                                                              | 838                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 707                                                                                 | 601                                                                                 |                                                                                     | 707                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.42                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.01                                                                                |                                                                                     |                                                                                     | 0.01                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.14                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | c0.13                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.81                                                                              | 0.26                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.02                                                                                | 0.34                                                                                |                                                                                     | 0.02                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 10.6                                                                              | 7.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.5                                                                                | 12.0                                                                                |                                                                                     | 10.5                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.46                                                                              | 0.28                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.11                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 2.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.0                                                                                 | 0.3                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 7.0                                                                               | 2.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.5                                                                                | 12.3                                                                                |                                                                                     | 1.2                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 6.3                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                    | 12.3                                                                                |                                                                                     |                                                                                     | 1.2                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.0                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.78                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 52.7                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 58.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: SR 524 & London Boulevard

London MUT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                     | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1496                                                                              | 141                                                                               | 0                                                                                   | 7                                                                                   | 0                                                                                   | 0                                                                                   | 7                                                                                   | 102                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1496                                                                              | 141                                                                               | 0                                                                                   | 7                                                                                   | 0                                                                                   | 0                                                                                   | 7                                                                                   | 102                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                     | 3.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                     | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                     | 1912                                                                                |                                                                                     |                                                                                     | 1912                                                                                | 1625                                                                                |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1575                                                                              | 148                                                                               | 0                                                                                   | 7                                                                                   | 0                                                                                   | 0                                                                                   | 7                                                                                   | 107                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 28                                                                                | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 39                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1575                                                                              | 120                                                                               | 0                                                                                   | 7                                                                                   | 0                                                                                   | 0                                                                                   | 7                                                                                   | 68                                                                                  |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                     | NA                                                                                  |                                                                                     |                                                                                     | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 26.1                                                                              | 26.1                                                                              |                                                                                     | 16.4                                                                                |                                                                                     |                                                                                     | 10.9                                                                                | 10.9                                                                                |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 27.1                                                                              | 27.1                                                                              |                                                                                     | 17.4                                                                                |                                                                                     |                                                                                     | 17.4                                                                                | 17.4                                                                                |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                              | 0.54                                                                              |                                                                                     | 0.34                                                                                |                                                                                     |                                                                                     | 0.34                                                                                | 0.34                                                                                |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                     | 4.0                                                                                 |                                                                                     |                                                                                     | 9.5                                                                                 | 9.5                                                                                 |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                     | 8.0                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1875                                                                              | 872                                                                               |                                                                                     | 658                                                                                 |                                                                                     |                                                                                     | 658                                                                                 | 559                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.45                                                                             |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.07                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | c0.04                                                                               |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.84                                                                              | 0.14                                                                              |                                                                                     | 0.01                                                                                |                                                                                     |                                                                                     | 0.01                                                                                | 0.12                                                                                |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 9.9                                                                               | 5.9                                                                               |                                                                                     | 10.9                                                                                |                                                                                     |                                                                                     | 10.9                                                                                | 11.3                                                                                |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.31                                                                              | 0.08                                                                              |                                                                                     | 0.11                                                                                |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2.3                                                                               | 0.0                                                                               |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 | 0.1                                                                                 |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.4                                                                               | 0.5                                                                               |                                                                                     | 1.2                                                                                 |                                                                                     |                                                                                     | 10.9                                                                                | 11.4                                                                                |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   | B                                                                                   |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                     | 1.2                                                                                 |                                                                                     |                                                                                     | 11.4                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.3                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.72                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 50.5                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 53.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 3: E U-turn & SR 524

London MUT 2045 PM.syn  
11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1522                                                                              | 134                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1522                                                                              | 134                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1602                                                                              | 141                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 5                                                                                 | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1602                                                                              | 136                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 1 7                                                                               | 3 5                                                                               |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 27.6                                                                              | 14.9                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 28.6                                                                              | 15.9                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.57                                                                              | 0.31                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 1998                                                                              | 511                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.45                                                                             | c0.08                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.80                                                                              | 0.27                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 8.7                                                                               | 12.9                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.53                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 2.4                                                                               | 0.2                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 11.1                                                                              | 7.1                                                                               |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 11.1                                                                              | 7.1                                                                               |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 10.8                                                                              | HCM 2000 Level of Service                                                         |                                                                                   | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.78                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 50.5                                                                              | Sum of lost time (s)                                                              |                                                                                   | 15.5                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 80.7%                                                                             | ICU Level of Service                                                              |                                                                                   | D                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↵     |      |
| Traffic Volume (vph)              | 0    | 1170  | 0    | 0                         | 181   | 0    |
| Future Volume (vph)               | 0    | 1170  | 0    | 0                         | 181   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 3.0   |      |                           | 3.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3529  |      |                           | 1625  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3529  |      |                           | 1625  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 1232  | 0    | 0                         | 191   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 18    | 0    |
| Lane Group Flow (vph)             | 0    | 1232  | 0    | 0                         | 173   | 0    |
| Heavy Vehicles (%)                | 2%   | 5%    | 2%   | 2%                        | 2%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 1 7   |      |                           | 3 5   |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 27.6  |      |                           | 14.9  |      |
| Effective Green, g (s)            |      | 28.6  |      |                           | 15.9  |      |
| Actuated g/C Ratio                |      | 0.57  |      |                           | 0.31  |      |
| Clearance Time (s)                |      |       |      |                           |       |      |
| Vehicle Extension (s)             |      |       |      |                           |       |      |
| Lane Grp Cap (vph)                |      | 1998  |      |                           | 511   |      |
| v/s Ratio Prot                    |      | c0.35 |      |                           | c0.11 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.62  |      |                           | 0.34  |      |
| Uniform Delay, d1                 |      | 7.3   |      |                           | 13.3  |      |
| Progression Factor                |      | 1.00  |      |                           | 0.31  |      |
| Incremental Delay, d2             |      | 0.6   |      |                           | 0.2   |      |
| Delay (s)                         |      | 7.9   |      |                           | 4.4   |      |
| Level of Service                  |      | A     |      |                           | A     |      |
| Approach Delay (s)                |      | 7.9   | 0.0  |                           | 4.4   |      |
| Approach LOS                      |      | A     | A    |                           | A     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 7.4   |      | HCM 2000 Level of Service |       | A    |
| HCM 2000 Volume to Capacity ratio |      | 0.66  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 50.5  |      | Sum of lost time (s)      |       | 15.5 |
| Intersection Capacity Utilization |      | 76.3% |      | ICU Level of Service      |       | D    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| <b>c Critical Lane Group</b>      |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 5: London Boulevard & SR 524

London MUT 2045 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | ↑                                                                                   | ↗                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1177                                                                              | 174                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 7                                                                                   | 185                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1177                                                                              | 174                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 7                                                                                   | 185                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 0.85                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3529                                                                              | 1625                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1912                                                                                | 1625                                                                                |                                                                                     | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1239                                                                              | 183                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 7                                                                                   | 195                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 28                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 39                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1239                                                                              | 155                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 7                                                                                   | 156                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  | Perm                                                                                |                                                                                     | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 26.1                                                                              | 26.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.9                                                                                | 10.9                                                                                |                                                                                     | 16.4                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 27.1                                                                              | 27.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 17.4                                                                                | 17.4                                                                                |                                                                                     | 17.4                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.54                                                                              | 0.54                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.34                                                                                | 0.34                                                                                |                                                                                     | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 9.5                                                                                 | 9.5                                                                                 |                                                                                     | 4.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 8.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1893                                                                              | 872                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 658                                                                                 | 559                                                                                 |                                                                                     | 658                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.35                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.10                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | c0.10                                                                               |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.65                                                                              | 0.18                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.01                                                                                | 0.28                                                                                |                                                                                     | 0.01                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 8.4                                                                               | 6.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.9                                                                                | 12.0                                                                                |                                                                                     | 10.9                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.48                                                                              | 0.23                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.11                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.7                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0.0                                                                                 | 0.3                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 4.7                                                                               | 1.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 10.9                                                                                | 12.3                                                                                |                                                                                     | 1.2                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 4.3                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                    | 12.2                                                                                |                                                                                     |                                                                                     | 1.2                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 5.3                                                                               |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.65                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 50.5                                                                              |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 16.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 53.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

SR 524 at London Blvd Signalized Cost Estimate

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                      | UNIT | QUANTITY | UNIT COST     | COST          |
|--------------------|----------------------------------------------------------------------------------|------|----------|---------------|---------------|
| 101-1              | Mobilization                                                                     | LS   | 1        | \$ 139,899.57 | \$ 139,899.57 |
| 102-1              | Maintenance of Traffic                                                           | LS   | 1        | \$ 139,899.57 | \$ 139,899.57 |
| 110-1-1            | Clearing and Grubbing                                                            | AC   | 5.6      | \$ 18,895.19  | \$ 105,595.74 |
| 110-4-10           | Removal of Existing Concrete                                                     | SY   | 8,841.8  | \$ 20.72      | \$ 183,201.64 |
| 160-4              | Type B Stabilization                                                             | SY   | 10,916.9 | \$ 5.83       | \$ 63,645.46  |
| 285-709            | Optional Base, Base Group 09                                                     | SY   | 10,916.9 | \$ 19.27      | \$ 210,368.45 |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)      | TN   | 900.6    | \$ 95.68      | \$ 86,173.55  |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12,5, PG 76-22 (165 lb/yd^2)     | TN   | 900.6    | \$ 114.05     | \$ 102,718.37 |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                   | LF   | 1,901.3  | \$ 23.65      | \$ 44,965.75  |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                   | LF   | 2,517.0  | \$ 26.67      | \$ 67,128.39  |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                            | SY   | 1,576.2  | \$ 43.68      | \$ 68,849.39  |
| 527-2              | Detectable Warnings                                                              | SF   | 295.0    | \$ 29.11      | \$ 8,587.45   |
| 570-1-2            | Performance Turf, Sod                                                            | SY   | 1,555.3  | \$ 2.62       | \$ 4,074.97   |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                          | LF   | 3,430.0  | \$ 8.74       | \$ 29,978.20  |
| 632-7-1            | Signal Cable - New Or Reconstructed Intersection, Furnish & Install              | PI   | 1.0      | \$ 6,178.01   | \$ 6,178.01   |
| 635-2-11           | Pull & Splice Box, F&I, 13" X 24" Cover Size                                     | EA   | 26.0     | \$ 753.91     | \$ 19,601.66  |
| 639-1-122          | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor        | AS   | 1.0      | \$ 3,390.41   | \$ 3,390.41   |
| 639-2-1            | Electrical Service Wire                                                          | LF   | 583.0    | \$ 5.23       | \$ 3,049.09   |
| 641-2-12           | Prestressed Concrete Pole, F&I, Type P-Ii Service Pole                           | EA   | 4.0      | \$ 1,651.12   | \$ 6,604.48   |
| 646-1-11           | Aluminum Signals Pole, Pedestal                                                  | EA   | 4.0      | \$ 1,625.89   | \$ 6,503.56   |
| 646-1-12           | Aluminum Signals Pole, F&I Pedestrian Detector Post                              | EA   | 4.0      | \$ 1,104.51   | \$ 4,418.04   |
| 649-21-6           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 50'                     | EA   | 2.0      | \$ 41,505.98  | \$ 83,011.96  |
| 649-21-10          | Steel Mast Arm Assembly, Furnish and Install, Single Arm 60'                     | EA   | 2.0      | \$ 45,379.53  | \$ 90,759.06  |
| 650-1-14           | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                     | AS   | 12.0     | \$ 1,029.91   | \$ 12,358.92  |
| 653-1-11           | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                      | AS   | 4.0      | \$ 677.73     | \$ 2,710.92   |
| 660-4-11           | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment            | EA   | 4.0      | \$ 7,308.13   | \$ 29,232.52  |
| 660-4-12           | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment       | EA   | 4.0      | \$ 5,812.31   | \$ 23,249.24  |
| 665-1-11           | Pedestrian Detector, Furnish & Install, Standard                                 | EA   | 4.0      | \$ 292.89     | \$ 1,171.56   |
| 670-5-111          | Traffic Controller Assembly, F&I, Nema, 1 Preemption                             | AS   | 1.0      | \$ 30,363.51  | \$ 30,363.51  |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                             | GM   | 0.87     | \$ 1,008.98   | \$ 874.26     |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                            | LF   | 796      | \$ 0.91       | \$ 724.36     |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 2' | LF   | 654      | \$ 3.60       | \$ 2,354.40   |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                              | GM   | 0.40     | \$ 479.38     | \$ 192.39     |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                               | EA   | 35       | \$ 61.25      | \$ 2,143.75   |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                            | GM   | 0.37     | \$ 1,038.01   | \$ 388.27     |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                | LF   | 3,140    | \$ 2.12       | \$ 6,656.80   |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' M  | EA   | 14       | \$ 5,501.51   | \$ 77,021.14  |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                | EA   | 1.0      | \$ 10,750.00  | \$ 10,750.00  |
|                    |                                                                                  |      |          |               |               |
|                    |                                                                                  |      |          |               |               |
|                    |                                                                                  |      |          |               |               |
|                    |                                                                                  |      |          |               |               |

|                            |                        |
|----------------------------|------------------------|
| Construction Cost:         | \$ 1,678,794.80        |
| PE (Design Phase):         | \$ 419,698.70          |
| Contingency (25%):         | \$ 524,623.38          |
| <b>TOTAL PROJECT COST:</b> | <b>\$ 2,623,116.88</b> |

SR 524 at London Blvd Roundabout Cost Estimate

[illegible]

*SR 524 at London Blvd Restricted Crossing U-Turn Cost Estimate*

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                       | UNIT | QUANTITY | UNIT COST     | COST          |
|--------------------|-----------------------------------------------------------------------------------|------|----------|---------------|---------------|
| 101-1              | Mobilization                                                                      | LS   | 1        | \$ 168,797.54 | \$ 168,797.54 |
| 102-1              | Maintenance of Traffic                                                            | LS   | 1        | \$ 168,797.54 | \$ 168,797.54 |
| 110-1-1            | Clearing and Grubbing                                                             | AC   | 5.6      | \$ 18,895.19  | \$ 106,011.73 |
| 110-4-10           | Removal of Existing Concrete                                                      | SY   | 8,906.0  | \$ 20.72      | \$ 184,532.32 |
| 160-4              | Type B Stabilization                                                              | SY   | 10,178.6 | \$ 5.83       | \$ 59,340.98  |
| 285-709            | Optional Base, Base Group 09                                                      | SY   | 10,178.6 | \$ 19.27      | \$ 196,140.77 |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)       | TN   | 839.7    | \$ 95.68      | \$ 80,345.45  |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12,5, PG 76-22 (165 lb/yd^2)      | TN   | 839.7    | \$ 114.05     | \$ 95,771.30  |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                    | LF   | 2,148.0  | \$ 23.65      | \$ 50,800.20  |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                    | LF   | 2,329.0  | \$ 26.67      | \$ 62,114.43  |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                             | SY   | 1,537.4  | \$ 43.68      | \$ 67,155.57  |
| 520-70             | Concrete Traffic Separator, Special, Variable Width                               | SY   | 109.2    | \$ 87.12      | \$ 9,511.57   |
| 527-2              | Detectable Warnings                                                               | SF   | 207.8    | \$ 29.11      | \$ 6,049.06   |
| 570-1-2            | Performance Turf, Sod                                                             | SY   | 2,303.6  | \$ 2.62       | \$ 6,035.32   |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                           | LF   | 5,648.0  | \$ 8.74       | \$ 49,363.52  |
| 632-7-1            | Signal Cable - New Or Reconstructed Intersection, Furnish & Install               | PI   | 1.0      | \$ 6,178.01   | \$ 6,178.01   |
| 635-2-11           | Pull & Splice Box, F&I, 13" X 24" Cover Size                                      | EA   | 36.0     | \$ 753.91     | \$ 27,140.76  |
| 639-1-122          | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor         | AS   | 1.0      | \$ 3,390.41   | \$ 3,390.41   |
| 639-2-1            | Electrical Service Wire                                                           | LF   | 3,022.8  | \$ 5.23       | \$ 15,809.24  |
| 641-2-12           | Prestressed Concrete Pole, F&I, Type P-Ii Service Pole                            | EA   | 8.0      | \$ 1,651.12   | \$ 13,208.96  |
| 646-1-11           | Aluminum Signals Pole, Pedestal                                                   | EA   | 8.0      | \$ 1,625.89   | \$ 13,007.12  |
| 646-1-12           | Aluminum Signals Pole, F&I Pedestrian Detector Post                               | EA   | 8.0      | \$ 1,104.51   | \$ 8,836.08   |
| 649-21-10          | Steel Mast Arm Assembly, Furnish and Install, Single Arm 60'                      | EA   | 8.0      | \$ 45,379.53  | \$ 363,036.24 |
| 650-1-14           | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                      | AS   | 22.0     | \$ 1,029.91   | \$ 22,658.02  |
| 653-1-11           | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                       | AS   | 4.0      | \$ 677.73     | \$ 2,710.92   |
| 660-4-11           | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment             | EA   | 8.0      | \$ 7,308.13   | \$ 58,465.04  |
| 660-4-12           | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment        | EA   | 8.0      | \$ 5,812.31   | \$ 46,498.48  |
| 665-1-11           | Pedestrian Detector, Furnish & Install, Standard                                  | EA   | 4.0      | \$ 292.89     | \$ 1,171.56   |
| 670-5-111          | Traffic Controller Assembly, F&I, Nema, 1 Preemption                              | AS   | 1.0      | \$ 30,363.51  | \$ 30,363.51  |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                              | GM   | 1.01     | \$ 1,008.98   | \$ 1,017.39   |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                             | LF   | 803      | \$ 0.91       | \$ 730.73     |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 2'  | LF   | 658      | \$ 3.60       | \$ 2,368.80   |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                               | GM   | 0.39     | \$ 479.38     | \$ 185.31     |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                                | EA   | 51       | \$ 61.25      | \$ 3,123.75   |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                             | GM   | 0.46     | \$ 1,038.01   | \$ 474.97     |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                 | LF   | 3,140    | \$ 2.12       | \$ 6,656.80   |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Min | EA   | 14       | \$ 5,501.51   | \$ 77,021.14  |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                 | EA   | 1.0      | \$ 10,750.00  | \$ 10,750.00  |
|                    |                                                                                   |      |          |               |               |
|                    |                                                                                   |      |          |               |               |
|                    |                                                                                   |      |          |               |               |
|                    |                                                                                   |      |          |               |               |
|                    |                                                                                   |      |          |               |               |

|                            |                        |
|----------------------------|------------------------|
| Construction Cost:         | \$ 2,025,570.53        |
| PE (Design Phase):         | \$ 506,392.63          |
| Contingency (25%):         | \$ 632,990.79          |
| <b>TOTAL PROJECT COST:</b> | <b>\$ 3,164,953.96</b> |

SR 524 at London Blvd Median U-Turn Cost Estimate

| PAY ITEM NO. | DESCRIPTION                                                                       | UNIT | QUANTITY | UNIT COST           | COST            |
|--------------|-----------------------------------------------------------------------------------|------|----------|---------------------|-----------------|
| 101-1        | Mobilization                                                                      | LS   | 1        | \$ 168,313.15       | \$ 168,313.15   |
| 102-1        | Maintenance of Traffic                                                            | LS   | 1        | \$ 168,313.15       | \$ 168,313.15   |
| 110-1-1      | Clearing and Grubbing                                                             | AC   | 5.7      | \$ 18,895.19        | \$ 107,648.36   |
| 110-4-10     | Removal of Existing Concrete                                                      | SY   | 9,054.6  | \$ 20.72            | \$ 187,610.39   |
| 160-4        | Type B Stabilization                                                              | SY   | 9,668.3  | \$ 5.83             | \$ 56,366.38    |
| 285-709      | Optional Base, Base Group 09                                                      | SY   | 9,668.3  | \$ 19.27            | \$ 186,308.78   |
| 334-154      | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)       | TN   | 797.6    | \$ 95.68            | \$ 76,317.96    |
| 337-7-81     | Asphalt Concrete Friction Course, Traffic B, FC-12,S, PG 76-22 (165 lb/yd^2)      | TN   | 797.6    | \$ 114.05           | \$ 90,970.56    |
| 520-1-07     | Concrete Curb & Gutter, Type E                                                    | LF   | 2,341.6  | \$ 23.65            | \$ 55,378.84    |
| 520-1-10     | Concrete Curb & Gutter, Type F                                                    | LF   | 2,541.1  | \$ 26.67            | \$ 67,771.14    |
| 522-1        | Concrete Sidewalk and Ramps, 4" Thick                                             | SY   | 1,537.4  | \$ 43.68            | \$ 67,155.57    |
| 527-2        | Detectable Warnings                                                               | SF   | 358.3    | \$ 29.11            | \$ 10,430.11    |
| 570-1-2      | Performance Turf, Sod                                                             | SY   | 2,864.1  | \$ 2.62             | \$ 7,503.97     |
| 630-2-11     | Conduit, Furnish & Install, Open Trench                                           | LF   | 6,315.0  | \$ 8.74             | \$ 55,193.10    |
| 632-7-1      | Signal Cable - New Or Reconstructed Intersection, Furnish & Install               | PI   | 1.0      | \$ 6,178.01         | \$ 6,178.01     |
| 635-2-11     | Pull & Splice Box, F&I, 13" X 24" Cover Size                                      | EA   | 34.0     | \$ 753.91           | \$ 25,632.94    |
| 639-1-122    | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor         | AS   | 1.0      | \$ 3,390.41         | \$ 3,390.41     |
| 639-2-1      | Electrical Service Wire                                                           | LF   | 3,756.5  | \$ 5.23             | \$ 19,646.50    |
| 641-2-12     | Prestressed Concrete Pole, F&I, Type P-Ii Service Pole                            | EA   | 8.0      | \$ 1,651.12         | \$ 13,208.96    |
| 646-1-11     | Aluminum Signals Pole, Pedestal                                                   | EA   | 8.0      | \$ 1,625.89         | \$ 13,007.12    |
| 646-1-12     | Aluminum Signals Pole, F&I Pedestrian Detector Post                               | EA   | 8.0      | \$ 1,104.51         | \$ 8,836.08     |
| 649-21-10    | Steel Mast Arm Assembly, Furnish and Install, Single Arm 60'                      | EA   | 8.0      | \$ 45,379.53        | \$ 363,036.24   |
| 650-1-14     | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                      | AS   | 20.0     | \$ 1,029.91         | \$ 20,598.20    |
| 653-1-11     | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                       | AS   | 4.0      | \$ 677.73           | \$ 2,710.92     |
| 660-4-11     | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment             | EA   | 8.0      | \$ 7,308.13         | \$ 58,465.04    |
| 660-4-12     | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment        | EA   | 8.0      | \$ 5,812.31         | \$ 46,498.48    |
| 665-1-11     | Pedestrian Detector, Furnish & Install, Standard                                  | EA   | 4.0      | \$ 292.89           | \$ 1,171.56     |
| 670-5-111    | Traffic Controller Assembly, F&I, Nema, 1 Preemption                              | AS   | 1.0      | \$ 30,363.51        | \$ 30,363.51    |
| 710-11-101   | Painted Pavement Marking, Standard, White, Solid, 6"                              | GM   | 0.94     | \$ 1,008.98         | \$ 948.79       |
| 710-11-123   | Painted Pavement Marking, Standard, White, Solid, 12"                             | LF   | 805      | \$ 0.91             | \$ 732.55       |
| 710-11-125   | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 24" | LF   | 657      | \$ 3.60             | \$ 2,365.20     |
| 710-11-131   | Painted Pavement Marking, Standard, White, Skip, 6"                               | GM   | 0.39     | \$ 479.38           | \$ 185.31       |
| 710-11-160   | Painted Pavement Marking, Standard, White, Message                                | EA   | 42       | \$ 61.25            | \$ 2,572.50     |
| 710-11-201   | Painted Pavement Marking, Standard, Yellow, Solid, 6"                             | GM   | 0.48     | \$ 1,038.01         | \$ 500.11       |
| 715-1-13     | Lighting Conductors, F&I, Insulated, No 4 to No 2                                 | LF   | 3,140    | \$ 2.12             | \$ 6,656.80     |
| 715-4-13     | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Max | EA   | 14       | \$ 5,501.51         | \$ 77,021.14    |
| 715-7-12     | Load Center, F&I, Primary Voltage                                                 | EA   | 1        | \$ 10,750.00        | \$ 10,750.00    |
|              |                                                                                   |      |          |                     |                 |
|              |                                                                                   |      |          |                     |                 |
|              |                                                                                   |      |          |                     |                 |
|              |                                                                                   |      |          |                     |                 |
|              |                                                                                   |      |          |                     |                 |
|              |                                                                                   |      |          | Construction Cost:  | \$ 2,019,757.83 |
|              |                                                                                   |      |          | PE (Design Phase):  | \$ 504,939.46   |
|              |                                                                                   |      |          | Contingency (25%):  | \$ 631,174.32   |
|              |                                                                                   |      |          | TOTAL PROJECT COST: | \$ 3,155,871.61 |

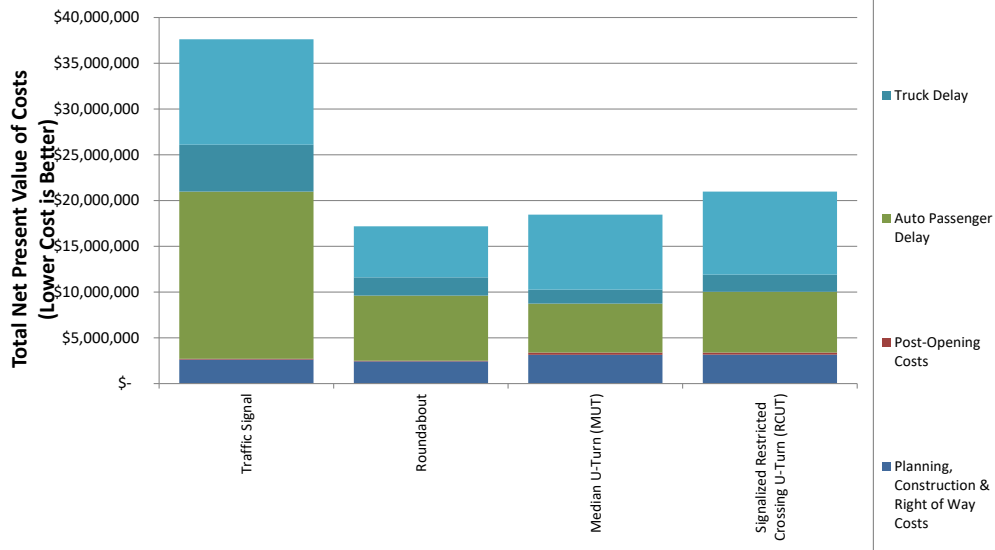
|                                               |                              |
|-----------------------------------------------|------------------------------|
| <b>Agency:</b>                                | FDOT - District 5            |
| <b>Project Name:</b>                          | SR 524 PD&E                  |
| <b>Project Reference:</b>                     | 14321                        |
| <b>Intersection:</b>                          | SR 524 at London Blvd        |
| <b>City:</b>                                  | Cocoa                        |
| <b>State:</b>                                 | Florida                      |
| <b>Performing Department or Organization:</b> | Department of Transportation |
| <b>Date:</b>                                  | 7/22/2021                    |
| <b>Analyst:</b>                               | Michael Zoellner             |
| <b>Analysis Type</b>                          | At-Grade Intersection        |

### Analysis Summary

| Cost Categories                             | Net Present Value of Costs |                     |                     |                                              |  |
|---------------------------------------------|----------------------------|---------------------|---------------------|----------------------------------------------|--|
|                                             | Traffic Signal             | Roundabout          | Median U-Turn (MUT) | Signalized Restricted Crossing U-Turn (RCUT) |  |
| Planning, Construction & Right of Way Costs | \$ 2,623,117               | \$ 2,432,361        | \$ 3,155,872        | \$ 3,164,954                                 |  |
| Post-Opening Costs                          | \$ 98,229                  | \$ 72,952           | \$ 238,276          | \$ 238,276                                   |  |
| Auto Passenger Delay                        | \$ 18,242,522              | \$ 7,109,801        | \$ 5,361,090        | \$ 6,645,484                                 |  |
| Truck Delay                                 | \$ 5,121,693               | \$ 1,997,603        | \$ 1,508,896        | \$ 1,872,474                                 |  |
| Safety                                      | \$ 11,524,223              | \$ 5,556,051        | \$ 8,194,837        | \$ 9,048,572                                 |  |
| <b>Total cost</b>                           | <b>\$37,609,784</b>        | <b>\$17,168,768</b> | <b>\$18,458,970</b> | <b>\$20,969,760</b>                          |  |

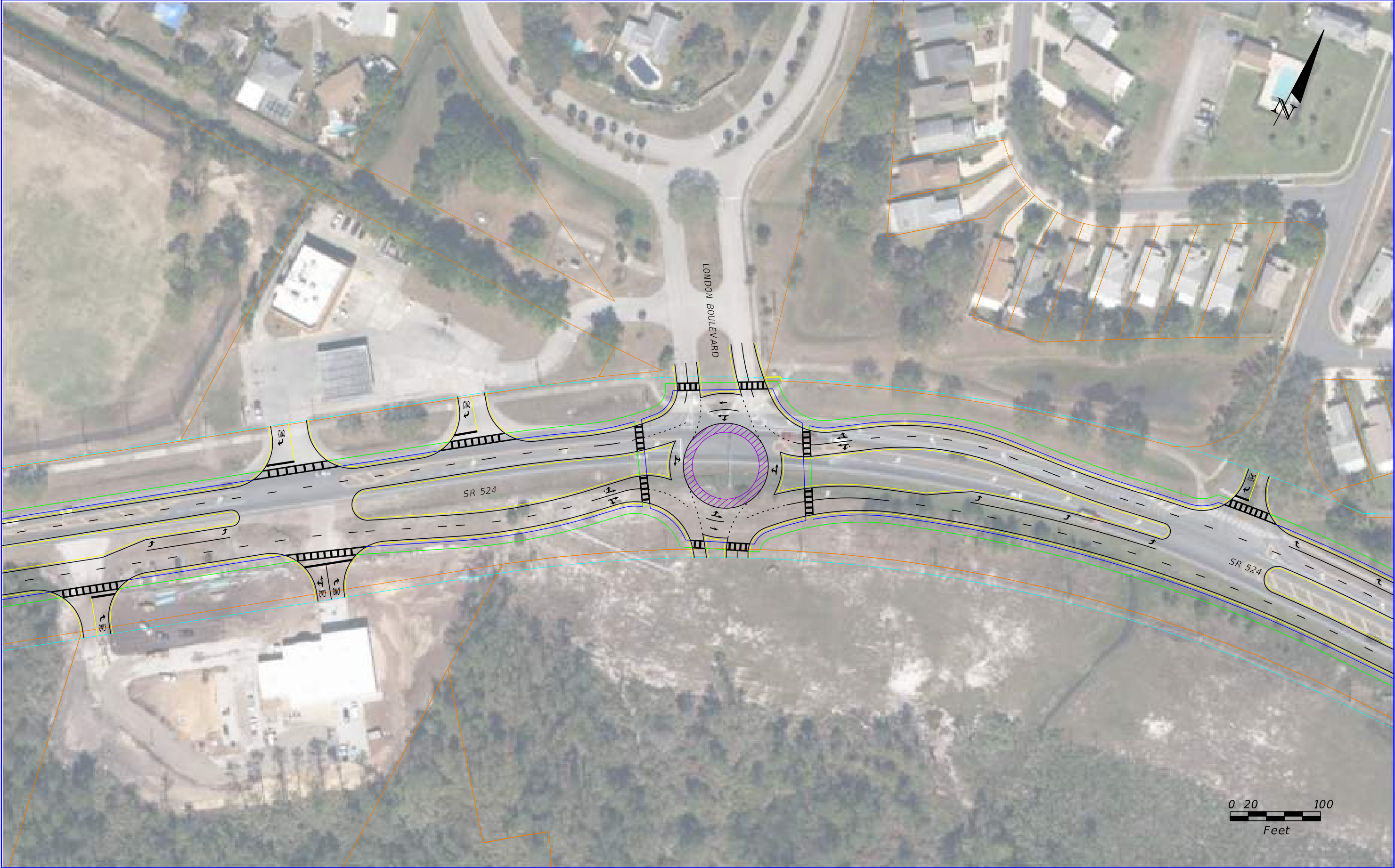
| Select Base Case for Benefit-Cost Comparison:<br>(Choose from list) | Traffic Signal                                      |                                                                                                  |                     |                                              |  |
|---------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------|--|
| Benefit Categories                                                  | Net Present Value of Benefits Relative to Base Case |                                                                                                  |                     |                                              |  |
|                                                                     | Traffic Signal                                      | Roundabout                                                                                       | Median U-Turn (MUT) | Signalized Restricted Crossing U-Turn (RCUT) |  |
| Auto Passenger Delay                                                |                                                     | \$ 11,132,722                                                                                    | \$ 12,881,432       | \$ 11,597,038                                |  |
| Truck Delay                                                         |                                                     | \$ 3,124,090                                                                                     | \$ 3,612,797        | \$ 3,249,219                                 |  |
| Safety                                                              |                                                     | \$ 5,968,172                                                                                     | \$ 3,329,386        | \$ 2,475,651                                 |  |
| Net Present Value of Benefits                                       |                                                     | \$ 20,224,983                                                                                    | \$ 19,823,616       | \$ 17,321,908                                |  |
| Net Present Value of Costs                                          |                                                     | \$ (216,033)                                                                                     | \$ 672,802          | \$ 681,885                                   |  |
| Net Present Value of Improvement                                    |                                                     | \$ 20,441,016                                                                                    | \$ 19,150,813       | \$ 16,640,024                                |  |
| Benefit-Cost (B/C) Ratio                                            |                                                     | Control strategy preferred. Benefits are greater than base case and cost is less than base case. | 29.46               | 25.40                                        |  |
| Delay B/C                                                           |                                                     | Control strategy preferred. Benefits are greater than base case and cost is less than base case. | 24.52               | 21.77                                        |  |
| Safety B/C                                                          |                                                     | Control strategy preferred. Benefits are greater than base case and cost is less than base case. | 4.95                | 3.63                                         |  |

Net Present Value of Total Costs

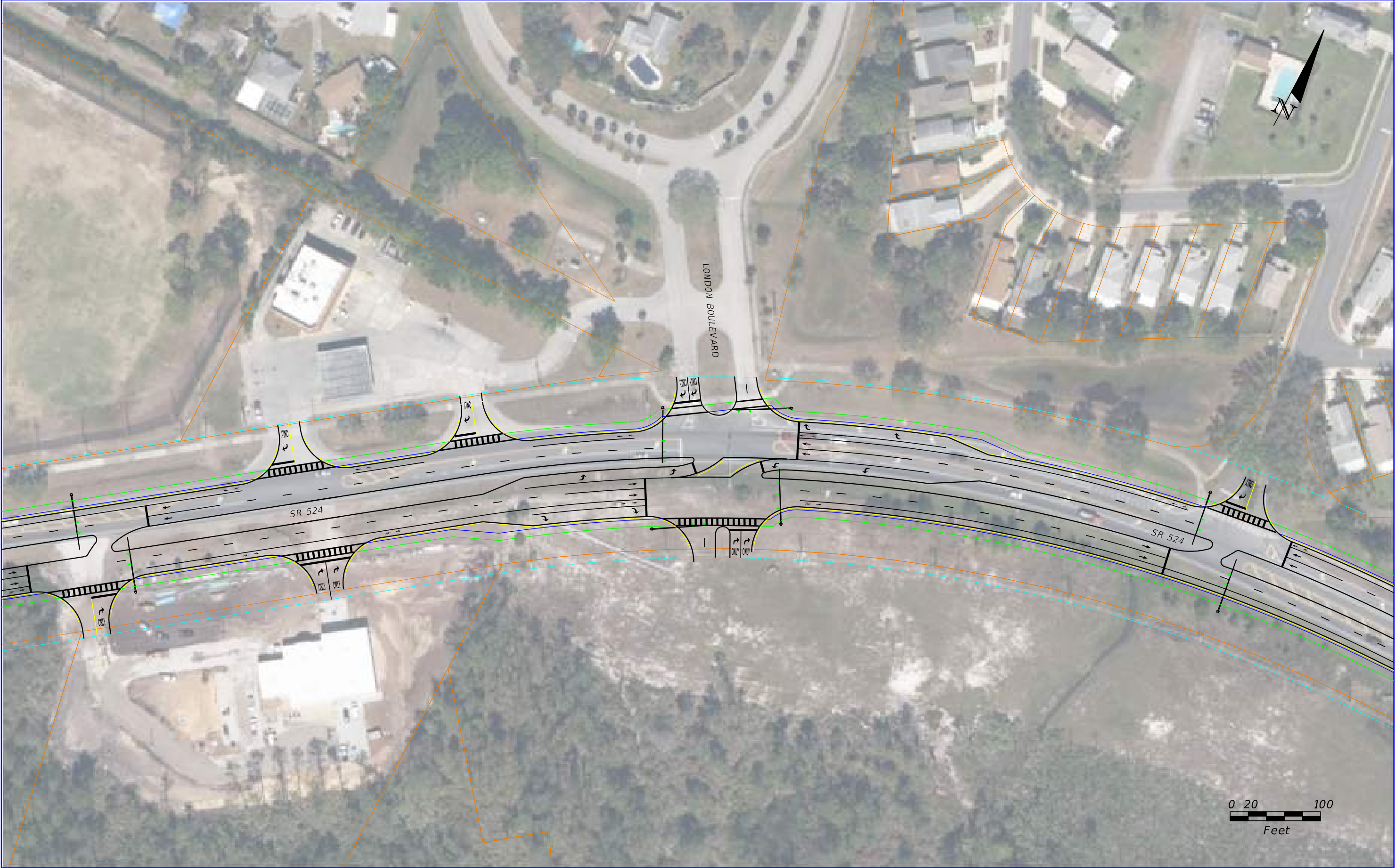




| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT LONDON BOULEVARD<br>SIGNALIZED INTERSECTION<br>CONCEPT PLAN | SHEET<br>NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|-----------------------------------------------------------------------|-----------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                       |                       |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                                       |                       |



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT LONDON BOULEVARD<br>ROUNABOUT CONCEPT PLAN | SHEET<br>NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|------------------------------------------------------|-----------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                      |                       |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                      |                       |

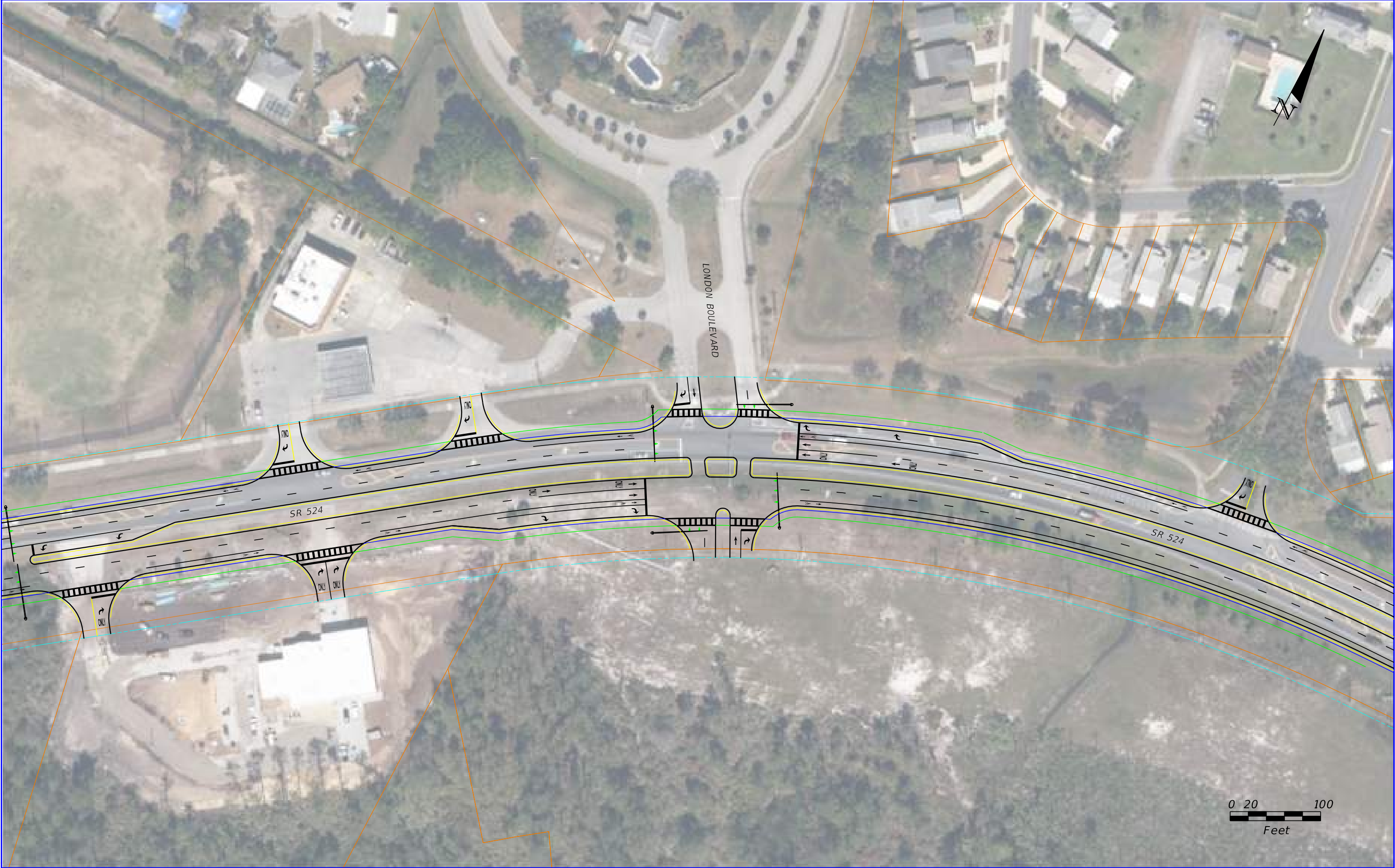


| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT LONDON BOULEVARD<br>RESTRICTED CROSSING<br>U-TURN CONCEPT PLAN | SHEET<br>NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|--------------------------------------------------------------------------|-----------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                          |                       |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                                          |                       |

\$USERS\$

\$DATES\$ \$TIMES\$ \$MODELNAME\$

\$FILES\$



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT LONDON BOULEVARD<br>MEDIAN U-TURN CONCEPT PLAN | SHEET NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|----------------------------------------------------------|--------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                          |                    |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                          |                    |

\$USERS\$

\$DATES\$

\$TIMES\$

\$MODELNAME\$

\$FILES\$

Attachment C  
SR 524 at Industry Road

# Florida Department of Transportation

## Intersection Control Evaluation (ICE) Form

### Stage 2: Initial Control Strategy Assessment

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 2 (Intersection Control Strategy) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

|                                                                                    |                   |                   |       |             |                  |
|------------------------------------------------------------------------------------|-------------------|-------------------|-------|-------------|------------------|
| Project Name                                                                       | SR 524 PD&E Study | FDOT Project #    | 14321 | Date        | 07/23/21         |
| Submitted By                                                                       | VHB               | Agency/Company    | FDOT  | Email       | kfreeman@vhb.com |
| List all viable intersection control strategies identified in Stage 1 (Screening): |                   |                   |       |             |                  |
| Signalized Control                                                                 |                   | RCUT (Signalized) |       | Partial DLT |                  |
|                                                                                    |                   |                   |       |             |                  |

| Operational Analyses                                                                                                                                                                                                                                                                                                                              |                                          |              |                          |                 |                                          |                          |           |              |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------|--------------------------|-----------------|------------------------------------------|--------------------------|-----------|--------------|--------------------------|
| Summarize the results of the peak hour analysis performed for each control strategy. Select analysis year based on guidance in the ICE procedures document. Refer to Exhibit 19-8 of the <i>Highway Capacity Manual, 6th Edition</i> (HCM6) to determine the appropriate LOS based on intersection delay (hover over this cell for Exhibit 19-8). |                                          |              |                          |                 |                                          |                          |           |              |                          |
| Design Vehicle                                                                                                                                                                                                                                                                                                                                    | Florida Interstate Semitrailer (WB-62FL) |              |                          | Control Vehicle | Florida Interstate Semitrailer (WB-62FL) |                          |           |              |                          |
| Opening Year                                                                                                                                                                                                                                                                                                                                      | 2025                                     |              |                          |                 |                                          |                          |           |              |                          |
| Control Strategy                                                                                                                                                                                                                                                                                                                                  | Peak Hour                                |              | Weekday AM Peak          | Peak Hour       |                                          | Weekday PM Peak          | Peak Hour |              | Saturday Midday Peak     |
|                                                                                                                                                                                                                                                                                                                                                   | LOS                                      | Delay (sec.) | All Queues Accommodated? | LOS             | Delay (sec.)                             | All Queues Accommodated? | LOS       | Delay (sec.) | All Queues Accommodated? |
| Signalized Control                                                                                                                                                                                                                                                                                                                                | D                                        | 36.5         | No                       | D               | 49.4                                     | No                       |           |              |                          |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                 | C                                        | 40.3         | Yes                      | C               | 38.4                                     | Yes                      |           |              |                          |
| Partial DLT                                                                                                                                                                                                                                                                                                                                       | B                                        | 18.4         | Yes                      | B               | 16.9                                     | Yes                      |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
| Design Year                                                                                                                                                                                                                                                                                                                                       | 2045                                     |              |                          |                 |                                          |                          |           |              |                          |
| Control Strategy                                                                                                                                                                                                                                                                                                                                  | Peak Hour                                |              | Weekday AM Peak          | Peak Hour       |                                          | Weekday PM Peak          | Peak Hour |              | Saturday Midday Peak     |
|                                                                                                                                                                                                                                                                                                                                                   | LOS                                      | Delay (sec.) | All Queues Accommodated? | LOS             | Delay (sec.)                             | All Queues Accommodated? | LOS       | Delay (sec.) | All Queues Accommodated? |
| Signalized Control                                                                                                                                                                                                                                                                                                                                | D                                        | 53.3         | No                       | D               | 54.0                                     | No                       |           |              |                          |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                 | F                                        | 185.5        | No                       | F               | 123.8                                    | No                       |           |              |                          |
| Partial DLT                                                                                                                                                                                                                                                                                                                                       | D                                        | 48.2         | No                       | D               | 37.2                                     | No                       |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
|                                                                                                                                                                                                                                                                                                                                                   |                                          |              |                          |                 |                                          |                          |           |              |                          |
| Provide any additional discussion necessary regarding the results of the operational analysis:                                                                                                                                                                                                                                                    |                                          |              |                          |                 |                                          |                          |           |              |                          |

| Safety Performance                                                                                                                                                                                                                                                                       |                                                                                                                        |                         |                                |                                          |                                |      |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------|------------------------------------------|--------------------------------|------|-------|
| Enter the most recent five (5) years of crash data from the CAR System.                                                                                                                                                                                                                  |                                                                                                                        |                         |                                | Most recent year of crash data available |                                |      | 2018  |
| Crash Type                                                                                                                                                                                                                                                                               |                                                                                                                        | 2014                    | 2015                           | 2016                                     | 2017                           | 2018 | Total |
| Combined                                                                                                                                                                                                                                                                                 | Total                                                                                                                  | 0                       | 2                              | 10                                       | 7                              | 8    | 27    |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           | 0                       | 1                              | 5                                        | 2                              | 3    | 11    |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                    | 0                       | 1                              | 5                                        | 5                              | 5    | 16    |
| Single-Vehicle                                                                                                                                                                                                                                                                           | Total                                                                                                                  |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                    |                         |                                |                                          |                                |      |       |
| Multi-Vehicle                                                                                                                                                                                                                                                                            | Total                                                                                                                  |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          | PDO                                                                                                                    |                         |                                |                                          |                                |      |       |
| Vehicle-Pedestrian                                                                                                                                                                                                                                                                       | Fatal/Injury                                                                                                           | 0                       | 0                              | 0                                        | 0                              | 0    | 0     |
| Vehicle-Bicycle                                                                                                                                                                                                                                                                          | Fatal/Injury                                                                                                           | 0                       | 0                              | 0                                        | 0                              | 0    | 0     |
| Total                                                                                                                                                                                                                                                                                    | All                                                                                                                    | 0                       | 2                              | 10                                       | 7                              | 8    | 27    |
| Apply the FDOT SPICE Tool to model anticipated safety performance of each control strategy. For intersection types not accommodated in the tool, manually apply crash modification factors detailed in the ICE procedures document or qualitatively describe anticipated safety impacts. |                                                                                                                        |                         |                                |                                          |                                |      |       |
| Control Strategy                                                                                                                                                                                                                                                                         | Anticipated Impact on Safety Performance                                                                               | Opening Year            |                                | Design Year                              |                                |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        | Predicted Total Crashes | Predicted Fatal+Injury Crashes | Predicted Total Crashes                  | Predicted Fatal+Injury Crashes |      |       |
| Signalized Control                                                                                                                                                                                                                                                                       | No impact                                                                                                              | 8.08                    | 2.88                           | 13.70                                    | 4.93                           |      |       |
| RCUT (Signalized)                                                                                                                                                                                                                                                                        | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control | 6.87                    | 2.25                           | 11.65                                    | 3.85                           |      |       |
| Partial DLT                                                                                                                                                                                                                                                                              | Positive impact on safety anticipated; less total and fatal + injury crashes anticipated than for a signalized control | 7.11                    | 2.53                           | 12.06                                    | 4.34                           |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        |                         |                                |                                          |                                |      |       |
|                                                                                                                                                                                                                                                                                          |                                                                                                                        |                         |                                |                                          |                                |      |       |

| Costs and Benefit/Cost Ratios                                                                                                                                                                                                                                                                                                                                                                                         |                |                         |                       |            |             |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|-----------------------|------------|-------------|-------------------|
| Remaining cognizant of the current level of detail of each control strategy's conceptual design, provide a cost estimate for each. You may want to include costs for preliminary engineering, required right-of-way acquisitions, construction, and a contingency. Apply the FDOT ICE Tool to determine the delay benefit-cost ratio (B/C), safety B/C, overall B/C, and net-present value for each control strategy. |                |                         |                       |            |             |                   |
| Control Strategy                                                                                                                                                                                                                                                                                                                                                                                                      | ROW Costs (\$) | Construction Costs (\$) | FDOT ICE Tool Outputs |            |             |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         | Delay B/C             | Safety B/C | Overall B/C | Net Present Value |
| Signalized Control                                                                                                                                                                                                                                                                                                                                                                                                    | \$0            | \$3,428,538             | -                     | -          | -           | -                 |
| RCUT (Signalized)                                                                                                                                                                                                                                                                                                                                                                                                     | \$0            | \$4,186,649             | -                     | 3.80       | -           | -\$61,848,762     |
| Partial DLT                                                                                                                                                                                                                                                                                                                                                                                                           | \$0            | \$4,037,220             | 26.41                 | 2.54       | 28.95       | \$20,927,776      |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         |                       |            |             |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         |                       |            |             |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                         |                       |            |             |                   |

| Multimodal Accommodations                                                                                                                                                                           |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------|--------------|----------------------|--------------|----------------|----------|
| Note the existing/anticipated level of pedestrian/bicyclist activity at the study intersection during the peak hours of the typical day. See ICE procedures document for activity level thresholds: |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
| Peak Hour:                                                                                                                                                                                          | Weekday AM Peak                                                                              |              | Weekday PM Peak                                                                                                       |              | Saturday Midday Peak |              | Activity Level |          |
|                                                                                                                                                                                                     | Major Street                                                                                 | Minor Street | Major Street                                                                                                          | Minor Street | Major Street         | Minor Street | Ped.           | Bicycles |
| # of ped. crossings (both approaches, if app.):                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              | Low            | Low      |
| # of cyclists (both approaches, if app.):                                                                                                                                                           |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
| Summarize the ability of each viable control strategy to accommodate the existing/anticipated level of:                                                                                             |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
| Control Strategy                                                                                                                                                                                    | Pedestrians and Bicyclists                                                                   |              | Transit Services                                                                                                      |              | Freight Needs        |              |                |          |
| Signalized Control                                                                                                                                                                                  | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
| RCUT (Signalized)                                                                                                                                                                                   | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
| Partial DLT                                                                                                                                                                                         | Crosswalks across each approach will accommodate the expected volume of pedestrians/cyclists |              | No transit passes or is expected to pass through the intersection, so no special accommodations for transit have been |              |                      |              |                |          |
|                                                                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
|                                                                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |
|                                                                                                                                                                                                     |                                                                                              |              |                                                                                                                       |              |                      |              |                |          |

| Environmental, Utility, and Right-of-Way Impacts                                                                                                                                                           |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Summarize any issues related to environmental, utility, or right-of-way (including relocation) impacts specific to each control strategy. Be sure to consider the NEPA requirements for each control type. |  |
| Signalized Control                                                                                                                                                                                         |  |
| RCUT (Signalized)                                                                                                                                                                                          |  |
| Partial DLT                                                                                                                                                                                                |  |
|                                                                                                                                                                                                            |  |
|                                                                                                                                                                                                            |  |
|                                                                                                                                                                                                            |  |

| Public Input/Feedback (if appropriate)                                 |
|------------------------------------------------------------------------|
| Summarize any agency or public input regarding the control strategies: |
| None performed to date.                                                |

| Control Strategy Evaluation                                                                                                                                                               |                          |                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Provide a brief justification as to why each of the following is either viable or not viable. If a single control strategy is recommended, select it as the only strategy to be advanced. |                          |                                                                                                                                              |
| Control Strategy                                                                                                                                                                          | Strategy to be Advanced? | Justification                                                                                                                                |
| Signalized Control                                                                                                                                                                        | Yes                      | Provides ample capacity for the vehicular operations, and adequate pedestrian/bike facilities for the low anticipated volume of pedestrians. |
| RCUT (Signalized)                                                                                                                                                                         | No                       |                                                                                                                                              |
| Partial DLT                                                                                                                                                                               | No                       |                                                                                                                                              |
|                                                                                                                                                                                           | No                       |                                                                                                                                              |
|                                                                                                                                                                                           | No                       |                                                                                                                                              |
|                                                                                                                                                                                           | No                       |                                                                                                                                              |

| Resolution                                                                                        |  |           |  |      |  |
|---------------------------------------------------------------------------------------------------|--|-----------|--|------|--|
| <i>To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer</i> |  |           |  |      |  |
| Project Determination                                                                             |  |           |  |      |  |
| Comments                                                                                          |  |           |  |      |  |
| DTOE Name                                                                                         |  | Signature |  | Date |  |
| DDE Name                                                                                          |  | Signature |  | Date |  |

# HCM 6th Signalized Intersection Summary 14: Industry Road & SR 524

2025 AM.syn  
08/05/2019

|                              |                                                                                    |                                                                                    |  |  |                                                                                    |  |  |  |  |                                                                                      |  |                                                                                      |     |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                                                                                                     |     |
| Lane Configurations          |   |   |  |  |   |  |  |  |  |   |  |   |     |
| Traffic Volume (veh/h)       | 499                                                                                                                                                                 | 395                                                                                                                                                                 | 13                                                                                | 68                                                                                | 225                                                                                                                                                                 | 312                                                                               | 12                                                                                 | 58                                                                                  | 60                                                                                  | 486                                                                                                                                                                     | 63                                                                                  | 393                                                                                                                                                                     |     |
| Future Volume (veh/h)        | 499                                                                                                                                                                 | 395                                                                                                                                                                 | 13                                                                                | 68                                                                                | 225                                                                                                                                                                 | 312                                                                               | 12                                                                                 | 58                                                                                  | 60                                                                                  | 486                                                                                                                                                                     | 63                                                                                  | 393                                                                                                                                                                     |     |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                                                                                                       |     |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                                                                                                    |     |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |     |
| Work Zone On Approach        | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                |                                                                                                                                                                     |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                                                                                                      |                                                                                     |                                                                                                                                                                         |     |
| Adj Sat Flow, veh/h/ln       | 1752                                                                                                                                                                | 1811                                                                                                                                                                | 1900                                                                              | 1900                                                                              | 1811                                                                                                                                                                | 1811                                                                              | 1722                                                                               | 1841                                                                                | 1870                                                                                | 1870                                                                                                                                                                    | 1781                                                                                | 1618                                                                                                                                                                    |     |
| Adj Flow Rate, veh/h         | 525                                                                                                                                                                 | 416                                                                                                                                                                 | 3                                                                                 | 72                                                                                | 237                                                                                                                                                                 | 0                                                                                 | 13                                                                                 | 61                                                                                  | -11                                                                                 | 512                                                                                                                                                                     | 66                                                                                  | 309                                                                                                                                                                     |     |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                                                                                                    |     |
| Percent Heavy Veh, %         | 10                                                                                                                                                                  | 6                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 6                                                                                                                                                                   | 6                                                                                 | 12                                                                                 | 4                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 8                                                                                   | 19                                                                                                                                                                      |     |
| Cap, veh/h                   | 1459                                                                                                                                                                | 1761                                                                                                                                                                | 824                                                                               | 93                                                                                | 397                                                                                                                                                                 |                                                                                   | 24                                                                                 | 99                                                                                  | 85                                                                                  | 583                                                                                                                                                                     | 375                                                                                 | 1596                                                                                                                                                                    |     |
| Arrive On Green              | 0.45                                                                                                                                                                | 0.51                                                                                                                                                                | 0.51                                                                              | 0.05                                                                              | 0.12                                                                                                                                                                | 0.00                                                                              | 0.01                                                                               | 0.05                                                                                | 0.00                                                                                | 0.17                                                                                                                                                                    | 0.21                                                                                | 0.21                                                                                                                                                                    |     |
| Sat Flow, veh/h              | 3237                                                                                                                                                                | 3441                                                                                                                                                                | 1610                                                                              | 1810                                                                              | 3441                                                                                                                                                                | 1535                                                                              | 1640                                                                               | 1841                                                                                | 1585                                                                                | 3456                                                                                                                                                                    | 1781                                                                                | 2414                                                                                                                                                                    |     |
| Grp Volume(v), veh/h         | 525                                                                                                                                                                 | 416                                                                                                                                                                 | 3                                                                                 | 72                                                                                | 237                                                                                                                                                                 | 0                                                                                 | 13                                                                                 | 61                                                                                  | -11                                                                                 | 512                                                                                                                                                                     | 66                                                                                  | 309                                                                                                                                                                     |     |
| Grp Sat Flow(s),veh/h/ln     | 1618                                                                                                                                                                | 1721                                                                                                                                                                | 1610                                                                              | 1810                                                                              | 1721                                                                                                                                                                | 1535                                                                              | 1640                                                                               | 1841                                                                                | 1585                                                                                | 1728                                                                                                                                                                    | 1781                                                                                | 1207                                                                                                                                                                    |     |
| Q Serve(g_s), s              | 13.8                                                                                                                                                                | 8.7                                                                                                                                                                 | 0.1                                                                               | 5.1                                                                               | 8.5                                                                                                                                                                 | 0.0                                                                               | 1.0                                                                                | 4.2                                                                                 | 0.0                                                                                 | 18.8                                                                                                                                                                    | 3.9                                                                                 | 1.2                                                                                                                                                                     |     |
| Cycle Q Clear(g_c), s        | 13.8                                                                                                                                                                | 8.7                                                                                                                                                                 | 0.1                                                                               | 5.1                                                                               | 8.5                                                                                                                                                                 | 0.0                                                                               | 1.0                                                                                | 4.2                                                                                 | 0.0                                                                                 | 18.8                                                                                                                                                                    | 3.9                                                                                 | 1.2                                                                                                                                                                     |     |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                                                                                                    |     |
| Lane Grp Cap(c), veh/h       | 1459                                                                                                                                                                | 1761                                                                                                                                                                | 824                                                                               | 93                                                                                | 397                                                                                                                                                                 |                                                                                   | 24                                                                                 | 99                                                                                  | 85                                                                                  | 583                                                                                                                                                                     | 375                                                                                 | 1596                                                                                                                                                                    |     |
| V/C Ratio(X)                 | 0.36                                                                                                                                                                | 0.24                                                                                                                                                                | 0.00                                                                              | 0.78                                                                              | 0.60                                                                                                                                                                |                                                                                   | 0.55                                                                               | 0.62                                                                                | -0.13                                                                               | 0.88                                                                                                                                                                    | 0.18                                                                                | 0.19                                                                                                                                                                    |     |
| Avail Cap(c_a), veh/h        | 1459                                                                                                                                                                | 1761                                                                                                                                                                | 824                                                                               | 252                                                                               | 1302                                                                                                                                                                |                                                                                   | 63                                                                                 | 132                                                                                 | 113                                                                                 | 739                                                                                                                                                                     | 452                                                                                 | 1701                                                                                                                                                                    |     |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |     |
| Upstream Filter(I)           | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 0.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |     |
| Uniform Delay (d), s/veh     | 23.4                                                                                                                                                                | 17.6                                                                                                                                                                | 15.5                                                                              | 60.9                                                                              | 54.6                                                                                                                                                                | 0.0                                                                               | 63.6                                                                               | 60.2                                                                                | 0.0                                                                                 | 52.7                                                                                                                                                                    | 42.1                                                                                | 2.4                                                                                                                                                                     |     |
| Incr Delay (d2), s/veh       | 0.1                                                                                                                                                                 | 0.3                                                                                                                                                                 | 0.0                                                                               | 12.9                                                                              | 6.5                                                                                                                                                                 | 0.0                                                                               | 18.4                                                                               | 6.1                                                                                 | 0.0                                                                                 | 9.8                                                                                                                                                                     | 0.2                                                                                 | 0.1                                                                                                                                                                     |     |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                                                                                                     |     |
| %ile BackOfQ(95%),veh/ln     | 8.8                                                                                                                                                                 | 6.1                                                                                                                                                                 | 0.1                                                                               | 4.7                                                                               | 7.1                                                                                                                                                                 | 0.0                                                                               | 1.0                                                                                | 3.9                                                                                 | 0.0                                                                                 | 13.6                                                                                                                                                                    | 3.1                                                                                 | 0.8                                                                                                                                                                     |     |
| Unsig. Movement Delay, s/veh |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |
| LnGrp Delay(d),s/veh         | 23.6                                                                                                                                                                | 17.9                                                                                                                                                                | 15.5                                                                              | 73.8                                                                              | 61.1                                                                                                                                                                | 0.0                                                                               | 82.1                                                                               | 66.2                                                                                | 0.0                                                                                 | 62.6                                                                                                                                                                    | 42.3                                                                                | 2.5                                                                                                                                                                     |     |
| LnGrp LOS                    | C                                                                                                                                                                   | B                                                                                                                                                                   | B                                                                                 | E                                                                                 | E                                                                                                                                                                   |                                                                                   | F                                                                                  | E                                                                                   | A                                                                                   | E                                                                                                                                                                       | D                                                                                   | A                                                                                                                                                                       |     |
| Approach Vol, veh/h          | 944                                                                                                                                                                 |                                                                                                                                                                     |                                                                                   | 309                                                                               |                                                                                                                                                                     |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | 63                                                                                                                                                                      |                                                                                     |                                                                                                                                                                         | 887 |
| Approach Delay, s/veh        | 21.1                                                                                                                                                                |                                                                                                                                                                     |                                                                                   | 64.1                                                                              |                                                                                                                                                                     |                                                                                   | 81.1                                                                               |                                                                                     |                                                                                     | 40.1                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |     |
| Approach LOS                 | C                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   | E                                                                                 |                                                                                                                                                                     |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         |     |
| Timer - Assigned Phs         | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |
| Phs Duration (G+Y+Rc), s     | 66.4                                                                                                                                                                | 22.1                                                                                                                                                                | 28.2                                                                              | 13.3                                                                              | 14.2                                                                                                                                                                | 74.3                                                                              | 7.9                                                                                | 33.6                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |
| Change Period (Y+Rc), s      | 7.8                                                                                                                                                                 | * 7.1                                                                                                                                                               | 6.3                                                                               | * 6.3                                                                             | 7.5                                                                                                                                                                 | * 7.8                                                                             | 6.0                                                                                | * 6.3                                                                               |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |
| Max Green Setting (Gmax), s  | 16.2                                                                                                                                                                | * 49                                                                                                                                                                | 27.8                                                                              | * 9.3                                                                             | 18.1                                                                                                                                                                | * 48                                                                              | 5.0                                                                                | * 33                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |
| Max Q Clear Time (g_c+I1), s | 15.8                                                                                                                                                                | 10.5                                                                                                                                                                | 20.8                                                                              | 6.2                                                                               | 7.1                                                                                                                                                                 | 10.7                                                                              | 3.0                                                                                | 5.9                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |
| Green Ext Time (p_c), s      | 0.1                                                                                                                                                                 | 1.4                                                                                                                                                                 | 1.1                                                                               | 0.0                                                                               | 0.1                                                                                                                                                                 | 2.7                                                                               | 0.0                                                                                | 1.6                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |     |

## Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 36.5 |
| HCM 6th LOS        | D    |

## Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 6th Signalized Intersection Summary

## 14: Industry Road & SR 524

2025 PM.syn  
08/05/2019

|                                                                                                          |                                                                                    |                                                                                    |  |  |                                                                                    |  |  |  |  |                                                                                      |  |                                                                                      |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Movement                                                                                                 | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                                                                                                     |
| Lane Configurations                                                                                      |   |   |  |  |   |  |  |  |  |   |  |   |
| Traffic Volume (veh/h)                                                                                   | 418                                                                                                                                                                 | 331                                                                                                                                                                 | 21                                                                                | 145                                                                               | 387                                                                                                                                                                 | 511                                                                               | 38                                                                                 | 103                                                                                 | 115                                                                                 | 419                                                                                                                                                                     | 124                                                                                 | 465                                                                                                                                                                     |
| Future Volume (veh/h)                                                                                    | 418                                                                                                                                                                 | 331                                                                                                                                                                 | 21                                                                                | 145                                                                               | 387                                                                                                                                                                 | 511                                                                               | 38                                                                                 | 103                                                                                 | 115                                                                                 | 419                                                                                                                                                                     | 124                                                                                 | 465                                                                                                                                                                     |
| Initial Q (Qb), veh                                                                                      | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                                                                                                       |
| Ped-Bike Adj(A_pbT)                                                                                      | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                                                                                                    |
| Parking Bus, Adj                                                                                         | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |
| Work Zone On Approach                                                                                    | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                |                                                                                                                                                                     |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                                                                                                      |                                                                                     |                                                                                                                                                                         |
| Adj Sat Flow, veh/h/ln                                                                                   | 1767                                                                                                                                                                | 1811                                                                                                                                                                | 1900                                                                              | 1900                                                                              | 1811                                                                                                                                                                | 1885                                                                              | 1856                                                                               | 1870                                                                                | 1900                                                                                | 1885                                                                                                                                                                    | 1870                                                                                | 1856                                                                                                                                                                    |
| Adj Flow Rate, veh/h                                                                                     | 440                                                                                                                                                                 | 348                                                                                                                                                                 | 22                                                                                | 153                                                                               | 407                                                                                                                                                                 | 0                                                                                 | 40                                                                                 | 108                                                                                 | 121                                                                                 | 441                                                                                                                                                                     | 131                                                                                 | 375                                                                                                                                                                     |
| Peak Hour Factor                                                                                         | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                                                                                                    |
| Percent Heavy Veh, %                                                                                     | 9                                                                                                                                                                   | 6                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 6                                                                                                                                                                   | 1                                                                                 | 3                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                                                                                                       | 2                                                                                   | 3                                                                                                                                                                       |
| Cap, veh/h                                                                                               | 1436                                                                                                                                                                | 1670                                                                                                                                                                | 781                                                                               | 179                                                                               | 505                                                                                                                                                                 |                                                                                   | 51                                                                                 | 134                                                                                 | 116                                                                                 | 504                                                                                                                                                                     | 355                                                                                 | 1743                                                                                                                                                                    |
| Arrive On Green                                                                                          | 0.44                                                                                                                                                                | 0.49                                                                                                                                                                | 0.49                                                                              | 0.10                                                                              | 0.15                                                                                                                                                                | 0.00                                                                              | 0.03                                                                               | 0.07                                                                                | 0.07                                                                                | 0.14                                                                                                                                                                    | 0.19                                                                                | 0.19                                                                                                                                                                    |
| Sat Flow, veh/h                                                                                          | 3264                                                                                                                                                                | 3441                                                                                                                                                                | 1610                                                                              | 1810                                                                              | 3441                                                                                                                                                                | 1598                                                                              | 1767                                                                               | 1870                                                                                | 1610                                                                                | 3483                                                                                                                                                                    | 1870                                                                                | 2768                                                                                                                                                                    |
| Grp Volume(v), veh/h                                                                                     | 440                                                                                                                                                                 | 348                                                                                                                                                                 | 22                                                                                | 153                                                                               | 407                                                                                                                                                                 | 0                                                                                 | 40                                                                                 | 108                                                                                 | 121                                                                                 | 441                                                                                                                                                                     | 131                                                                                 | 375                                                                                                                                                                     |
| Grp Sat Flow(s),veh/h/ln                                                                                 | 1632                                                                                                                                                                | 1721                                                                                                                                                                | 1610                                                                              | 1810                                                                              | 1721                                                                                                                                                                | 1598                                                                              | 1767                                                                               | 1870                                                                                | 1610                                                                                | 1742                                                                                                                                                                    | 1870                                                                                | 1384                                                                                                                                                                    |
| Q Serve(g_s), s                                                                                          | 12.2                                                                                                                                                                | 8.1                                                                                                                                                                 | 1.0                                                                               | 11.7                                                                              | 16.0                                                                                                                                                                | 0.0                                                                               | 3.1                                                                                | 8.0                                                                                 | 7.9                                                                                 | 17.4                                                                                                                                                                    | 8.5                                                                                 | 1.6                                                                                                                                                                     |
| Cycle Q Clear(g_c), s                                                                                    | 12.2                                                                                                                                                                | 8.1                                                                                                                                                                 | 1.0                                                                               | 11.7                                                                              | 16.0                                                                                                                                                                | 0.0                                                                               | 3.1                                                                                | 8.0                                                                                 | 7.9                                                                                 | 17.4                                                                                                                                                                    | 8.5                                                                                 | 1.6                                                                                                                                                                     |
| Prop In Lane                                                                                             | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                                                                                                    |
| Lane Grp Cap(c), veh/h                                                                                   | 1436                                                                                                                                                                | 1670                                                                                                                                                                | 781                                                                               | 179                                                                               | 505                                                                                                                                                                 |                                                                                   | 51                                                                                 | 134                                                                                 | 116                                                                                 | 504                                                                                                                                                                     | 355                                                                                 | 1743                                                                                                                                                                    |
| V/C Ratio(X)                                                                                             | 0.31                                                                                                                                                                | 0.21                                                                                                                                                                | 0.03                                                                              | 0.86                                                                              | 0.81                                                                                                                                                                |                                                                                   | 0.78                                                                               | 0.80                                                                                | 1.05                                                                                | 0.87                                                                                                                                                                    | 0.37                                                                                | 0.22                                                                                                                                                                    |
| Avail Cap(c_a), veh/h                                                                                    | 1436                                                                                                                                                                | 1670                                                                                                                                                                | 781                                                                               | 288                                                                               | 1209                                                                                                                                                                |                                                                                   | 63                                                                                 | 146                                                                                 | 125                                                                                 | 652                                                                                                                                                                     | 441                                                                                 | 1870                                                                                                                                                                    |
| HCM Platoon Ratio                                                                                        | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |
| Upstream Filter(I)                                                                                       | 0.97                                                                                                                                                                | 0.97                                                                                                                                                                | 0.97                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 0.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |
| Uniform Delay (d), s/veh                                                                                 | 25.4                                                                                                                                                                | 20.6                                                                                                                                                                | 18.8                                                                              | 62.1                                                                              | 57.8                                                                                                                                                                | 0.0                                                                               | 67.5                                                                               | 64.0                                                                                | 40.3                                                                                | 58.6                                                                                                                                                                    | 49.4                                                                                | 3.6                                                                                                                                                                     |
| Incr Delay (d2), s/veh                                                                                   | 0.1                                                                                                                                                                 | 0.3                                                                                                                                                                 | 0.1                                                                               | 13.1                                                                              | 12.8                                                                                                                                                                | 0.0                                                                               | 38.3                                                                               | 25.4                                                                                | 94.3                                                                                | 10.4                                                                                                                                                                    | 0.6                                                                                 | 0.1                                                                                                                                                                     |
| Initial Q Delay(d3),s/veh                                                                                | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                                                                                                     |
| %ile BackOfQ(95%),veh/ln                                                                                 | 8.1                                                                                                                                                                 | 5.8                                                                                                                                                                 | 0.7                                                                               | 9.9                                                                               | 12.3                                                                                                                                                                | 0.0                                                                               | 3.6                                                                                | 8.4                                                                                 | 10.3                                                                                | 12.9                                                                                                                                                                    | 7.2                                                                                 | 1.6                                                                                                                                                                     |
| Unsig. Movement Delay, s/veh                                                                             |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| LnGrp Delay(d),s/veh                                                                                     | 25.5                                                                                                                                                                | 20.9                                                                                                                                                                | 18.9                                                                              | 75.2                                                                              | 70.6                                                                                                                                                                | 0.0                                                                               | 105.8                                                                              | 89.4                                                                                | 134.6                                                                               | 69.0                                                                                                                                                                    | 50.1                                                                                | 3.6                                                                                                                                                                     |
| LnGrp LOS                                                                                                | C                                                                                                                                                                   | C                                                                                                                                                                   | B                                                                                 | E                                                                                 | E                                                                                                                                                                   |                                                                                   | F                                                                                  | F                                                                                   | F                                                                                   | E                                                                                                                                                                       | D                                                                                   | A                                                                                                                                                                       |
| Approach Vol, veh/h                                                                                      | 810                                                                                                                                                                 |                                                                                                                                                                     |                                                                                   | 560                                                                               |                                                                                                                                                                     |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | 269                                                                                                                                                                     |                                                                                     |                                                                                                                                                                         |
| Approach Delay, s/veh                                                                                    | 23.3                                                                                                                                                                |                                                                                                                                                                     |                                                                                   | 71.9                                                                              |                                                                                                                                                                     |                                                                                   | 112.1                                                                              |                                                                                     |                                                                                     | 40.5                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |
| Approach LOS                                                                                             | C                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   | E                                                                                 |                                                                                                                                                                     |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         |
| Timer - Assigned Phs                                                                                     | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Phs Duration (G+Y+Rc), s                                                                                 | 69.4                                                                                                                                                                | 27.7                                                                                                                                                                | 26.6                                                                              | 16.4                                                                              | 21.3                                                                                                                                                                | 75.7                                                                              | 10.1                                                                               | 32.9                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Change Period (Y+Rc), s                                                                                  | 7.8                                                                                                                                                                 | * 7.1                                                                                                                                                               | 6.3                                                                               | * 6.3                                                                             | 7.5                                                                                                                                                                 | * 7.8                                                                             | 6.0                                                                                | * 6.3                                                                               |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Max Green Setting (Gmax), s                                                                              | 26.2                                                                                                                                                                | * 49                                                                                                                                                                | 26.2                                                                              | * 11                                                                              | 22.3                                                                                                                                                                | * 53                                                                              | 5.0                                                                                | * 33                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Max Q Clear Time (g_c+I1), s                                                                             | 14.2                                                                                                                                                                | 18.0                                                                                                                                                                | 19.4                                                                              | 10.0                                                                              | 13.7                                                                                                                                                                | 10.1                                                                              | 5.1                                                                                | 10.5                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Green Ext Time (p_c), s                                                                                  | 1.2                                                                                                                                                                 | 2.5                                                                                                                                                                 | 0.9                                                                               | 0.1                                                                               | 0.2                                                                                                                                                                 | 2.3                                                                               | 0.0                                                                                | 2.1                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Intersection Summary                                                                                     |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| HCM 6th Ctrl Delay                                                                                       | 49.4                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| HCM 6th LOS                                                                                              | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Notes                                                                                                    |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.       |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |

HCM 6th Signalized Intersection Summary  
14: Industry Road & SR 524

2045 AM.syn  
08/05/2019

|                              |                                                                                    |                                                                                    |  |  |                                                                                    |  |  |  |  |                                                                                      |  |                                                                                      |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                                                                                                     |
| Lane Configurations          |   |   |  |  |   |  |  |  |  |   |  |   |
| Traffic Volume (veh/h)       | 795                                                                                                                                                                 | 707                                                                                                                                                                 | 22                                                                                | 133                                                                               | 538                                                                                                                                                                 | 613                                                                               | 26                                                                                 | 109                                                                                 | 108                                                                                 | 748                                                                                                                                                                     | 106                                                                                 | 747                                                                                                                                                                     |
| Future Volume (veh/h)        | 795                                                                                                                                                                 | 707                                                                                                                                                                 | 22                                                                                | 133                                                                               | 538                                                                                                                                                                 | 613                                                                               | 26                                                                                 | 109                                                                                 | 108                                                                                 | 748                                                                                                                                                                     | 106                                                                                 | 747                                                                                                                                                                     |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                                                                                                       |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                                                                                                    |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |
| Work Zone On Approach        | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                |                                                                                                                                                                     |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                                                                                                      |                                                                                     |                                                                                                                                                                         |
| Adj Sat Flow, veh/h/ln       | 1752                                                                                                                                                                | 1811                                                                                                                                                                | 1900                                                                              | 1900                                                                              | 1811                                                                                                                                                                | 1811                                                                              | 1722                                                                               | 1841                                                                                | 1870                                                                                | 1870                                                                                                                                                                    | 1781                                                                                | 1618                                                                                                                                                                    |
| Adj Flow Rate, veh/h         | 837                                                                                                                                                                 | 744                                                                                                                                                                 | 23                                                                                | 140                                                                               | 566                                                                                                                                                                 | 0                                                                                 | 27                                                                                 | 115                                                                                 | 114                                                                                 | 787                                                                                                                                                                     | 112                                                                                 | 786                                                                                                                                                                     |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                                                                                                    |
| Percent Heavy Veh, %         | 10                                                                                                                                                                  | 6                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 6                                                                                                                                                                   | 6                                                                                 | 12                                                                                 | 4                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 8                                                                                   | 19                                                                                                                                                                      |
| Cap, veh/h                   | 979                                                                                                                                                                 | 1403                                                                                                                                                                | 657                                                                               | 167                                                                               | 690                                                                                                                                                                 |                                                                                   | 39                                                                                 | 132                                                                                 | 113                                                                                 | 739                                                                                                                                                                     | 470                                                                                 | 1367                                                                                                                                                                    |
| Arrive On Green              | 0.30                                                                                                                                                                | 0.41                                                                                                                                                                | 0.41                                                                              | 0.09                                                                              | 0.20                                                                                                                                                                | 0.00                                                                              | 0.02                                                                               | 0.07                                                                                | 0.07                                                                                | 0.21                                                                                                                                                                    | 0.26                                                                                | 0.26                                                                                                                                                                    |
| Sat Flow, veh/h              | 3237                                                                                                                                                                | 3441                                                                                                                                                                | 1610                                                                              | 1810                                                                              | 3441                                                                                                                                                                | 1535                                                                              | 1640                                                                               | 1841                                                                                | 1585                                                                                | 3456                                                                                                                                                                    | 1781                                                                                | 2414                                                                                                                                                                    |
| Grp Volume(v), veh/h         | 837                                                                                                                                                                 | 744                                                                                                                                                                 | 23                                                                                | 140                                                                               | 566                                                                                                                                                                 | 0                                                                                 | 27                                                                                 | 115                                                                                 | 114                                                                                 | 787                                                                                                                                                                     | 112                                                                                 | 786                                                                                                                                                                     |
| Grp Sat Flow(s),veh/h/ln     | 1618                                                                                                                                                                | 1721                                                                                                                                                                | 1610                                                                              | 1810                                                                              | 1721                                                                                                                                                                | 1535                                                                              | 1640                                                                               | 1841                                                                                | 1585                                                                                | 1728                                                                                                                                                                    | 1781                                                                                | 1207                                                                                                                                                                    |
| Q Serve(g_s), s              | 31.6                                                                                                                                                                | 21.2                                                                                                                                                                | 1.1                                                                               | 9.9                                                                               | 20.5                                                                                                                                                                | 0.0                                                                               | 2.1                                                                                | 8.0                                                                                 | 7.3                                                                                 | 27.8                                                                                                                                                                    | 6.4                                                                                 | 4.4                                                                                                                                                                     |
| Cycle Q Clear(g_c), s        | 31.6                                                                                                                                                                | 21.2                                                                                                                                                                | 1.1                                                                               | 9.9                                                                               | 20.5                                                                                                                                                                | 0.0                                                                               | 2.1                                                                                | 8.0                                                                                 | 7.3                                                                                 | 27.8                                                                                                                                                                    | 6.4                                                                                 | 4.4                                                                                                                                                                     |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                                                                                                    |
| Lane Grp Cap(c), veh/h       | 979                                                                                                                                                                 | 1403                                                                                                                                                                | 657                                                                               | 167                                                                               | 690                                                                                                                                                                 |                                                                                   | 39                                                                                 | 132                                                                                 | 113                                                                                 | 739                                                                                                                                                                     | 470                                                                                 | 1367                                                                                                                                                                    |
| V/C Ratio(X)                 | 0.85                                                                                                                                                                | 0.53                                                                                                                                                                | 0.04                                                                              | 0.84                                                                              | 0.82                                                                                                                                                                |                                                                                   | 0.69                                                                               | 0.87                                                                                | 1.01                                                                                | 1.06                                                                                                                                                                    | 0.24                                                                                | 0.58                                                                                                                                                                    |
| Avail Cap(c_a), veh/h        | 979                                                                                                                                                                 | 1403                                                                                                                                                                | 657                                                                               | 252                                                                               | 1302                                                                                                                                                                |                                                                                   | 63                                                                                 | 132                                                                                 | 113                                                                                 | 739                                                                                                                                                                     | 470                                                                                 | 1367                                                                                                                                                                    |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |
| Upstream Filter(I)           | 0.69                                                                                                                                                                | 0.69                                                                                                                                                                | 0.69                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 0.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    |
| Uniform Delay (d), s/veh     | 42.7                                                                                                                                                                | 29.1                                                                                                                                                                | 23.1                                                                              | 58.1                                                                              | 49.7                                                                                                                                                                | 0.0                                                                               | 63.0                                                                               | 59.8                                                                                | 37.3                                                                                | 51.1                                                                                                                                                                    | 37.6                                                                                | 6.8                                                                                                                                                                     |
| Incr Delay (d2), s/veh       | 5.3                                                                                                                                                                 | 1.0                                                                                                                                                                 | 0.1                                                                               | 14.3                                                                              | 10.5                                                                                                                                                                | 0.0                                                                               | 19.1                                                                               | 43.0                                                                                | 86.0                                                                                | 51.8                                                                                                                                                                    | 0.3                                                                                 | 0.6                                                                                                                                                                     |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                                                                                                     |
| %ile BackOfQ(95%),veh/ln     | 17.8                                                                                                                                                                | 12.7                                                                                                                                                                | 0.8                                                                               | 8.8                                                                               | 14.7                                                                                                                                                                | 0.0                                                                               | 2.0                                                                                | 9.2                                                                                 | 10.4                                                                                | 24.6                                                                                                                                                                    | 5.0                                                                                 | 6.1                                                                                                                                                                     |
| Unsig. Movement Delay, s/veh |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| LnGrp Delay(d),s/veh         | 48.0                                                                                                                                                                | 30.1                                                                                                                                                                | 23.2                                                                              | 72.4                                                                              | 60.2                                                                                                                                                                | 0.0                                                                               | 82.1                                                                               | 102.8                                                                               | 123.3                                                                               | 102.9                                                                                                                                                                   | 37.9                                                                                | 7.3                                                                                                                                                                     |
| LnGrp LOS                    | D                                                                                                                                                                   | C                                                                                                                                                                   | C                                                                                 | E                                                                                 | E                                                                                                                                                                   |                                                                                   | F                                                                                  | F                                                                                   | F                                                                                   | F                                                                                                                                                                       | D                                                                                   | A                                                                                                                                                                       |
| Approach Vol, veh/h          | 1604                                                                                                                                                                |                                                                                                                                                                     |                                                                                   | 706                                                                               |                                                                                                                                                                     |                                                                                   | 256                                                                                |                                                                                     |                                                                                     | 1685                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |
| Approach Delay, s/veh        | 39.3                                                                                                                                                                |                                                                                                                                                                     |                                                                                   | 62.6                                                                              |                                                                                                                                                                     |                                                                                   | 109.7                                                                              |                                                                                     |                                                                                     | 54.0                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |
| Approach LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   | E                                                                                 |                                                                                                                                                                     |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         |
| Timer - Assigned Phs         | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Phs Duration (G+Y+Rc), s     | 47.1                                                                                                                                                                | 33.2                                                                                                                                                                | 34.1                                                                              | 15.6                                                                              | 19.5                                                                                                                                                                | 60.8                                                                              | 9.1                                                                                | 40.6                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Change Period (Y+Rc), s      | 7.8                                                                                                                                                                 | * 7.1                                                                                                                                                               | 6.3                                                                               | * 6.3                                                                             | 7.5                                                                                                                                                                 | * 7.8                                                                             | 6.0                                                                                | * 6.3                                                                               |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Max Green Setting (Gmax), s  | 16.2                                                                                                                                                                | * 49                                                                                                                                                                | 27.8                                                                              | * 9.3                                                                             | 18.1                                                                                                                                                                | * 48                                                                              | 5.0                                                                                | * 33                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Max Q Clear Time (g_c+I1), s | 33.6                                                                                                                                                                | 22.5                                                                                                                                                                | 29.8                                                                              | 10.0                                                                              | 11.9                                                                                                                                                                | 23.2                                                                              | 4.1                                                                                | 8.4                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |
| Green Ext Time (p_c), s      | 0.0                                                                                                                                                                 | 3.6                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                                                                                                 | 5.0                                                                               | 0.0                                                                                | 4.1                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 53.3 |
| HCM 6th LOS        | D    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
14: Industry Road & SR 524

2045 PM.syn  
08/05/2019

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 696                                                                               | 539                                                                               | 36                                                                                | 160                                                                               | 685                                                                               | 729                                                                               | 48                                                                                  | 117                                                                                 | 148                                                                                 | 594                                                                                 | 141                                                                                 | 780                                                                                 |
| Future Volume (veh/h)        | 696                                                                               | 539                                                                               | 36                                                                                | 160                                                                               | 685                                                                               | 729                                                                               | 48                                                                                  | 117                                                                                 | 148                                                                                 | 594                                                                                 | 141                                                                                 | 780                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1767                                                                              | 1811                                                                              | 1900                                                                              | 1900                                                                              | 1811                                                                              | 1885                                                                              | 1856                                                                                | 1870                                                                                | 1900                                                                                | 1885                                                                                | 1870                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 733                                                                               | 567                                                                               | 38                                                                                | 168                                                                               | 721                                                                               | 0                                                                                 | 51                                                                                  | 123                                                                                 | 156                                                                                 | 625                                                                                 | 148                                                                                 | 821                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 9                                                                                 | 6                                                                                 | 0                                                                                 | 0                                                                                 | 6                                                                                 | 1                                                                                 | 3                                                                                   | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 956                                                                               | 1475                                                                              | 690                                                                               | 194                                                                               | 845                                                                               |                                                                                   | 63                                                                                  | 146                                                                                 | 125                                                                                 | 652                                                                                 | 433                                                                                 | 1451                                                                                |
| Arrive On Green              | 0.29                                                                              | 0.43                                                                              | 0.43                                                                              | 0.11                                                                              | 0.25                                                                              | 0.00                                                                              | 0.04                                                                                | 0.08                                                                                | 0.08                                                                                | 0.19                                                                                | 0.23                                                                                | 0.23                                                                                |
| Sat Flow, veh/h              | 3264                                                                              | 3441                                                                              | 1610                                                                              | 1810                                                                              | 3441                                                                              | 1598                                                                              | 1767                                                                                | 1870                                                                                | 1610                                                                                | 3483                                                                                | 1870                                                                                | 2768                                                                                |
| Grp Volume(v), veh/h         | 733                                                                               | 567                                                                               | 38                                                                                | 168                                                                               | 721                                                                               | 0                                                                                 | 51                                                                                  | 123                                                                                 | 156                                                                                 | 625                                                                                 | 148                                                                                 | 821                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1632                                                                              | 1721                                                                              | 1610                                                                              | 1810                                                                              | 1721                                                                              | 1598                                                                              | 1767                                                                                | 1870                                                                                | 1610                                                                                | 1742                                                                                | 1870                                                                                | 1384                                                                                |
| Q Serve(g_s), s              | 28.7                                                                              | 15.8                                                                              | 1.9                                                                               | 12.8                                                                              | 28.0                                                                              | 0.0                                                                               | 4.0                                                                                 | 9.1                                                                                 | 8.5                                                                                 | 24.9                                                                                | 9.2                                                                                 | 4.6                                                                                 |
| Cycle Q Clear(g_c), s        | 28.7                                                                              | 15.8                                                                              | 1.9                                                                               | 12.8                                                                              | 28.0                                                                              | 0.0                                                                               | 4.0                                                                                 | 9.1                                                                                 | 8.5                                                                                 | 24.9                                                                                | 9.2                                                                                 | 4.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 956                                                                               | 1475                                                                              | 690                                                                               | 194                                                                               | 845                                                                               |                                                                                   | 63                                                                                  | 146                                                                                 | 125                                                                                 | 652                                                                                 | 433                                                                                 | 1451                                                                                |
| V/C Ratio(X)                 | 0.77                                                                              | 0.38                                                                              | 0.06                                                                              | 0.87                                                                              | 0.85                                                                              |                                                                                   | 0.81                                                                                | 0.84                                                                                | 1.24                                                                                | 0.96                                                                                | 0.34                                                                                | 0.57                                                                                |
| Avail Cap(c_a), veh/h        | 956                                                                               | 1475                                                                              | 690                                                                               | 288                                                                               | 1209                                                                              |                                                                                   | 63                                                                                  | 146                                                                                 | 125                                                                                 | 652                                                                                 | 441                                                                                 | 1463                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 45.1                                                                              | 27.4                                                                              | 23.4                                                                              | 61.5                                                                              | 50.4                                                                              | 0.0                                                                               | 67.0                                                                                | 63.7                                                                                | 39.0                                                                                | 56.4                                                                                | 44.9                                                                                | 9.3                                                                                 |
| Incr Delay (d2), s/veh       | 3.2                                                                               | 0.6                                                                               | 0.1                                                                               | 16.4                                                                              | 10.7                                                                              | 0.0                                                                               | 52.3                                                                                | 34.2                                                                                | 160.2                                                                               | 25.4                                                                                | 0.5                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(95%),veh/ln     | 16.8                                                                              | 10.3                                                                              | 1.4                                                                               | 10.9                                                                              | 18.9                                                                              | 0.0                                                                               | 4.9                                                                                 | 9.7                                                                                 | 14.8                                                                                | 18.9                                                                                | 7.7                                                                                 | 8.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 48.3                                                                              | 28.0                                                                              | 23.5                                                                              | 77.9                                                                              | 61.1                                                                              | 0.0                                                                               | 119.3                                                                               | 97.9                                                                                | 199.1                                                                               | 81.7                                                                                | 45.4                                                                                | 9.9                                                                                 |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | E                                                                                 |                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | F                                                                                   | D                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 1338                                                                              |                                                                                   |                                                                                   | 889                                                                               |                                                                                   |                                                                                   | 330                                                                                 |                                                                                     |                                                                                     | 1594                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 39.0                                                                              |                                                                                   |                                                                                   | 64.2                                                                              |                                                                                   |                                                                                   | 149.1                                                                               |                                                                                     |                                                                                     | 41.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | F                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 48.8                                                                              | 41.5                                                                              | 32.5                                                                              | 17.2                                                                              | 22.5                                                                              | 67.8                                                                              | 11.0                                                                                | 38.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 7.8                                                                               | * 7.1                                                                             | 6.3                                                                               | * 6.3                                                                             | 7.5                                                                               | * 7.8                                                                             | 6.0                                                                                 | * 6.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 26.2                                                                              | * 49                                                                              | 26.2                                                                              | * 11                                                                              | 22.3                                                                              | * 53                                                                              | 5.0                                                                                 | * 33                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 30.7                                                                              | 30.0                                                                              | 26.9                                                                              | 11.1                                                                              | 14.8                                                                              | 17.8                                                                              | 6.0                                                                                 | 11.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 4.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                               | 3.9                                                                               | 0.0                                                                                 | 4.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

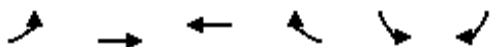
Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 54.0 |
| HCM 6th LOS        | D    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↘     |      |
| Traffic Volume (vph)              | 0    | 907   | 0    | 0                         | 549   | 0    |
| Future Volume (vph)               | 0    | 907   | 0    | 0                         | 549   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 5.0   |      |                           | 5.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3431  |      |                           | 1609  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3431  |      |                           | 1609  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 955   | 0    | 0                         | 578   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 41    | 0    |
| Lane Group Flow (vph)             | 0    | 955   | 0    | 0                         | 537   | 0    |
| Heavy Vehicles (%)                | 2%   | 8%    | 2%   | 2%                        | 3%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 2     |      |                           | 4     |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 45.9  |      |                           | 34.1  |      |
| Effective Green, g (s)            |      | 45.9  |      |                           | 34.1  |      |
| Actuated g/C Ratio                |      | 0.51  |      |                           | 0.38  |      |
| Clearance Time (s)                |      | 5.0   |      |                           | 5.0   |      |
| Vehicle Extension (s)             |      | 3.0   |      |                           | 3.0   |      |
| Lane Grp Cap (vph)                |      | 1749  |      |                           | 609   |      |
| v/s Ratio Prot                    |      | c0.28 |      |                           | c0.33 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.55  |      |                           | 0.88  |      |
| Uniform Delay, d1                 |      | 15.0  |      |                           | 26.1  |      |
| Progression Factor                |      | 1.00  |      |                           | 1.00  |      |
| Incremental Delay, d2             |      | 1.2   |      |                           | 14.1  |      |
| Delay (s)                         |      | 16.2  |      |                           | 40.2  |      |
| Level of Service                  |      | B     |      |                           | D     |      |
| Approach Delay (s)                |      | 16.2  | 0.0  |                           | 40.2  |      |
| Approach LOS                      |      | B     | A    |                           | D     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 25.2  |      | HCM 2000 Level of Service |       | C    |
| HCM 2000 Volume to Capacity ratio |      | 0.69  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 90.0  |      | Sum of lost time (s)      |       | 10.0 |
| Intersection Capacity Utilization |      | 61.6% |      | ICU Level of Service      |       | B    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| c Critical Lane Group             |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Industry Road

Industry Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↗                                                                                   | ↘                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 881                                                                               | 76                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 130                                                                                 | 68                                                                                  | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 881                                                                               | 76                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 130                                                                                 | 68                                                                                  | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3562                                                                              | 1549                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1622                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3562                                                                              | 1549                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1622                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 927                                                                               | 80                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 137                                                                                 | 72                                                                                  | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 927                                                                               | 64                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 137                                                                                 | 72                                                                                  | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 4%                                                                                | 7%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 4%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 66.4                                                                              | 66.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 13.6                                                                                | 13.6                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 66.4                                                                              | 66.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 13.6                                                                                | 13.6                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.74                                                                              | 0.74                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.15                                                                                | 0.15                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2627                                                                              | 1142                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 245                                                                                 | 274                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.26                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.04                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.04                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.08                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.35                                                                              | 0.06                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.56                                                                                | 0.26                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 4.2                                                                               | 3.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 35.4                                                                                | 33.8                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.49                                                                              | 0.25                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.3                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 2.8                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 2.3                                                                               | 0.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 38.2                                                                                | 34.3                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 38.2                                                                                |                                                                                     |                                                                                     | 34.3                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.39                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 39.9%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 220: Industry Road

Industry Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |                                                                                    |  |  |  |                                                                                                                                                                          |                                                                                                                                                                          |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                                                                                                                                                                                        | NEL                                                                                                                                                                                                                                                         | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |   |  |                                                                                    |                                                                                     |    |    |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 237                                                                                                                                                                 | 370                                                                               | 0                                                                                  | 0                                                                                   | 942                                                                                                                                                                                                                                                         | 499                                                                                                                                                                                                                                                         | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 237                                                                                                                                                                 | 370                                                                               | 0                                                                                  | 0                                                                                   | 942                                                                                                                                                                                                                                                         | 499                                                                                                                                                                                                                                                         | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                                                                                                | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                                                                                                                                                                                        | 1950                                                                                                                                                                                                                                                        | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                                                                                                                 | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                                                                                                                                                                                         | 5.0                                                                                                                                                                                                                                                         |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 0.88                                                                                                                                                                                                                                                        | 0.97                                                                                                                                                                                                                                                        |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 0.85                                                                              |                                                                                    |                                                                                     | 0.85                                                                                                                                                                                                                                                        | 1.00                                                                                                                                                                                                                                                        |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                                                                                                                                                                                        | 0.95                                                                                                                                                                                                                                                        |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                                                                                                                | 1564                                                                              |                                                                                    |                                                                                     | 2676                                                                                                                                                                                                                                                        | 3267                                                                                                                                                                                                                                                        |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                                                                                                                                                                                        | 0.95                                                                                                                                                                                                                                                        |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                                                                                                                | 1564                                                                              |                                                                                    |                                                                                     | 2676                                                                                                                                                                                                                                                        | 3267                                                                                                                                                                                                                                                        |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                                                                                                                                                                                        | 0.95                                                                                                                                                                                                                                                        | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 249                                                                                                                                                                 | 389                                                                               | 0                                                                                  | 0                                                                                   | 992                                                                                                                                                                                                                                                         | 525                                                                                                                                                                                                                                                         | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 28                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                                                                                                                                                                                           | 0                                                                                                                                                                                                                                                           | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 249                                                                                                                                                                 | 362                                                                               | 0                                                                                  | 0                                                                                   | 992                                                                                                                                                                                                                                                         | 525                                                                                                                                                                                                                                                         | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                                                                                                  | 6%                                                                                | 2%                                                                                 | 2%                                                                                  | 9%                                                                                                                                                                                                                                                          | 10%                                                                                                                                                                                                                                                         | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                                                                                                  | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                                                                                                                                                                                        | Prot                                                                                                                                                                                                                                                        |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             | 8                                                                                                                                                                                                                                                           |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                             |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 65.0                                                                                                                                                                | 65.0                                                                              |                                                                                    |                                                                                     | 45.0                                                                                                                                                                                                                                                        | 45.0                                                                                                                                                                                                                                                        |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 65.0                                                                                                                                                                | 65.0                                                                              |                                                                                    |                                                                                     | 45.0                                                                                                                                                                                                                                                        | 45.0                                                                                                                                                                                                                                                        |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                                                                                                                | 0.54                                                                              |                                                                                    |                                                                                     | 0.38                                                                                                                                                                                                                                                        | 0.38                                                                                                                                                                                                                                                        |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                                                                                                                 | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                                                                                                                                                                                         | 5.0                                                                                                                                                                                                                                                         |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                                                                                                                 | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                                                                                                                                                                                         | 3.0                                                                                                                                                                                                                                                         |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1893                                                                                                                                                                | 847                                                                               |                                                                                    |                                                                                     | 1003                                                                                                                                                                                                                                                        | 1225                                                                                                                                                                                                                                                        |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.07                                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             | 0.16                                                                                                                                                                                                                                                        |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     | c0.23                                                                             |                                                                                    |                                                                                     | c0.37                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                             |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.13                                                                                                                                                                | 0.43                                                                              |                                                                                    |                                                                                     | 0.99                                                                                                                                                                                                                                                        | 0.43                                                                                                                                                                                                                                                        |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 13.6                                                                                                                                                                | 16.4                                                                              |                                                                                    |                                                                                     | 37.3                                                                                                                                                                                                                                                        | 27.9                                                                                                                                                                                                                                                        |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                                                                                                                | 0.95                                                                              |                                                                                    |                                                                                     | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                                                                                                                                                                                        |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                                                                                                                 | 1.6                                                                               |                                                                                    |                                                                                     | 25.4                                                                                                                                                                                                                                                        | 0.2                                                                                                                                                                                                                                                         |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 13.0                                                                                                                                                                | 17.1                                                                              |                                                                                    |                                                                                     | 62.7                                                                                                                                                                                                                                                        | 28.2                                                                                                                                                                                                                                                        |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | B                                                                                                                                                                   | B                                                                                 |                                                                                    |                                                                                     | E                                                                                                                                                                                                                                                           | C                                                                                                                                                                                                                                                           |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 15.5                                                                                                                                                                |                                                                                   | 62.7                                                                               |                                                                                     |                                                                                                                                                                                                                                                             | 28.2                                                                                                                                                                                                                                                        |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | B                                                                                                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                                                                                                                                                                                             | C                                                                                                                                                                                                                                                           |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                             |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 40.3                                                                              |                                                                                   | HCM 2000 Level of Service                                                                                                                                           |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             | D                                                                                                                                                                                                                                                           |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.66                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                             |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   | Sum of lost time (s)                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     | 10.0                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                             |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | Err%                                                                              |                                                                                   | ICU Level of Service                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     | H                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                             |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                             |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                             |                                                                                     |

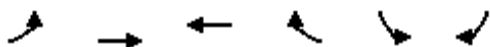
# HCM Signalized Intersection Capacity Analysis

## 240: U-Turn

Industry Signalized RCUT 2025 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 605                                                                               | 70                                                                                | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 605                                                                               | 70                                                                                | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1579                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3529                                                                              | 1579                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 637                                                                               | 74                                                                                | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 71                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 637                                                                               | 3                                                                                 | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 5%                                                                                | 5%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 107.6                                                                             | 4.4                                                                               |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 107.6                                                                             | 4.4                                                                               |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.90                                                                              | 0.04                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 3164                                                                              | 57                                                                                |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                             | c0.00                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.20                                                                              | 0.05                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 0.8                                                                               | 55.8                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.1                                                                               | 0.3                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 0.9                                                                               | 56.1                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 0.9                                                                               | 56.1                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 6.7                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.20                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 26.7%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |



| Movement                          | EBL  | EBT   | WBT  | WBR                       | SBL   | SBR  |
|-----------------------------------|------|-------|------|---------------------------|-------|------|
| Lane Configurations               |      | ↑↑    |      |                           | ↱     |      |
| Traffic Volume (vph)              | 0    | 770   | 0    | 0                         | 543   | 0    |
| Future Volume (vph)               | 0    | 770   | 0    | 0                         | 543   | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950 | 1950                      | 1950  | 1950 |
| Total Lost time (s)               |      | 5.0   |      |                           | 5.0   |      |
| Lane Util. Factor                 |      | 0.95  |      |                           | 1.00  |      |
| Frt                               |      | 1.00  |      |                           | 1.00  |      |
| Flt Protected                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (prot)                 |      | 3463  |      |                           | 1625  |      |
| Flt Permitted                     |      | 1.00  |      |                           | 0.85  |      |
| Satd. Flow (perm)                 |      | 3463  |      |                           | 1625  |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95  | 0.95 |
| Adj. Flow (vph)                   | 0    | 811   | 0    | 0                         | 572   | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0    | 0                         | 66    | 0    |
| Lane Group Flow (vph)             | 0    | 811   | 0    | 0                         | 506   | 0    |
| Heavy Vehicles (%)                | 2%   | 7%    | 2%   | 2%                        | 2%    | 2%   |
| Turn Type                         |      | NA    |      |                           | Prot  |      |
| Protected Phases                  |      | 2     |      |                           | 4     |      |
| Permitted Phases                  |      |       |      |                           |       |      |
| Actuated Green, G (s)             |      | 47.7  |      |                           | 32.3  |      |
| Effective Green, g (s)            |      | 47.7  |      |                           | 32.3  |      |
| Actuated g/C Ratio                |      | 0.53  |      |                           | 0.36  |      |
| Clearance Time (s)                |      | 5.0   |      |                           | 5.0   |      |
| Vehicle Extension (s)             |      | 3.0   |      |                           | 3.0   |      |
| Lane Grp Cap (vph)                |      | 1835  |      |                           | 583   |      |
| v/s Ratio Prot                    |      | c0.23 |      |                           | c0.31 |      |
| v/s Ratio Perm                    |      |       |      |                           |       |      |
| v/c Ratio                         |      | 0.44  |      |                           | 0.87  |      |
| Uniform Delay, d1                 |      | 13.0  |      |                           | 26.9  |      |
| Progression Factor                |      | 1.00  |      |                           | 1.00  |      |
| Incremental Delay, d2             |      | 0.8   |      |                           | 12.9  |      |
| Delay (s)                         |      | 13.8  |      |                           | 39.8  |      |
| Level of Service                  |      | B     |      |                           | D     |      |
| Approach Delay (s)                |      | 13.8  | 0.0  |                           | 39.8  |      |
| Approach LOS                      |      | B     | A    |                           | D     |      |
| <b>Intersection Summary</b>       |      |       |      |                           |       |      |
| HCM 2000 Control Delay            |      | 24.5  |      | HCM 2000 Level of Service |       | C    |
| HCM 2000 Volume to Capacity ratio |      | 0.61  |      |                           |       |      |
| Actuated Cycle Length (s)         |      | 90.0  |      | Sum of lost time (s)      |       | 10.0 |
| Intersection Capacity Utilization |      | 57.6% |      | ICU Level of Service      |       | B    |
| Analysis Period (min)             |      | 15    |      |                           |       |      |
| c Critical Lane Group             |      |       |      |                           |       |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Industry Road

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|                                   |  |       |       |      |      |      |                           |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|---------------------------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBR  | NBR2  | SWL  | SWR  |
| Lane Configurations               |                                                                                    | ↑↑    | ↗     |      |      |      |                           |      | ↗     | ↘    |      |
| Traffic Volume (vph)              | 0                                                                                  | 750   | 145   | 0    | 0    | 0    | 0                         | 0    | 256   | 145  | 0    |
| Future Volume (vph)               | 0                                                                                  | 750   | 145   | 0    | 0    | 0    | 0                         | 0    | 256   | 145  | 0    |
| Ideal Flow (vphpl)                | 1950                                                                               | 1950  | 1950  | 1950 | 1950 | 1950 | 1950                      | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |                                                                                    | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Lane Util. Factor                 |                                                                                    | 0.95  | 1.00  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Frt                               |                                                                                    | 1.00  | 0.85  |      |      |      |                           |      | 0.86  | 1.00 |      |
| Flt Protected                     |                                                                                    | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (prot)                 |                                                                                    | 3597  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Flt Permitted                     |                                                                                    | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (perm)                 |                                                                                    | 3597  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Peak-hour factor, PHF             | 0.95                                                                               | 0.95  | 0.95  | 0.95 | 0.95 | 0.95 | 0.95                      | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0                                                                                  | 789   | 153   | 0    | 0    | 0    | 0                         | 0    | 269   | 153  | 0    |
| RTOR Reduction (vph)              | 0                                                                                  | 0     | 20    | 0    | 0    | 0    | 0                         | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 789   | 133   | 0    | 0    | 0    | 0                         | 0    | 269   | 153  | 0    |
| Heavy Vehicles (%)                | 2%                                                                                 | 3%    | 2%    | 2%   | 2%   | 2%   | 2%                        | 2%   | 2%    | 2%   | 2%   |
| Turn Type                         |                                                                                    | NA    | Perm  |      |      |      |                           |      | Perm  | Prot |      |
| Protected Phases                  |                                                                                    | 2     |       |      |      |      |                           |      |       | 4    |      |
| Permitted Phases                  |                                                                                    |       | 2     |      |      |      |                           |      | 8     |      |      |
| Actuated Green, G (s)             |                                                                                    | 59.5  | 59.5  |      |      |      |                           |      | 20.5  | 20.5 |      |
| Effective Green, g (s)            |                                                                                    | 59.5  | 59.5  |      |      |      |                           |      | 20.5  | 20.5 |      |
| Actuated g/C Ratio                |                                                                                    | 0.66  | 0.66  |      |      |      |                           |      | 0.23  | 0.23 |      |
| Clearance Time (s)                |                                                                                    | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Vehicle Extension (s)             |                                                                                    | 3.0   | 3.0   |      |      |      |                           |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 2378  | 1074  |      |      |      |                           |      | 376   | 413  |      |
| v/s Ratio Prot                    |                                                                                    | c0.22 |       |      |      |      |                           |      |       | 0.08 |      |
| v/s Ratio Perm                    |                                                                                    |       | 0.08  |      |      |      |                           |      | c0.16 |      |      |
| v/c Ratio                         |                                                                                    | 0.33  | 0.12  |      |      |      |                           |      | 0.72  | 0.37 |      |
| Uniform Delay, d1                 |                                                                                    | 6.6   | 5.6   |      |      |      |                           |      | 32.1  | 29.3 |      |
| Progression Factor                |                                                                                    | 0.60  | 0.40  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |                                                                                    | 0.3   | 0.2   |      |      |      |                           |      | 6.4   | 0.6  |      |
| Delay (s)                         |                                                                                    | 4.3   | 2.4   |      |      |      |                           |      | 38.4  | 29.9 |      |
| Level of Service                  |                                                                                    | A     | A     |      |      |      |                           |      | D     | C    |      |
| Approach Delay (s)                |                                                                                    | 4.0   |       |      | 0.0  |      | 38.4                      |      |       | 29.9 |      |
| Approach LOS                      |                                                                                    | A     |       |      | A    |      | D                         |      |       | C    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |                           |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 13.7  |      |      |      | HCM 2000 Level of Service |      |       | B    |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.43  |      |      |      |                           |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 90.0  |      |      |      | Sum of lost time (s)      |      | 10.0  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 44.0% |      |      |      | ICU Level of Service      |      | A     |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |                           |      |       |      |      |
| <b>c Critical Lane Group</b>      |                                                                                    |       |       |      |      |      |                           |      |       |      |      |

# HCM Signalized Intersection Capacity Analysis

## 220: Industry Road

Industry Signalized RCUT 2025 PM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑↑                                                                                  | ↑↑                                                                                  |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 425                                                                               | 614                                                                               | 0                                                                                  | 0                                                                                   | 1008                                                                                | 418                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 425                                                                               | 614                                                                               | 0                                                                                  | 0                                                                                   | 1008                                                                                | 418                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 0.88                                                                                | 0.97                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.85                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 2860                                                                                | 3297                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 2860                                                                                | 3297                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 447                                                                               | 646                                                                               | 0                                                                                  | 0                                                                                   | 1061                                                                                | 440                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 28                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 447                                                                               | 619                                                                               | 0                                                                                  | 0                                                                                   | 1061                                                                                | 440                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 2%                                                                                  | 9%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 65.0                                                                              | 65.0                                                                              |                                                                                    |                                                                                     | 45.0                                                                                | 45.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 65.0                                                                              | 65.0                                                                              |                                                                                    |                                                                                     | 45.0                                                                                | 45.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                              | 0.54                                                                              |                                                                                    |                                                                                     | 0.38                                                                                | 0.38                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1893                                                                              | 880                                                                               |                                                                                    |                                                                                     | 1072                                                                                | 1236                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.13                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.13                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.38                                                                             |                                                                                    |                                                                                     | c0.37                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.24                                                                              | 0.70                                                                              |                                                                                    |                                                                                     | 0.99                                                                                | 0.36                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 14.5                                                                              | 20.4                                                                              |                                                                                    |                                                                                     | 37.3                                                                                | 27.0                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.93                                                                              | 0.97                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.3                                                                               | 4.5                                                                               |                                                                                    |                                                                                     | 24.7                                                                                | 0.2                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 13.7                                                                              | 24.3                                                                              |                                                                                    |                                                                                     | 62.0                                                                                | 27.2                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | B                                                                                 | C                                                                                 |                                                                                    |                                                                                     | E                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 20.0                                                                              |                                                                                   | 62.0                                                                               |                                                                                     |                                                                                     | 27.2                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 38.4                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                          |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.82                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                               |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | Err%                                                                              |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                               |                                                                                     |                                                                                     | H                                                                                   |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

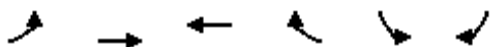
|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1043                                                                              | 141                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1043                                                                              | 141                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3597                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3597                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1098                                                                              | 148                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 85                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1098                                                                              | 63                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 101.8                                                                             | 10.2                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 101.8                                                                             | 10.2                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.85                                                                              | 0.08                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 3051                                                                              | 138                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.31                                                                             | c0.04                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.36                                                                              | 0.46                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 2.0                                                                               | 52.3                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.3                                                                               | 2.4                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 2.3                                                                               | 54.6                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | D                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 2.3                                                                               | 54.6                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | D                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.5                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.37                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 42.4%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

## 100: SR 524 & U-Turn

Industry Signalized RCUT 2045 AM.syn

11/18/2019



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↵                         |      |
| Traffic Volume (vph)              | 0    | 1339  | 0     | 0    | 908                       | 0    |
| Future Volume (vph)               | 0    | 1339  | 0     | 0    | 908                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3431  |       |      | 1609                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3431  |       |      | 1609                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 1409  | 0     | 0    | 956                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 9                         | 0    |
| Lane Group Flow (vph)             | 0    | 1409  | 0     | 0    | 947                       | 0    |
| Heavy Vehicles (%)                | 2%   | 8%    | 2%    | 2%   | 3%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 41.0  |       |      | 39.0                      |      |
| Effective Green, g (s)            |      | 41.0  |       |      | 39.0                      |      |
| Actuated g/C Ratio                |      | 0.46  |       |      | 0.43                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 1563  |       |      | 697                       |      |
| v/s Ratio Prot                    |      | c0.41 |       |      | c0.59                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.90  |       |      | 1.36                      |      |
| Uniform Delay, d1                 |      | 22.6  |       |      | 25.5                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 8.8   |       |      | 170.6                     |      |
| Delay (s)                         |      | 31.4  |       |      | 196.1                     |      |
| Level of Service                  |      | C     |       |      | F                         |      |
| Approach Delay (s)                |      | 31.4  | 0.0   |      | 196.1                     |      |
| Approach LOS                      |      | C     | A     |      | F                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 98.0  |      | HCM 2000 Level of Service | F    |
| HCM 2000 Volume to Capacity ratio |      |       | 1.12  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 92.6% |      | ICU Level of Service      | F    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Industry Road

Industry Signalized RCUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBR                                                                                 | NBR2                                                                                | SWL                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ↗                                                                                   | ↗                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 1326                                                                              | 182                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 243                                                                                 | 133                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 1326                                                                              | 182                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 243                                                                                 | 133                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.86                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3562                                                                              | 1549                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1622                                                                                | 1748                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3562                                                                              | 1549                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1622                                                                                | 1748                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 1396                                                                              | 192                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 256                                                                                 | 140                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 20                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 1396                                                                              | 172                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 256                                                                                 | 140                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 4%                                                                                | 7%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 4%                                                                                  | 6%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 60.0                                                                              | 60.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 60.0                                                                              | 60.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.67                                                                              | 0.67                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.22                                                                                | 0.22                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 2374                                                                              | 1032                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 360                                                                                 | 388                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.39                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     | 0.08                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.11                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | c0.16                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.59                                                                              | 0.17                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 0.71                                                                                | 0.36                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 8.2                                                                               | 5.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 32.3                                                                                | 29.6                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 0.87                                                                              | 0.76                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.1                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 6.5                                                                                 | 0.6                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 7.2                                                                               | 4.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | 38.8                                                                                | 30.2                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 6.9                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 38.8                                                                                |                                                                                     |                                                                                     | 30.2                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 12.6                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.62                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     | 10.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 58.7%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

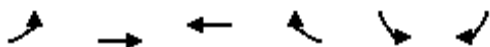
## 220: Industry Road

Industry Signalized RCUT 2045 AM.syn

11/18/2019

|                                   |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                                | SBR                                                                                 | SBR2                                                                                | NEL                                                                                 | NER                                                                                 |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↑                                                                                 |                                                                                    |                                                                                     | ↑↑                                                                                  | ↑↑                                                                                  |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 564                                                                               | 722                                                                               | 0                                                                                  | 0                                                                                   | 1655                                                                                | 739                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 564                                                                               | 722                                                                               | 0                                                                                  | 0                                                                                   | 1655                                                                                | 739                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 0.88                                                                                | 0.97                                                                                |                                                                                     |
| Frt                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                    |                                                                                     | 0.85                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 2652                                                                                | 3267                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                    |                                                                                     | 2652                                                                                | 3267                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 594                                                                               | 760                                                                               | 0                                                                                  | 0                                                                                   | 1742                                                                                | 778                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 28                                                                                | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 594                                                                               | 733                                                                               | 0                                                                                  | 0                                                                                   | 1742                                                                                | 778                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                 | 2%                                                                                  | 10%                                                                                 | 10%                                                                                 | 2%                                                                                  |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Perm                                                                              |                                                                                    |                                                                                     | Perm                                                                                | Prot                                                                                |                                                                                     |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 65.0                                                                              | 65.0                                                                              |                                                                                    |                                                                                     | 45.0                                                                                | 45.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 65.0                                                                              | 65.0                                                                              |                                                                                    |                                                                                     | 45.0                                                                                | 45.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.54                                                                              | 0.54                                                                              |                                                                                    |                                                                                     | 0.38                                                                                | 0.38                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                    |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                    |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1893                                                                              | 880                                                                               |                                                                                    |                                                                                     | 994                                                                                 | 1225                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.24                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.45                                                                             |                                                                                    |                                                                                     | c0.66                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.31                                                                              | 0.83                                                                              |                                                                                    |                                                                                     | 1.75                                                                                | 0.64                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 15.2                                                                              | 23.0                                                                              |                                                                                    |                                                                                     | 37.5                                                                                | 30.8                                                                                |                                                                                     |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.88                                                                              | 0.95                                                                              |                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.4                                                                               | 8.4                                                                               |                                                                                    |                                                                                     | 342.8                                                                               | 1.1                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 13.8                                                                              | 30.2                                                                              |                                                                                    |                                                                                     | 380.3                                                                               | 31.9                                                                                |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | B                                                                                 | C                                                                                 |                                                                                    |                                                                                     | F                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 23.0                                                                              |                                                                                   | 380.3                                                                              |                                                                                     |                                                                                     | 31.9                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 185.5                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 1.21                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                    |                                                                                     | 10.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | Err%                                                                              |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | H                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>c Critical Lane Group</b>      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   | ↑↑                                                                                | ↵                                                                                 |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1284                                                                              | 135                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1284                                                                              | 135                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3597                                                                              | 1564                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3597                                                                              | 1564                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1352                                                                              | 142                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 46                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1352                                                                              | 96                                                                                | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                | 6%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 99.4                                                                              | 12.6                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 99.4                                                                              | 12.6                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.83                                                                              | 0.10                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2979                                                                              | 164                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.38                                                                             | c0.06                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.45                                                                              | 0.59                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 2.8                                                                               | 51.2                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.5                                                                               | 5.3                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 3.3                                                                               | 56.5                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 3.3                                                                               | 56.5                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.4                                                                               | HCM 2000 Level of Service                                                         |                                                                                   | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.47                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 48.5%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                       | SBR  |
|-----------------------------------|------|-------|-------|------|---------------------------|------|
| Lane Configurations               |      | ↑↑    |       |      | ↵                         |      |
| Traffic Volume (vph)              | 0    | 1271  | 0     | 0    | 735                       | 0    |
| Future Volume (vph)               | 0    | 1271  | 0     | 0    | 735                       | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               |      | 5.0   |       |      | 5.0                       |      |
| Lane Util. Factor                 |      | 0.95  |       |      | 1.00                      |      |
| Frt                               |      | 1.00  |       |      | 1.00                      |      |
| Flt Protected                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (prot)                 |      | 3463  |       |      | 1625                      |      |
| Flt Permitted                     |      | 1.00  |       |      | 0.85                      |      |
| Satd. Flow (perm)                 |      | 3463  |       |      | 1625                      |      |
| Peak-hour factor, PHF             | 0.95 | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 0    | 1338  | 0     | 0    | 774                       | 0    |
| RTOR Reduction (vph)              | 0    | 0     | 0     | 0    | 11                        | 0    |
| Lane Group Flow (vph)             | 0    | 1338  | 0     | 0    | 763                       | 0    |
| Heavy Vehicles (%)                | 2%   | 7%    | 2%    | 2%   | 2%                        | 2%   |
| Turn Type                         |      | NA    |       |      | Prot                      |      |
| Protected Phases                  |      | 2     |       |      | 4                         |      |
| Permitted Phases                  |      |       |       |      |                           |      |
| Actuated Green, G (s)             |      | 41.0  |       |      | 39.0                      |      |
| Effective Green, g (s)            |      | 41.0  |       |      | 39.0                      |      |
| Actuated g/C Ratio                |      | 0.46  |       |      | 0.43                      |      |
| Clearance Time (s)                |      | 5.0   |       |      | 5.0                       |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0                       |      |
| Lane Grp Cap (vph)                |      | 1577  |       |      | 704                       |      |
| v/s Ratio Prot                    |      | c0.39 |       |      | c0.47                     |      |
| v/s Ratio Perm                    |      |       |       |      |                           |      |
| v/c Ratio                         |      | 0.85  |       |      | 1.08                      |      |
| Uniform Delay, d1                 |      | 21.7  |       |      | 25.5                      |      |
| Progression Factor                |      | 1.00  |       |      | 1.00                      |      |
| Incremental Delay, d2             |      | 5.9   |       |      | 58.7                      |      |
| Delay (s)                         |      | 27.6  |       |      | 84.2                      |      |
| Level of Service                  |      | C     |       |      | F                         |      |
| Approach Delay (s)                |      | 27.6  | 0.0   |      | 84.2                      |      |
| Approach LOS                      |      | C     | A     |      | F                         |      |
| <b>Intersection Summary</b>       |      |       |       |      |                           |      |
| HCM 2000 Control Delay            |      |       | 48.4  |      | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio |      |       | 0.96  |      |                           |      |
| Actuated Cycle Length (s)         |      |       | 90.0  |      | Sum of lost time (s)      | 10.0 |
| Intersection Capacity Utilization |      |       | 82.5% |      | ICU Level of Service      | E    |
| Analysis Period (min)             |      |       | 15    |      |                           |      |
| c Critical Lane Group             |      |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 130: Industry Road

Industry Signalized RCUT 2045 PM.syn

11/18/2019

|                                   |  |       |       |      |      |      |                           |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|---------------------------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBR  | NBR2  | SWL  | SWR  |
| Lane Configurations               |                                                                                    | ↑↑    | ↑     |      |      |      |                           |      | ↑     | ↑    |      |
| Traffic Volume (vph)              | 0                                                                                  | 1133  | 177   | 0    | 0    | 0    | 0                         | 0    | 313   | 160  | 0    |
| Future Volume (vph)               | 0                                                                                  | 1133  | 177   | 0    | 0    | 0    | 0                         | 0    | 313   | 160  | 0    |
| Ideal Flow (vphpl)                | 1950                                                                               | 1950  | 1950  | 1950 | 1950 | 1950 | 1950                      | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |                                                                                    | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Lane Util. Factor                 |                                                                                    | 0.95  | 1.00  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Frt                               |                                                                                    | 1.00  | 0.85  |      |      |      |                           |      | 0.86  | 1.00 |      |
| Flt Protected                     |                                                                                    | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (prot)                 |                                                                                    | 3597  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Flt Permitted                     |                                                                                    | 1.00  | 1.00  |      |      |      |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (perm)                 |                                                                                    | 3597  | 1625  |      |      |      |                           |      | 1654  | 1816 |      |
| Peak-hour factor, PHF             | 0.95                                                                               | 0.95  | 0.95  | 0.95 | 0.95 | 0.95 | 0.95                      | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0                                                                                  | 1193  | 186   | 0    | 0    | 0    | 0                         | 0    | 329   | 168  | 0    |
| RTOR Reduction (vph)              | 0                                                                                  | 0     | 23    | 0    | 0    | 0    | 0                         | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 1193  | 163   | 0    | 0    | 0    | 0                         | 0    | 329   | 168  | 0    |
| Heavy Vehicles (%)                | 2%                                                                                 | 3%    | 2%    | 2%   | 2%   | 2%   | 2%                        | 2%   | 2%    | 2%   | 2%   |
| Turn Type                         |                                                                                    | NA    | Perm  |      |      |      |                           |      | Perm  | Prot |      |
| Protected Phases                  |                                                                                    | 2     |       |      |      |      |                           |      |       | 4    |      |
| Permitted Phases                  |                                                                                    |       | 2     |      |      |      |                           |      | 8     |      |      |
| Actuated Green, G (s)             |                                                                                    | 56.1  | 56.1  |      |      |      |                           |      | 23.9  | 23.9 |      |
| Effective Green, g (s)            |                                                                                    | 56.1  | 56.1  |      |      |      |                           |      | 23.9  | 23.9 |      |
| Actuated g/C Ratio                |                                                                                    | 0.62  | 0.62  |      |      |      |                           |      | 0.27  | 0.27 |      |
| Clearance Time (s)                |                                                                                    | 5.0   | 5.0   |      |      |      |                           |      | 5.0   | 5.0  |      |
| Vehicle Extension (s)             |                                                                                    | 3.0   | 3.0   |      |      |      |                           |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 2242  | 1012  |      |      |      |                           |      | 439   | 482  |      |
| v/s Ratio Prot                    |                                                                                    | c0.33 |       |      |      |      |                           |      |       | 0.09 |      |
| v/s Ratio Perm                    |                                                                                    |       | 0.10  |      |      |      |                           |      | c0.20 |      |      |
| v/c Ratio                         |                                                                                    | 0.53  | 0.16  |      |      |      |                           |      | 0.75  | 0.35 |      |
| Uniform Delay, d1                 |                                                                                    | 9.6   | 7.1   |      |      |      |                           |      | 30.3  | 26.7 |      |
| Progression Factor                |                                                                                    | 0.85  | 0.80  |      |      |      |                           |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |                                                                                    | 0.2   | 0.1   |      |      |      |                           |      | 6.9   | 0.4  |      |
| Delay (s)                         |                                                                                    | 8.3   | 5.7   |      |      |      |                           |      | 37.2  | 27.2 |      |
| Level of Service                  |                                                                                    | A     | A     |      |      |      |                           |      | D     | C    |      |
| Approach Delay (s)                |                                                                                    | 8.0   |       |      | 0.0  |      | 37.2                      |      |       | 27.2 |      |
| Approach LOS                      |                                                                                    | A     |       |      | A    |      | D                         |      |       | C    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |                           |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 14.8  |      |      |      | HCM 2000 Level of Service |      |       | B    |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.60  |      |      |      |                           |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 90.0  |      |      |      | Sum of lost time (s)      |      | 10.0  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 57.7% |      |      |      | ICU Level of Service      |      | B     |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |                           |      |       |      |      |
| <b>c Critical Lane Group</b>      |                                                                                    |       |       |      |      |      |                           |      |       |      |      |

# HCM Signalized Intersection Capacity Analysis

## 220: Industry Road

Industry Signalized RCUT 2045 PM.syn

11/18/2019

| Movement                          | EBL  | EBT  | EBR   | WBL  | WBT  | WBR   | SBL                       | SBR  | SBR2  | NEL  | NER  |
|-----------------------------------|------|------|-------|------|------|-------|---------------------------|------|-------|------|------|
| Lane Configurations               |      |      |       |      | ↑↑   | ↑     |                           |      | ↑↑    | ↑↑   |      |
| Traffic Volume (vph)              | 0    | 0    | 0     | 0    | 733  | 846   | 0                         | 0    | 1515  | 696  | 0    |
| Future Volume (vph)               | 0    | 0    | 0     | 0    | 733  | 846   | 0                         | 0    | 1515  | 696  | 0    |
| Ideal Flow (vphpl)                | 1950 | 1950 | 1950  | 1950 | 1950 | 1950  | 1950                      | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |      |      |       |      | 5.0  | 5.0   |                           |      | 5.0   | 5.0  |      |
| Lane Util. Factor                 |      |      |       |      | 0.95 | 1.00  |                           |      | 0.88  | 0.97 |      |
| Frt                               |      |      |       |      | 1.00 | 0.85  |                           |      | 0.85  | 1.00 |      |
| Flt Protected                     |      |      |       |      | 1.00 | 1.00  |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (prot)                 |      |      |       |      | 3495 | 1625  |                           |      | 2860  | 3297 |      |
| Flt Permitted                     |      |      |       |      | 1.00 | 1.00  |                           |      | 1.00  | 0.95 |      |
| Satd. Flow (perm)                 |      |      |       |      | 3495 | 1625  |                           |      | 2860  | 3297 |      |
| Peak-hour factor, PHF             | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95  | 0.95                      | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0    | 0    | 0     | 0    | 772  | 891   | 0                         | 0    | 1595  | 733  | 0    |
| RTOR Reduction (vph)              | 0    | 0    | 0     | 0    | 0    | 28    | 0                         | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0    | 0    | 0     | 0    | 772  | 864   | 0                         | 0    | 1595  | 733  | 0    |
| Heavy Vehicles (%)                | 2%   | 2%   | 2%    | 2%   | 6%   | 2%    | 2%                        | 2%   | 2%    | 9%   | 2%   |
| Turn Type                         |      |      |       |      | NA   | Perm  |                           |      | Perm  | Prot |      |
| Protected Phases                  |      |      |       |      | 6    |       |                           |      |       | 8    |      |
| Permitted Phases                  |      |      |       |      |      | 6     |                           |      | 4     |      |      |
| Actuated Green, G (s)             |      |      |       |      | 65.0 | 65.0  |                           |      | 45.0  | 45.0 |      |
| Effective Green, g (s)            |      |      |       |      | 65.0 | 65.0  |                           |      | 45.0  | 45.0 |      |
| Actuated g/C Ratio                |      |      |       |      | 0.54 | 0.54  |                           |      | 0.38  | 0.38 |      |
| Clearance Time (s)                |      |      |       |      | 5.0  | 5.0   |                           |      | 5.0   | 5.0  |      |
| Vehicle Extension (s)             |      |      |       |      | 3.0  | 3.0   |                           |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |      |      |       |      | 1893 | 880   |                           |      | 1072  | 1236 |      |
| v/s Ratio Prot                    |      |      |       |      | 0.22 |       |                           |      |       | 0.22 |      |
| v/s Ratio Perm                    |      |      |       |      |      | c0.53 |                           |      | c0.56 |      |      |
| v/c Ratio                         |      |      |       |      | 0.41 | 0.98  |                           |      | 1.49  | 0.59 |      |
| Uniform Delay, d1                 |      |      |       |      | 16.2 | 26.9  |                           |      | 37.5  | 30.1 |      |
| Progression Factor                |      |      |       |      | 0.82 | 0.91  |                           |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |      |      |       |      | 0.6  | 23.7  |                           |      | 224.5 | 0.8  |      |
| Delay (s)                         |      |      |       |      | 13.8 | 48.2  |                           |      | 262.0 | 30.9 |      |
| Level of Service                  |      |      |       |      | B    | D     |                           |      | F     | C    |      |
| Approach Delay (s)                |      | 0.0  |       |      | 32.2 |       | 262.0                     |      |       | 30.9 |      |
| Approach LOS                      |      | A    |       |      | C    |       | F                         |      |       | C    |      |
| <b>Intersection Summary</b>       |      |      |       |      |      |       |                           |      |       |      |      |
| HCM 2000 Control Delay            |      |      | 123.8 |      |      |       | HCM 2000 Level of Service |      |       | F    |      |
| HCM 2000 Volume to Capacity ratio |      |      | 1.19  |      |      |       |                           |      |       |      |      |
| Actuated Cycle Length (s)         |      |      | 120.0 |      |      |       | Sum of lost time (s)      |      | 10.0  |      |      |
| Intersection Capacity Utilization |      |      | Err%  |      |      |       | ICU Level of Service      |      | H     |      |      |
| Analysis Period (min)             |      |      | 15    |      |      |       |                           |      |       |      |      |
| <b>c Critical Lane Group</b>      |      |      |       |      |      |       |                           |      |       |      |      |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |                                                                                   |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1574                                                                              | 165                                                                               | 0                                                                                 |
| Future Volume (vph)               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1574                                                                              | 165                                                                               | 0                                                                                 |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              |
| Total Lost time (s)               |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Lane Util. Factor                 |                                                                                   |                                                                                   |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |
| Frt                               |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Flt Protected                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (prot)                 |                                                                                   |                                                                                   |                                                                                   | 3597                                                                              | 1625                                                                              |                                                                                   |
| Flt Permitted                     |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   |
| Satd. Flow (perm)                 |                                                                                   |                                                                                   |                                                                                   | 3597                                                                              | 1625                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Adj. Flow (vph)                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1657                                                                              | 174                                                                               | 0                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 21                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1657                                                                              | 153                                                                               | 0                                                                                 |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                |
| Turn Type                         |                                                                                   |                                                                                   |                                                                                   | NA                                                                                | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |                                                                                   |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             |                                                                                   |                                                                                   |                                                                                   | 95.3                                                                              | 16.7                                                                              |                                                                                   |
| Effective Green, g (s)            |                                                                                   |                                                                                   |                                                                                   | 95.3                                                                              | 16.7                                                                              |                                                                                   |
| Actuated g/C Ratio                |                                                                                   |                                                                                   |                                                                                   | 0.79                                                                              | 0.14                                                                              |                                                                                   |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   |
| Vehicle Extension (s)             |                                                                                   |                                                                                   |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                |                                                                                   |                                                                                   |                                                                                   | 2856                                                                              | 226                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   | c0.46                                                                             | c0.09                                                                             |                                                                                   |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         |                                                                                   |                                                                                   |                                                                                   | 0.58                                                                              | 0.68                                                                              |                                                                                   |
| Uniform Delay, d1                 |                                                                                   |                                                                                   |                                                                                   | 4.7                                                                               | 49.1                                                                              |                                                                                   |
| Progression Factor                |                                                                                   |                                                                                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             |                                                                                   |                                                                                   |                                                                                   | 0.9                                                                               | 7.8                                                                               |                                                                                   |
| Delay (s)                         |                                                                                   |                                                                                   |                                                                                   | 5.6                                                                               | 56.9                                                                              |                                                                                   |
| Level of Service                  |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               |                                                                                   |                                                                                   | 5.6                                                                               | 56.9                                                                              |                                                                                   |
| Approach LOS                      | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 | E                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 10.5                                                                              | HCM 2000 Level of Service                                                         |                                                                                   | B                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.59                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             | Sum of lost time (s)                                                              |                                                                                   | 8.0                                                                               |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 58.0%                                                                             | ICU Level of Service                                                              |                                                                                   | B                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Signalized Intersection Capacity Analysis

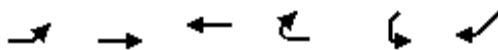
Industry Partial DLT 2025 AM.syn

1:

07/22/2021

|                                   |  |       |       |      |      |      |                           |      |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|---------------------------|------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations               |                                                                                    | ↑↑    | ↑     | ↑    | ↑↑   | ↑    | ↑                         | ↑↑   |      | ↑↑    | ↑    |      |
| Traffic Volume (vph)              | 0                                                                                  | 395   | 13    | 68   | 225  | 312  | 12                        | 58   | 60   | 486   | 63   | 0    |
| Future Volume (vph)               | 0                                                                                  | 395   | 13    | 68   | 225  | 312  | 12                        | 58   | 60   | 486   | 63   | 0    |
| Ideal Flow (vphpl)                | 1950                                                                               | 1950  | 1950  | 1950 | 1950 | 1950 | 1950                      | 1950 | 1950 | 1950  | 1950 | 1950 |
| Total Lost time (s)               |                                                                                    | 4.0   | 4.0   | 4.0  | 4.0  | 4.0  | 6.0                       | 6.0  |      | 6.0   | 6.0  |      |
| Lane Util. Factor                 |                                                                                    | 0.95  | 1.00  | 1.00 | 0.95 | 1.00 | 1.00                      | 0.95 |      | 0.97  | 1.00 |      |
| Frt                               |                                                                                    | 1.00  | 0.85  | 1.00 | 1.00 | 0.85 | 1.00                      | 0.92 |      | 1.00  | 1.00 |      |
| Flt Protected                     |                                                                                    | 1.00  | 1.00  | 0.95 | 1.00 | 1.00 | 0.95                      | 1.00 |      | 0.95  | 1.00 |      |
| Satd. Flow (prot)                 |                                                                                    | 3495  | 1625  | 1816 | 3495 | 1564 | 1654                      | 3323 |      | 3523  | 1806 |      |
| Flt Permitted                     |                                                                                    | 1.00  | 1.00  | 0.47 | 1.00 | 1.00 | 0.71                      | 1.00 |      | 0.67  | 1.00 |      |
| Satd. Flow (perm)                 |                                                                                    | 3495  | 1625  | 904  | 3495 | 1564 | 1243                      | 3323 |      | 2498  | 1806 |      |
| Peak-hour factor, PHF             | 0.95                                                                               | 0.95  | 0.95  | 0.95 | 0.95 | 0.95 | 0.95                      | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Adj. Flow (vph)                   | 0                                                                                  | 416   | 14    | 72   | 237  | 328  | 13                        | 61   | 63   | 512   | 66   | 0    |
| RTOR Reduction (vph)              | 0                                                                                  | 0     | 8     | 0    | 0    | 176  | 0                         | 44   | 0    | 0     | 0    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 416   | 6     | 72   | 237  | 152  | 13                        | 80   | 0    | 512   | 66   | 0    |
| Heavy Vehicles (%)                | 2%                                                                                 | 6%    | 2%    | 2%   | 6%   | 6%   | 12%                       | 4%   | 2%   | 2%    | 8%   | 2%   |
| Turn Type                         |                                                                                    | NA    | Perm  | Perm | NA   | Perm | pm+pt                     | NA   |      | pm+pt | NA   |      |
| Protected Phases                  |                                                                                    | 1 2   |       |      | 1 2  |      | 3                         | 8    |      | 7     | 4    |      |
| Permitted Phases                  |                                                                                    |       | 1 2   | 1 2  |      | 1 2  | 8                         |      |      | 4     |      |      |
| Actuated Green, G (s)             |                                                                                    | 44.0  | 44.0  | 44.0 | 44.0 | 44.0 | 34.0                      | 29.0 |      | 34.0  | 29.0 |      |
| Effective Green, g (s)            |                                                                                    | 44.0  | 44.0  | 44.0 | 44.0 | 44.0 | 34.0                      | 29.0 |      | 34.0  | 29.0 |      |
| Actuated g/C Ratio                |                                                                                    | 0.46  | 0.46  | 0.46 | 0.46 | 0.46 | 0.36                      | 0.31 |      | 0.36  | 0.31 |      |
| Clearance Time (s)                |                                                                                    |       |       |      |      |      | 6.0                       | 6.0  |      | 6.0   | 6.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 1618  | 752   | 418  | 1618 | 724  | 466                       | 1014 |      | 947   | 551  |      |
| v/s Ratio Prot                    |                                                                                    | c0.12 |       |      | 0.07 |      | 0.00                      | 0.02 |      | c0.03 | 0.04 |      |
| v/s Ratio Perm                    |                                                                                    |       | 0.00  | 0.08 |      | 0.10 | 0.01                      |      |      | c0.16 |      |      |
| v/c Ratio                         |                                                                                    | 0.26  | 0.01  | 0.17 | 0.15 | 0.21 | 0.03                      | 0.08 |      | 0.54  | 0.12 |      |
| Uniform Delay, d1                 |                                                                                    | 15.5  | 13.7  | 14.9 | 14.7 | 15.2 | 19.7                      | 23.5 |      | 23.4  | 23.8 |      |
| Progression Factor                |                                                                                    | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00                      | 1.00 |      | 0.36  | 0.25 |      |
| Incremental Delay, d2             |                                                                                    | 0.4   | 0.0   | 0.9  | 0.2  | 0.7  | 0.1                       | 0.2  |      | 2.2   | 0.4  |      |
| Delay (s)                         |                                                                                    | 15.9  | 13.8  | 15.8 | 14.9 | 15.8 | 19.9                      | 23.6 |      | 10.5  | 6.3  |      |
| Level of Service                  |                                                                                    | B     | B     | B    | B    | B    | B                         | C    |      | B     | A    |      |
| Approach Delay (s)                |                                                                                    | 15.9  |       |      | 15.5 |      |                           | 23.3 |      |       | 10.1 |      |
| Approach LOS                      |                                                                                    | B     |       |      | B    |      |                           | C    |      |       | B    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |                           |      |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 14.4  |      |      |      | HCM 2000 Level of Service |      |      | B     |      |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.40  |      |      |      |                           |      |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 95.0  |      |      |      | Sum of lost time (s)      |      |      | 21.0  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 46.2% |      |      |      | ICU Level of Service      |      |      | A     |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |                           |      |      |       |      |      |

c Critical Lane Group



| Movement                          | EBL   | EBT  | WBT   | WBR  | SWL                       | SWR  |
|-----------------------------------|-------|------|-------|------|---------------------------|------|
| Lane Configurations               | ↰↰    | ↑↑   | ↑↑    |      |                           | ↰↰   |
| Traffic Volume (vph)              | 499   | 408  | 237   | 0    | 0                         | 393  |
| Future Volume (vph)               | 499   | 408  | 237   | 0    | 0                         | 393  |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 4.0   | 4.0  | 5.0   |      |                           | 4.0  |
| Lane Util. Factor                 | 0.97  | 0.95 | 0.95  |      |                           | 0.88 |
| Frt                               | 1.00  | 1.00 | 1.00  |      |                           | 0.85 |
| Flt Protected                     | 0.95  | 1.00 | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 3267  | 3495 | 3495  |      |                           | 2451 |
| Flt Permitted                     | 0.95  | 1.00 | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 3267  | 3495 | 3495  |      |                           | 2451 |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 525   | 429  | 249   | 0    | 0                         | 414  |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0    | 0                         | 331  |
| Lane Group Flow (vph)             | 525   | 429  | 249   | 0    | 0                         | 83   |
| Heavy Vehicles (%)                | 10%   | 6%   | 6%    | 2%   | 2%                        | 19%  |
| Turn Type                         | Prot  | NA   | NA    |      |                           | Over |
| Protected Phases                  | 1     | Free | 2     |      |                           | 1    |
| Permitted Phases                  |       |      |       |      |                           |      |
| Actuated Green, G (s)             | 19.0  | 95.0 | 21.0  |      |                           | 19.0 |
| Effective Green, g (s)            | 19.0  | 95.0 | 21.0  |      |                           | 19.0 |
| Actuated g/C Ratio                | 0.20  | 1.00 | 0.22  |      |                           | 0.20 |
| Clearance Time (s)                | 4.0   |      | 5.0   |      |                           | 4.0  |
| Lane Grp Cap (vph)                | 653   | 3495 | 772   |      |                           | 490  |
| v/s Ratio Prot                    | c0.16 | 0.12 | c0.07 |      |                           | 0.03 |
| v/s Ratio Perm                    |       |      |       |      |                           |      |
| v/c Ratio                         | 0.80  | 0.12 | 0.32  |      |                           | 0.17 |
| Uniform Delay, d1                 | 36.2  | 0.0  | 31.0  |      |                           | 31.5 |
| Progression Factor                | 1.00  | 1.00 | 0.60  |      |                           | 1.00 |
| Incremental Delay, d2             | 10.1  | 0.1  | 1.1   |      |                           | 0.7  |
| Delay (s)                         | 46.4  | 0.1  | 19.7  |      |                           | 32.2 |
| Level of Service                  | D     | A    | B     |      |                           | C    |
| Approach Delay (s)                |       | 25.5 | 19.7  |      | 32.2                      |      |
| Approach LOS                      |       | C    | B     |      | C                         |      |
| <b>Intersection Summary</b>       |       |      |       |      |                           |      |
| HCM 2000 Control Delay            |       |      | 26.4  |      | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio |       |      | 0.37  |      |                           |      |
| Actuated Cycle Length (s)         |       |      | 95.0  |      | Sum of lost time (s)      | 21.0 |
| Intersection Capacity Utilization |       |      | 27.8% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |       |      | 15    |      |                           |      |
| c Critical Lane Group             |       |      |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Industry Road

Industry Partial DLT 2025 AM.syn  
07/22/2021

|                                   |                                                                                    |  |  |                                                                                                                                                                      |                                                                                                                                                                      |                                                                                        |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                                                                                                                 | EBR                                                                               | NBL                                                                               | NBT                                                                                                                                                                                                                                                   | SBT                                                                                                                                                                                                                                                   | SBR                                                                                                                                                                     |
| Lane Configurations               |   |                                                                                   |                                                                                   |    |    |   |
| Traffic Volume (vph)              | 499                                                                                                                                                                 | 0                                                                                 | 0                                                                                 | 58                                                                                                                                                                                                                                                    | 549                                                                                                                                                                                                                                                   | 393                                                                                                                                                                     |
| Future Volume (vph)               | 499                                                                                                                                                                 | 0                                                                                 | 0                                                                                 | 58                                                                                                                                                                                                                                                    | 549                                                                                                                                                                                                                                                   | 393                                                                                                                                                                     |
| Ideal Flow (vphpl)                | 1950                                                                                                                                                                | 1950                                                                              | 1950                                                                              | 1950                                                                                                                                                                                                                                                  | 1950                                                                                                                                                                                                                                                  | 1950                                                                                                                                                                    |
| Total Lost time (s)               | 5.0                                                                                                                                                                 |                                                                                   |                                                                                   | 4.0                                                                                                                                                                                                                                                   | 6.0                                                                                                                                                                                                                                                   | 4.0                                                                                                                                                                     |
| Lane Util. Factor                 | 0.97                                                                                                                                                                |                                                                                   |                                                                                   | 0.91                                                                                                                                                                                                                                                  | 0.91                                                                                                                                                                                                                                                  | 0.88                                                                                                                                                                    |
| Frt                               | 1.00                                                                                                                                                                |                                                                                   |                                                                                   | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                                                                                                                    |
| Flt Protected                     | 0.95                                                                                                                                                                |                                                                                   |                                                                                   | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                    |
| Satd. Flow (prot)                 | 3267                                                                                                                                                                |                                                                                   |                                                                                   | 5119                                                                                                                                                                                                                                                  | 5168                                                                                                                                                                                                                                                  | 2451                                                                                                                                                                    |
| Flt Permitted                     | 0.95                                                                                                                                                                |                                                                                   |                                                                                   | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                    |
| Satd. Flow (perm)                 | 3267                                                                                                                                                                |                                                                                   |                                                                                   | 5119                                                                                                                                                                                                                                                  | 5168                                                                                                                                                                                                                                                  | 2451                                                                                                                                                                    |
| Peak-hour factor, PHF             | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                                                                                                                    |
| Adj. Flow (vph)                   | 525                                                                                                                                                                 | 0                                                                                 | 0                                                                                 | 61                                                                                                                                                                                                                                                    | 578                                                                                                                                                                                                                                                   | 414                                                                                                                                                                     |
| RTOR Reduction (vph)              | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                                                                                                                                                                                     | 0                                                                                                                                                                       |
| Lane Group Flow (vph)             | 525                                                                                                                                                                 | 0                                                                                 | 0                                                                                 | 61                                                                                                                                                                                                                                                    | 578                                                                                                                                                                                                                                                   | 414                                                                                                                                                                     |
| Heavy Vehicles (%)                | 10%                                                                                                                                                                 | 2%                                                                                | 2%                                                                                | 4%                                                                                                                                                                                                                                                    | 3%                                                                                                                                                                                                                                                    | 19%                                                                                                                                                                     |
| Turn Type                         | Prot                                                                                                                                                                |                                                                                   |                                                                                   | NA                                                                                                                                                                                                                                                    | NA                                                                                                                                                                                                                                                    | Free                                                                                                                                                                    |
| Protected Phases                  | 2                                                                                                                                                                   |                                                                                   |                                                                                   | 1 7 8                                                                                                                                                                                                                                                 | 3 4                                                                                                                                                                                                                                                   |                                                                                                                                                                         |
| Permitted Phases                  |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       | Free                                                                                                                                                                    |
| Actuated Green, G (s)             | 21.0                                                                                                                                                                |                                                                                   |                                                                                   | 65.0                                                                                                                                                                                                                                                  | 40.0                                                                                                                                                                                                                                                  | 95.0                                                                                                                                                                    |
| Effective Green, g (s)            | 21.0                                                                                                                                                                |                                                                                   |                                                                                   | 53.0                                                                                                                                                                                                                                                  | 40.0                                                                                                                                                                                                                                                  | 95.0                                                                                                                                                                    |
| Actuated g/C Ratio                | 0.22                                                                                                                                                                |                                                                                   |                                                                                   | 0.56                                                                                                                                                                                                                                                  | 0.42                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                    |
| Clearance Time (s)                | 5.0                                                                                                                                                                 |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| Lane Grp Cap (vph)                | 722                                                                                                                                                                 |                                                                                   |                                                                                   | 2855                                                                                                                                                                                                                                                  | 2176                                                                                                                                                                                                                                                  | 2451                                                                                                                                                                    |
| v/s Ratio Prot                    | c0.16                                                                                                                                                               |                                                                                   |                                                                                   | 0.01                                                                                                                                                                                                                                                  | c0.11                                                                                                                                                                                                                                                 |                                                                                                                                                                         |
| v/s Ratio Perm                    |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       | c0.17                                                                                                                                                                   |
| v/c Ratio                         | 0.73                                                                                                                                                                |                                                                                   |                                                                                   | 0.02                                                                                                                                                                                                                                                  | 0.27                                                                                                                                                                                                                                                  | 0.17                                                                                                                                                                    |
| Uniform Delay, d1                 | 34.3                                                                                                                                                                |                                                                                   |                                                                                   | 9.4                                                                                                                                                                                                                                                   | 17.9                                                                                                                                                                                                                                                  | 0.0                                                                                                                                                                     |
| Progression Factor                | 0.39                                                                                                                                                                |                                                                                   |                                                                                   | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                                                                                                                    |
| Incremental Delay, d2             | 3.7                                                                                                                                                                 |                                                                                   |                                                                                   | 0.0                                                                                                                                                                                                                                                   | 0.3                                                                                                                                                                                                                                                   | 0.1                                                                                                                                                                     |
| Delay (s)                         | 16.9                                                                                                                                                                |                                                                                   |                                                                                   | 8.6                                                                                                                                                                                                                                                   | 18.2                                                                                                                                                                                                                                                  | 0.1                                                                                                                                                                     |
| Level of Service                  | B                                                                                                                                                                   |                                                                                   |                                                                                   | A                                                                                                                                                                                                                                                     | B                                                                                                                                                                                                                                                     | A                                                                                                                                                                       |
| Approach Delay (s)                | 16.9                                                                                                                                                                |                                                                                   |                                                                                   | 8.6                                                                                                                                                                                                                                                   | 10.7                                                                                                                                                                                                                                                  |                                                                                                                                                                         |
| Approach LOS                      | B                                                                                                                                                                   |                                                                                   |                                                                                   | A                                                                                                                                                                                                                                                     | B                                                                                                                                                                                                                                                     |                                                                                                                                                                         |
| <b>Intersection Summary</b>       |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| HCM 2000 Control Delay            |                                                                                                                                                                     |                                                                                   | 12.7                                                                              |                                                                                                                                                                                                                                                       | HCM 2000 Level of Service                                                                                                                                                                                                                             | B                                                                                                                                                                       |
| HCM 2000 Volume to Capacity ratio |                                                                                                                                                                     |                                                                                   | 0.40                                                                              |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| Actuated Cycle Length (s)         |                                                                                                                                                                     |                                                                                   | 95.0                                                                              |                                                                                                                                                                                                                                                       | Sum of lost time (s)                                                                                                                                                                                                                                  | 21.0                                                                                                                                                                    |
| Intersection Capacity Utilization |                                                                                                                                                                     |                                                                                   | 33.4%                                                                             |                                                                                                                                                                                                                                                       | ICU Level of Service                                                                                                                                                                                                                                  | A                                                                                                                                                                       |
| Analysis Period (min)             |                                                                                                                                                                     |                                                                                   | 15                                                                                |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| c Critical Lane Group             |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       |                                                                                                                                                                         |

## Queues

Industry Partial DLT 2025 AM.syn

07/22/2021

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|                         |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                                | SBL                                                                                 | SBT                                                                                 |
| Lane Group Flow (vph)   | 416                                                                               | 14                                                                                | 72                                                                                | 237                                                                               | 328                                                                               | 13                                                                                | 124                                                                                | 512                                                                                 | 66                                                                                  |
| v/c Ratio               | 0.28                                                                              | 0.02                                                                              | 0.20                                                                              | 0.16                                                                              | 0.39                                                                              | 0.02                                                                              | 0.11                                                                               | 0.49                                                                                | 0.13                                                                                |
| Control Delay           | 19.8                                                                              | 0.1                                                                               | 20.2                                                                              | 18.4                                                                              | 3.6                                                                               | 13.8                                                                              | 12.5                                                                               | 7.4                                                                                 | 11.7                                                                                |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.3                                                                                 | 2.6                                                                                 |
| Total Delay             | 19.8                                                                              | 0.1                                                                               | 20.2                                                                              | 18.4                                                                              | 3.6                                                                               | 13.8                                                                              | 12.5                                                                               | 7.8                                                                                 | 14.3                                                                                |
| Queue Length 50th (ft)  | 90                                                                                | 0                                                                                 | 28                                                                                | 48                                                                                | 0                                                                                 | 4                                                                                 | 13                                                                                 | 49                                                                                  | 31                                                                                  |
| Queue Length 95th (ft)  | 125                                                                               | 0                                                                                 | 60                                                                                | 73                                                                                | 50                                                                                | 14                                                                                | 34                                                                                 | 92                                                                                  | 64                                                                                  |
| Internal Link Dist (ft) | 313                                                                               |                                                                                   |                                                                                   | 563                                                                               |                                                                                   |                                                                                   | 349                                                                                |                                                                                     | 70                                                                                  |
| Turn Bay Length (ft)    |                                                                                   | 180                                                                               | 450                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 1467                                                                              | 739                                                                               | 367                                                                               | 1467                                                                              | 847                                                                               | 575                                                                               | 1139                                                                               | 1040                                                                                | 523                                                                                 |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 149                                                                                 | 372                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.28                                                                              | 0.02                                                                              | 0.20                                                                              | 0.16                                                                              | 0.39                                                                              | 0.02                                                                              | 0.11                                                                               | 0.57                                                                                | 0.44                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |



| Lane Group              | EBL  | EBT  | WBT  | SWR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 525  | 429  | 249  | 414  |
| v/c Ratio               | 0.89 | 0.12 | 0.38 | 0.26 |
| Control Delay           | 59.3 | 0.1  | 21.0 | 0.4  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 59.3 | 0.1  | 21.0 | 0.4  |
| Queue Length 50th (ft)  | 170  | 0    | 74   | 0    |
| Queue Length 95th (ft)  | #262 | 0    | 113  | 0    |
| Internal Link Dist (ft) |      | 1340 | 313  |      |
| Turn Bay Length (ft)    | 250  |      |      |      |
| Base Capacity (vph)     | 588  | 3495 | 664  | 1585 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.89 | 0.12 | 0.38 | 0.26 |

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
21: EB DLT & Industry Road

Industry Partial DLT 2025 AM.syn  
07/22/2021



| Lane Group              | EBL  | NBT  | SBT  | SBR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 525  | 61   | 578  | 414  |
| v/c Ratio               | 0.85 | 0.02 | 0.23 | 0.17 |
| Control Delay           | 20.2 | 3.6  | 15.5 | 0.2  |
| Queue Delay             | 0.0  | 0.5  | 0.0  | 0.0  |
| Total Delay             | 20.2 | 4.1  | 15.6 | 0.2  |
| Queue Length 50th (ft)  | 188  | 3    | 76   | 0    |
| Queue Length 95th (ft)  | m210 | 6    | 100  | 0    |
| Internal Link Dist (ft) | 133  | 70   | 872  |      |
| Turn Bay Length (ft)    |      |      |      | 300  |
| Base Capacity (vph)     | 620  | 3685 | 2480 | 2451 |
| Starvation Cap Reductn  | 0    | 3395 | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 257  | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.85 | 0.21 | 0.26 | 0.17 |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM Signalized Intersection Capacity Analysis

Industry Partial DLT 2025 PM.syn

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07/22/2021

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↑                                                                                 | ↑                                                                                 | ↑↑                                                                                | ↑                                                                                 | ↑                                                                                  | ↑↑                                                                                  |                                                                                     | ↑↑                                                                                  | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 331                                                                               | 21                                                                                | 145                                                                               | 387                                                                               | 511                                                                               | 38                                                                                 | 103                                                                                 | 115                                                                                 | 419                                                                                 | 124                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 331                                                                               | 21                                                                                | 145                                                                               | 387                                                                               | 511                                                                               | 38                                                                                 | 103                                                                                 | 115                                                                                 | 419                                                                                 | 124                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                               | 0.95                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                               | 0.92                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                               | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1625                                                                              | 1816                                                                              | 3495                                                                              | 1625                                                                              | 1799                                                                               | 3344                                                                                |                                                                                     | 3523                                                                                | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.52                                                                              | 1.00                                                                              | 1.00                                                                              | 0.67                                                                               | 1.00                                                                                |                                                                                     | 0.57                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1625                                                                              | 989                                                                               | 3495                                                                              | 1625                                                                              | 1274                                                                               | 3344                                                                                |                                                                                     | 2113                                                                                | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 348                                                                               | 22                                                                                | 153                                                                               | 407                                                                               | 538                                                                               | 40                                                                                 | 108                                                                                 | 121                                                                                 | 441                                                                                 | 131                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 12                                                                                | 0                                                                                 | 0                                                                                 | 300                                                                               | 0                                                                                  | 84                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 348                                                                               | 10                                                                                | 153                                                                               | 407                                                                               | 238                                                                               | 40                                                                                 | 145                                                                                 | 0                                                                                   | 441                                                                                 | 131                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 3%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                              | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   | 3                                                                                  | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               | 1 2                                                                               |                                                                                   | 1 2                                                                               | 8                                                                                  |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 42.0                                                                              | 42.0                                                                              | 42.0                                                                              | 42.0                                                                              | 42.0                                                                              | 34.0                                                                               | 29.0                                                                                |                                                                                     | 38.0                                                                                | 31.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 42.0                                                                              | 42.0                                                                              | 42.0                                                                              | 42.0                                                                              | 42.0                                                                              | 34.0                                                                               | 29.0                                                                                |                                                                                     | 38.0                                                                                | 31.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 0.36                                                                               | 0.31                                                                                |                                                                                     | 0.40                                                                                | 0.33                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 1545                                                                              | 718                                                                               | 437                                                                               | 1545                                                                              | 718                                                                               | 483                                                                                | 1020                                                                                |                                                                                     | 949                                                                                 | 623                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | 0.10                                                                              |                                                                                   |                                                                                   | 0.12                                                                              |                                                                                   | 0.00                                                                               | 0.04                                                                                |                                                                                     | c0.03                                                                               | 0.07                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.01                                                                              | c0.15                                                                             |                                                                                   | 0.15                                                                              | 0.03                                                                               |                                                                                     |                                                                                     | c0.15                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.23                                                                              | 0.01                                                                              | 0.35                                                                              | 0.26                                                                              | 0.33                                                                              | 0.08                                                                               | 0.14                                                                                |                                                                                     | 0.46                                                                                | 0.21                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 16.4                                                                              | 14.9                                                                              | 17.5                                                                              | 16.7                                                                              | 17.3                                                                              | 20.0                                                                               | 24.0                                                                                |                                                                                     | 19.8                                                                                | 23.1                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 0.25                                                                                | 0.29                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 0.3                                                                               | 0.0                                                                               | 2.2                                                                               | 0.4                                                                               | 1.2                                                                               | 0.3                                                                                | 0.3                                                                                 |                                                                                     | 1.6                                                                                 | 0.8                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 16.8                                                                              | 14.9                                                                              | 19.7                                                                              | 17.1                                                                              | 18.6                                                                              | 20.4                                                                               | 24.3                                                                                |                                                                                     | 6.6                                                                                 | 7.4                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | B                                                                                 | B                                                                                 | B                                                                                 | B                                                                                 | B                                                                                 | C                                                                                  | C                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 16.6                                                                              |                                                                                   |                                                                                   | 18.2                                                                              |                                                                                   |                                                                                    | 23.7                                                                                |                                                                                     |                                                                                     | 6.8                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 15.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.44                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 95.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 51.4%                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

c Critical Lane Group



| Movement                          | EBL   | EBT  | WBT   | WBR  | SWL                       | SWR  |
|-----------------------------------|-------|------|-------|------|---------------------------|------|
| Lane Configurations               | ←←    | →→   | ←←    |      |                           | ←←   |
| Traffic Volume (vph)              | 418   | 352  | 425   | 0    | 0                         | 465  |
| Future Volume (vph)               | 418   | 352  | 425   | 0    | 0                         | 465  |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 4.0   | 4.0  | 5.0   |      |                           | 4.0  |
| Lane Util. Factor                 | 0.97  | 0.95 | 0.95  |      |                           | 0.88 |
| Frt                               | 1.00  | 1.00 | 1.00  |      |                           | 0.85 |
| Flt Protected                     | 0.95  | 1.00 | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 3297  | 3495 | 3495  |      |                           | 2832 |
| Flt Permitted                     | 0.95  | 1.00 | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 3297  | 3495 | 3495  |      |                           | 2832 |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 440   | 371  | 447   | 0    | 0                         | 489  |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0    | 0                         | 391  |
| Lane Group Flow (vph)             | 440   | 371  | 447   | 0    | 0                         | 98   |
| Heavy Vehicles (%)                | 9%    | 6%   | 6%    | 2%   | 2%                        | 3%   |
| Turn Type                         | Prot  | NA   | NA    |      |                           | Over |
| Protected Phases                  | 1     | Free | 2     |      |                           | 1    |
| Permitted Phases                  |       |      |       |      |                           |      |
| Actuated Green, G (s)             | 19.0  | 95.0 | 19.0  |      |                           | 19.0 |
| Effective Green, g (s)            | 19.0  | 95.0 | 19.0  |      |                           | 19.0 |
| Actuated g/C Ratio                | 0.20  | 1.00 | 0.20  |      |                           | 0.20 |
| Clearance Time (s)                | 4.0   |      | 5.0   |      |                           | 4.0  |
| Lane Grp Cap (vph)                | 659   | 3495 | 699   |      |                           | 566  |
| v/s Ratio Prot                    | c0.13 | 0.11 | c0.13 |      |                           | 0.03 |
| v/s Ratio Perm                    |       |      |       |      |                           |      |
| v/c Ratio                         | 0.67  | 0.11 | 0.64  |      |                           | 0.17 |
| Uniform Delay, d1                 | 35.1  | 0.0  | 34.9  |      |                           | 31.5 |
| Progression Factor                | 1.00  | 1.00 | 0.63  |      |                           | 1.00 |
| Incremental Delay, d2             | 5.3   | 0.1  | 4.4   |      |                           | 0.7  |
| Delay (s)                         | 40.4  | 0.1  | 26.4  |      |                           | 32.1 |
| Level of Service                  | D     | A    | C     |      |                           | C    |
| Approach Delay (s)                |       | 21.9 | 26.4  |      | 32.1                      |      |
| Approach LOS                      |       | C    | C     |      | C                         |      |
| <b>Intersection Summary</b>       |       |      |       |      |                           |      |
| HCM 2000 Control Delay            |       |      | 25.9  |      | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio |       |      | 0.40  |      |                           |      |
| Actuated Cycle Length (s)         |       |      | 95.0  |      | Sum of lost time (s)      | 21.0 |
| Intersection Capacity Utilization |       |      | 34.8% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |       |      | 15    |      |                           |      |
| c Critical Lane Group             |       |      |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Industry Road

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| Movement                          | EBL   | EBR  | NBL   | NBT   | SBT                       | SBR   |
|-----------------------------------|-------|------|-------|-------|---------------------------|-------|
| Lane Configurations               | ←←    |      |       | ↑↑↑   | ↑↑↑                       | ←←    |
| Traffic Volume (vph)              | 418   | 0    | 0     | 103   | 543                       | 465   |
| Future Volume (vph)               | 418   | 0    | 0     | 103   | 543                       | 465   |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950  | 1950                      | 1950  |
| Total Lost time (s)               | 5.0   |      |       | 4.0   | 6.0                       | 4.0   |
| Lane Util. Factor                 | 0.97  |      |       | 0.91  | 0.91                      | 0.88  |
| Frt                               | 1.00  |      |       | 1.00  | 1.00                      | 0.85  |
| Flt Protected                     | 0.95  |      |       | 1.00  | 1.00                      | 1.00  |
| Satd. Flow (prot)                 | 3297  |      |       | 5219  | 5219                      | 2832  |
| Flt Permitted                     | 0.95  |      |       | 1.00  | 1.00                      | 1.00  |
| Satd. Flow (perm)                 | 3297  |      |       | 5219  | 5219                      | 2832  |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95  | 0.95                      | 0.95  |
| Adj. Flow (vph)                   | 440   | 0    | 0     | 108   | 572                       | 489   |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0     | 0                         | 0     |
| Lane Group Flow (vph)             | 440   | 0    | 0     | 108   | 572                       | 489   |
| Heavy Vehicles (%)                | 9%    | 2%   | 2%    | 2%    | 2%                        | 3%    |
| Turn Type                         | Prot  |      |       | NA    | NA                        | Free  |
| Protected Phases                  | 2     |      |       | 1 7 8 | 3 4                       |       |
| Permitted Phases                  |       |      |       |       |                           | Free  |
| Actuated Green, G (s)             | 19.0  |      |       | 67.0  | 42.0                      | 95.0  |
| Effective Green, g (s)            | 19.0  |      |       | 55.0  | 42.0                      | 95.0  |
| Actuated g/C Ratio                | 0.20  |      |       | 0.58  | 0.44                      | 1.00  |
| Clearance Time (s)                | 5.0   |      |       |       |                           |       |
| Lane Grp Cap (vph)                | 659   |      |       | 3021  | 2307                      | 2832  |
| v/s Ratio Prot                    | c0.13 |      |       | 0.02  | c0.11                     |       |
| v/s Ratio Perm                    |       |      |       |       |                           | c0.17 |
| v/c Ratio                         | 0.67  |      |       | 0.04  | 0.25                      | 0.17  |
| Uniform Delay, d1                 | 35.1  |      |       | 8.6   | 16.6                      | 0.0   |
| Progression Factor                | 0.36  |      |       | 0.91  | 1.00                      | 1.00  |
| Incremental Delay, d2             | 3.9   |      |       | 0.0   | 0.3                       | 0.1   |
| Delay (s)                         | 16.7  |      |       | 7.9   | 16.9                      | 0.1   |
| Level of Service                  | B     |      |       | A     | B                         | A     |
| Approach Delay (s)                | 16.7  |      |       | 7.9   | 9.2                       |       |
| Approach LOS                      | B     |      |       | A     | A                         |       |
| <b>Intersection Summary</b>       |       |      |       |       |                           |       |
| HCM 2000 Control Delay            |       |      | 11.1  |       | HCM 2000 Level of Service | B     |
| HCM 2000 Volume to Capacity ratio |       |      | 0.37  |       |                           |       |
| Actuated Cycle Length (s)         |       |      | 95.0  |       | Sum of lost time (s)      | 21.0  |
| Intersection Capacity Utilization |       |      | 31.0% |       | ICU Level of Service      | A     |
| Analysis Period (min)             |       |      | 15    |       |                           |       |

c Critical Lane Group

## Queues

Industry Partial DLT 2025 PM.syn

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|                         |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                                | SBL                                                                                 | SBT                                                                                 |
| Lane Group Flow (vph)   | 348                                                                               | 22                                                                                | 153                                                                               | 407                                                                               | 538                                                                               | 40                                                                                | 229                                                                                | 441                                                                                 | 131                                                                                 |
| v/c Ratio               | 0.22                                                                              | 0.03                                                                              | 0.34                                                                              | 0.26                                                                              | 0.52                                                                              | 0.08                                                                              | 0.21                                                                               | 0.46                                                                                | 0.21                                                                                |
| Control Delay           | 16.3                                                                              | 0.0                                                                               | 19.6                                                                              | 16.7                                                                              | 3.5                                                                               | 16.0                                                                              | 12.0                                                                               | 6.1                                                                                 | 7.5                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.1                                                                                 | 1.8                                                                                 |
| Total Delay             | 16.3                                                                              | 0.0                                                                               | 19.6                                                                              | 16.7                                                                              | 3.5                                                                               | 16.0                                                                              | 12.0                                                                               | 6.3                                                                                 | 9.3                                                                                 |
| Queue Length 50th (ft)  | 64                                                                                | 0                                                                                 | 58                                                                                | 77                                                                                | 0                                                                                 | 13                                                                                | 24                                                                                 | 5                                                                                   | 44                                                                                  |
| Queue Length 95th (ft)  | 94                                                                                | 0                                                                                 | 107                                                                               | 110                                                                               | 56                                                                                | 32                                                                                | 52                                                                                 | 7                                                                                   | 101                                                                                 |
| Internal Link Dist (ft) | 317                                                                               |                                                                                   |                                                                                   | 847                                                                               |                                                                                   |                                                                                   | 307                                                                                |                                                                                     | 70                                                                                  |
| Turn Bay Length (ft)    |                                                                                   | 180                                                                               | 450                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 1581                                                                              | 791                                                                               | 447                                                                               | 1581                                                                              | 1030                                                                              | 483                                                                               | 1105                                                                               | 949                                                                                 | 623                                                                                 |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 70                                                                                  | 362                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.22                                                                              | 0.03                                                                              | 0.34                                                                              | 0.26                                                                              | 0.52                                                                              | 0.08                                                                              | 0.21                                                                               | 0.50                                                                                | 0.50                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |



| Lane Group              | EBL  | EBT  | WBT  | SWR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 440  | 371  | 447  | 489  |
| v/c Ratio               | 0.67 | 0.11 | 0.64 | 0.31 |
| Control Delay           | 40.8 | 0.1  | 26.7 | 0.5  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 40.8 | 0.1  | 26.7 | 0.5  |
| Queue Length 50th (ft)  | 127  | 0    | 133  | 0    |
| Queue Length 95th (ft)  | 178  | 0    | 185  | 0    |
| Internal Link Dist (ft) |      | 1340 | 317  |      |
| Turn Bay Length (ft)    | 250  |      |      |      |
| Base Capacity (vph)     | 659  | 3495 | 699  | 1579 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.67 | 0.11 | 0.64 | 0.31 |
| Intersection Summary    |      |      |      |      |

Queues  
21: EB DLT & Industry Road

Industry Partial DLT 2025 PM.syn  
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| Lane Group              | EBL  | NBT  | SBT  | SBR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 440  | 108  | 572  | 489  |
| v/c Ratio               | 0.67 | 0.03 | 0.25 | 0.17 |
| Control Delay           | 16.8 | 3.9  | 17.0 | 0.1  |
| Queue Delay             | 0.0  | 0.6  | 0.0  | 0.0  |
| Total Delay             | 16.8 | 4.5  | 17.0 | 0.1  |
| Queue Length 50th (ft)  | 150  | 5    | 76   | 0    |
| Queue Length 95th (ft)  | 200  | 9    | 101  | 0    |
| Internal Link Dist (ft) | 141  | 70   | 872  |      |
| Turn Bay Length (ft)    |      |      |      | 300  |
| Base Capacity (vph)     | 659  | 3680 | 2307 | 2832 |
| Starvation Cap Reductn  | 0    | 3320 | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 141  | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.67 | 0.30 | 0.26 | 0.17 |
| Intersection Summary    |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

Industry Partial DLT 2045 AM.syn

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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↗                                                                                 | ↖                                                                                 | ↑↑                                                                                | ↗                                                                                 | ↖                                                                                  | ↑↑                                                                                  |                                                                                     | ↖↗                                                                                  | ↑                                                                                   |                                                                                     |
| Traffic Volume (vph)              | 0                                                                                 | 578                                                                               | 22                                                                                | 0                                                                                 | 538                                                                               | 613                                                                               | 26                                                                                 | 109                                                                                 | 0                                                                                   | 748                                                                                 | 160                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 578                                                                               | 22                                                                                | 0                                                                                 | 538                                                                               | 613                                                                               | 26                                                                                 | 109                                                                                 | 0                                                                                   | 748                                                                                 | 160                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                               | 0.95                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                               | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1654                                                                               | 3562                                                                                |                                                                                     | 3523                                                                                | 1806                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.61                                                                               | 1.00                                                                                |                                                                                     | 0.68                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1625                                                                              |                                                                                   | 3495                                                                              | 1625                                                                              | 1062                                                                               | 3562                                                                                |                                                                                     | 2519                                                                                | 1806                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 608                                                                               | 23                                                                                | 0                                                                                 | 566                                                                               | 645                                                                               | 27                                                                                 | 115                                                                                 | 0                                                                                   | 787                                                                                 | 168                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 319                                                                               | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 608                                                                               | 12                                                                                | 0                                                                                 | 566                                                                               | 326                                                                               | 27                                                                                 | 115                                                                                 | 0                                                                                   | 787                                                                                 | 168                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 12%                                                                                | 4%                                                                                  | 2%                                                                                  | 2%                                                                                  | 8%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | custom                                                                            | Prot                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                              | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 | 2                                                                                 | 3                                                                                  | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               | 8                                                                                  |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 26.0                                                                              | 53.0                                                                              |                                                                                   | 53.0                                                                              | 53.0                                                                              | 35.0                                                                               | 29.0                                                                                |                                                                                     | 35.0                                                                                | 29.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 26.0                                                                              | 53.0                                                                              |                                                                                   | 53.0                                                                              | 53.0                                                                              | 35.0                                                                               | 29.0                                                                                |                                                                                     | 35.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.25                                                                              | 0.50                                                                              |                                                                                   | 0.50                                                                              | 0.50                                                                              | 0.33                                                                               | 0.28                                                                                |                                                                                     | 0.33                                                                                | 0.28                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 865                                                                               | 820                                                                               |                                                                                   | 1764                                                                              | 820                                                                               | 387                                                                                | 983                                                                                 |                                                                                     | 897                                                                                 | 498                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.17                                                                             |                                                                                   |                                                                                   | 0.16                                                                              |                                                                                   | 0.00                                                                               | 0.03                                                                                |                                                                                     | c0.05                                                                               | 0.09                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.01                                                                              |                                                                                   |                                                                                   | c0.20                                                                             | 0.02                                                                               |                                                                                     |                                                                                     | c0.24                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.70                                                                              | 0.01                                                                              |                                                                                   | 0.32                                                                              | 0.40                                                                              | 0.07                                                                               | 0.12                                                                                |                                                                                     | 0.88                                                                                | 0.34                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 36.0                                                                              | 13.0                                                                              |                                                                                   | 15.4                                                                              | 16.1                                                                              | 23.7                                                                               | 28.4                                                                                |                                                                                     | 32.0                                                                                | 30.3                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 0.42                                                                                | 0.21                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 4.7                                                                               | 0.0                                                                               |                                                                                   | 0.5                                                                               | 1.4                                                                               | 0.3                                                                                | 0.2                                                                                 |                                                                                     | 10.8                                                                                | 1.6                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 40.7                                                                              | 13.0                                                                              |                                                                                   | 15.8                                                                              | 17.5                                                                              | 24.1                                                                               | 28.7                                                                                |                                                                                     | 24.2                                                                                | 8.1                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | D                                                                                 | B                                                                                 |                                                                                   | B                                                                                 | B                                                                                 | C                                                                                  | C                                                                                   |                                                                                     | C                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 39.7                                                                              |                                                                                   |                                                                                   | 16.7                                                                              |                                                                                   |                                                                                    | 27.8                                                                                |                                                                                     |                                                                                     | 21.3                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 23.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.70                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 105.0                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 52.2%                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



| Movement                          | EBL   | EBT   | WBT   | WBR  | SWL                       | SWR  |
|-----------------------------------|-------|-------|-------|------|---------------------------|------|
| Lane Configurations               | ↖↖    | ↑↑    | ↗↗    |      |                           | ↘↘   |
| Traffic Volume (vph)              | 739   | 600   | 564   | 0    | 0                         | 747  |
| Future Volume (vph)               | 739   | 600   | 564   | 0    | 0                         | 747  |
| Ideal Flow (vphpl)                | 1950  | 1950  | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 4.0   | 4.0   | 5.0   |      |                           | 4.0  |
| Lane Util. Factor                 | 0.97  | 0.95  | 0.95  |      |                           | 0.88 |
| Frt                               | 1.00  | 1.00  | 1.00  |      |                           | 0.85 |
| Flt Protected                     | 0.95  | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 3267  | 3495  | 3495  |      |                           | 2451 |
| Flt Permitted                     | 0.95  | 1.00  | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 3267  | 3495  | 3495  |      |                           | 2451 |
| Peak-hour factor, PHF             | 0.95  | 0.95  | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 778   | 632   | 594   | 0    | 0                         | 786  |
| RTOR Reduction (vph)              | 0     | 0     | 0     | 0    | 0                         | 614  |
| Lane Group Flow (vph)             | 778   | 632   | 594   | 0    | 0                         | 172  |
| Heavy Vehicles (%)                | 10%   | 6%    | 6%    | 2%   | 2%                        | 19%  |
| Turn Type                         | Prot  | NA    | NA    |      |                           | Over |
| Protected Phases                  | 1     | Free  | 2     |      |                           | 1    |
| Permitted Phases                  |       |       |       |      |                           |      |
| Actuated Green, G (s)             | 23.0  | 105.0 | 26.0  |      |                           | 23.0 |
| Effective Green, g (s)            | 23.0  | 105.0 | 26.0  |      |                           | 23.0 |
| Actuated g/C Ratio                | 0.22  | 1.00  | 0.25  |      |                           | 0.22 |
| Clearance Time (s)                | 4.0   |       | 5.0   |      |                           | 4.0  |
| Lane Grp Cap (vph)                | 715   | 3495  | 865   |      |                           | 536  |
| v/s Ratio Prot                    | c0.24 | 0.18  | c0.17 |      |                           | 0.07 |
| v/s Ratio Perm                    |       |       |       |      |                           |      |
| v/c Ratio                         | 1.09  | 0.18  | 0.69  |      |                           | 0.32 |
| Uniform Delay, d1                 | 41.0  | 0.0   | 35.8  |      |                           | 34.4 |
| Progression Factor                | 1.00  | 1.00  | 0.64  |      |                           | 1.00 |
| Incremental Delay, d2             | 60.1  | 0.1   | 4.3   |      |                           | 1.5  |
| Delay (s)                         | 101.1 | 0.1   | 27.2  |      |                           | 36.0 |
| Level of Service                  | F     | A     | C     |      |                           | D    |
| Approach Delay (s)                |       | 55.9  | 27.2  |      | 36.0                      |      |
| Approach LOS                      |       | E     | C     |      | D                         |      |
| <b>Intersection Summary</b>       |       |       |       |      |                           |      |
| HCM 2000 Control Delay            |       |       | 44.2  |      | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio |       |       | 0.61  |      |                           |      |
| Actuated Cycle Length (s)         |       |       | 105.0 |      | Sum of lost time (s)      | 21.0 |
| Intersection Capacity Utilization |       |       | 48.2% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |       |       | 15    |      |                           |      |
| c Critical Lane Group             |       |       |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Industry Road

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| Movement                          | EBL   | EBR  | NBL   | NBT   | SBT                       | SBR   |
|-----------------------------------|-------|------|-------|-------|---------------------------|-------|
| Lane Configurations               | ↰↰    |      |       | ↑↑↑   | ↑↑↑                       | ↰↰    |
| Traffic Volume (vph)              | 739   | 0    | 0     | 109   | 908                       | 747   |
| Future Volume (vph)               | 739   | 0    | 0     | 109   | 908                       | 747   |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950  | 1950                      | 1950  |
| Total Lost time (s)               | 5.0   |      |       | 4.0   | 6.0                       | 4.0   |
| Lane Util. Factor                 | 0.97  |      |       | 0.91  | 0.91                      | 0.88  |
| Frt                               | 1.00  |      |       | 1.00  | 1.00                      | 0.85  |
| Flt Protected                     | 0.95  |      |       | 1.00  | 1.00                      | 1.00  |
| Satd. Flow (prot)                 | 3267  |      |       | 5119  | 5168                      | 2451  |
| Flt Permitted                     | 0.95  |      |       | 1.00  | 1.00                      | 1.00  |
| Satd. Flow (perm)                 | 3267  |      |       | 5119  | 5168                      | 2451  |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95  | 0.95                      | 0.95  |
| Adj. Flow (vph)                   | 778   | 0    | 0     | 115   | 956                       | 786   |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0     | 0                         | 0     |
| Lane Group Flow (vph)             | 778   | 0    | 0     | 115   | 956                       | 786   |
| Heavy Vehicles (%)                | 10%   | 2%   | 2%    | 4%    | 3%                        | 19%   |
| Turn Type                         | Prot  |      |       | NA    | NA                        | Free  |
| Protected Phases                  | 2     |      |       | 1 7 8 | 3 4                       |       |
| Permitted Phases                  |       |      |       |       |                           | Free  |
| Actuated Green, G (s)             | 26.0  |      |       | 70.0  | 41.0                      | 105.0 |
| Effective Green, g (s)            | 26.0  |      |       | 58.0  | 41.0                      | 105.0 |
| Actuated g/C Ratio                | 0.25  |      |       | 0.55  | 0.39                      | 1.00  |
| Clearance Time (s)                | 5.0   |      |       |       |                           |       |
| Lane Grp Cap (vph)                | 808   |      |       | 2827  | 2017                      | 2451  |
| v/s Ratio Prot                    | c0.24 |      |       | 0.02  | c0.18                     |       |
| v/s Ratio Perm                    |       |      |       |       |                           | c0.32 |
| v/c Ratio                         | 0.96  |      |       | 0.04  | 0.47                      | 0.32  |
| Uniform Delay, d1                 | 39.0  |      |       | 10.8  | 23.9                      | 0.0   |
| Progression Factor                | 0.47  |      |       | 0.85  | 1.00                      | 1.00  |
| Incremental Delay, d2             | 4.2   |      |       | 0.0   | 0.8                       | 0.3   |
| Delay (s)                         | 22.7  |      |       | 9.2   | 24.7                      | 0.3   |
| Level of Service                  | C     |      |       | A     | C                         | A     |
| Approach Delay (s)                | 22.7  |      |       | 9.2   | 13.7                      |       |
| Approach LOS                      | C     |      |       | A     | B                         |       |
| <b>Intersection Summary</b>       |       |      |       |       |                           |       |
| HCM 2000 Control Delay            |       |      | 16.2  |       | HCM 2000 Level of Service | B     |
| HCM 2000 Volume to Capacity ratio |       |      | 0.63  |       |                           |       |
| Actuated Cycle Length (s)         |       |      | 105.0 |       | Sum of lost time (s)      | 21.0  |
| Intersection Capacity Utilization |       |      | 46.8% |       | ICU Level of Service      | A     |
| Analysis Period (min)             |       |      | 15    |       |                           |       |
| c Critical Lane Group             |       |      |       |       |                           |       |

## Queues

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|                         |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | SBL                                                                                | SBT                                                                                 |
| Lane Group Flow (vph)   | 608                                                                               | 23                                                                                | 566                                                                               | 645                                                                               | 27                                                                                | 115                                                                               | 787                                                                                | 168                                                                                 |
| v/c Ratio               | 0.70                                                                              | 0.03                                                                              | 0.31                                                                              | 0.56                                                                              | 0.07                                                                              | 0.12                                                                              | 0.88                                                                               | 0.34                                                                                |
| Control Delay           | 41.1                                                                              | 0.0                                                                               | 15.4                                                                              | 3.2                                                                               | 20.6                                                                              | 28.9                                                                              | 24.9                                                                               | 8.2                                                                                 |
| Queue Delay             | 0.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 1.9                                                                                 |
| Total Delay             | 41.3                                                                              | 0.0                                                                               | 15.4                                                                              | 3.2                                                                               | 20.6                                                                              | 28.9                                                                              | 24.9                                                                               | 10.1                                                                                |
| Queue Length 50th (ft)  | 196                                                                               | 0                                                                                 | 111                                                                               | 0                                                                                 | 11                                                                                | 30                                                                                | 199                                                                                | 42                                                                                  |
| Queue Length 95th (ft)  | 259                                                                               | 0                                                                                 | 148                                                                               | 54                                                                                | 29                                                                                | 53                                                                                | #294                                                                               | 75                                                                                  |
| Internal Link Dist (ft) | 306                                                                               |                                                                                   | 953                                                                               |                                                                                   |                                                                                   | 304                                                                               |                                                                                    | 70                                                                                  |
| Turn Bay Length (ft)    |                                                                                   | 180                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Base Capacity (vph)     | 865                                                                               | 881                                                                               | 1797                                                                              | 1149                                                                              | 387                                                                               | 983                                                                               | 896                                                                                | 498                                                                                 |
| Starvation Cap Reductn  | 28                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 206                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Reduced v/c Ratio       | 0.73                                                                              | 0.03                                                                              | 0.31                                                                              | 0.56                                                                              | 0.07                                                                              | 0.12                                                                              | 0.88                                                                               | 0.58                                                                                |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



| Lane Group              | EBL  | EBT  | WBT  | SWR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 778  | 632  | 594  | 786  |
| v/c Ratio               | 1.09 | 0.18 | 0.69 | 0.55 |
| Control Delay           | 99.6 | 0.1  | 27.5 | 1.5  |
| Queue Delay             | 0.0  | 0.0  | 0.1  | 0.0  |
| Total Delay             | 99.6 | 0.1  | 27.6 | 1.5  |
| Queue Length 50th (ft)  | ~304 | 0    | 193  | 0    |
| Queue Length 95th (ft)  | #422 | 0    | 255  | 0    |
| Internal Link Dist (ft) |      | 1306 | 306  |      |
| Turn Bay Length (ft)    | 250  |      |      |      |
| Base Capacity (vph)     | 715  | 3495 | 865  | 1422 |
| Starvation Cap Reductn  | 0    | 0    | 16   | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.09 | 0.18 | 0.70 | 0.55 |

#### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
21: EB DLT & Industry Road

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| Lane Group              | EBL  | NBT  | SBT  | SBR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 778  | 115  | 956  | 786  |
| v/c Ratio               | 0.96 | 0.03 | 0.47 | 0.32 |
| Control Delay           | 24.9 | 5.1  | 24.9 | 0.3  |
| Queue Delay             | 0.0  | 0.8  | 0.1  | 0.0  |
| Total Delay             | 24.9 | 5.9  | 25.0 | 0.3  |
| Queue Length 50th (ft)  | 292  | 7    | 172  | 0    |
| Queue Length 95th (ft)  | m269 | 12   | 212  | 0    |
| Internal Link Dist (ft) | 93   | 70   | 507  |      |
| Turn Bay Length (ft)    |      |      |      | 300  |
| Base Capacity (vph)     | 808  | 3412 | 2017 | 2451 |
| Starvation Cap Reductn  | 0    | 3074 | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 272  | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.96 | 0.34 | 0.55 | 0.32 |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

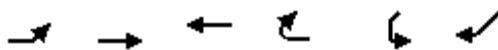
# HCM Signalized Intersection Capacity Analysis

Industry Partial DLT 2045 PM.syn

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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   | ↑↑                                                                                | ↑                                                                                 | ↑                                                                                 | ↑↑                                                                                | ↑                                                                                 | ↑                                                                                  | ↑↑                                                                                  |                                                                                     | ↑↑                                                                                  | ↑                                                                                   | ↑                                                                                   |
| Traffic Volume (vph)              | 0                                                                                 | 539                                                                               | 36                                                                                | 160                                                                               | 685                                                                               | 729                                                                               | 48                                                                                 | 117                                                                                 | 148                                                                                 | 594                                                                                 | 141                                                                                 | 0                                                                                   |
| Future Volume (vph)               | 0                                                                                 | 539                                                                               | 36                                                                                | 160                                                                               | 685                                                                               | 729                                                                               | 48                                                                                 | 117                                                                                 | 148                                                                                 | 594                                                                                 | 141                                                                                 | 0                                                                                   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                              | 1950                                                                               | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                | 1950                                                                                |
| Total Lost time (s)               |                                                                                   | 5.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                               | 0.95                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                               | 0.92                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                               | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 3495                                                                              | 1625                                                                              | 1816                                                                              | 3495                                                                              | 1625                                                                              | 1799                                                                               | 3328                                                                                |                                                                                     | 3523                                                                                | 1912                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.66                                                                               | 1.00                                                                                |                                                                                     | 0.58                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 3495                                                                              | 1625                                                                              | 1816                                                                              | 3495                                                                              | 1625                                                                              | 1255                                                                               | 3328                                                                                |                                                                                     | 2153                                                                                | 1912                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Adj. Flow (vph)                   | 0                                                                                 | 567                                                                               | 38                                                                                | 168                                                                               | 721                                                                               | 767                                                                               | 51                                                                                 | 123                                                                                 | 156                                                                                 | 625                                                                                 | 148                                                                                 | 0                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 20                                                                                | 0                                                                                 | 0                                                                                 | 384                                                                               | 0                                                                                  | 108                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 567                                                                               | 18                                                                                | 168                                                                               | 721                                                                               | 383                                                                               | 51                                                                                 | 171                                                                                 | 0                                                                                   | 625                                                                                 | 148                                                                                 | 0                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 2%                                                                                | 6%                                                                                | 2%                                                                                | 3%                                                                                 | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  |
| Turn Type                         |                                                                                   | NA                                                                                | custom                                                                            | Prot                                                                              | NA                                                                                | Perm                                                                              | pm+pt                                                                              | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 1 2                                                                               |                                                                                   | 3                                                                                  | 8                                                                                   |                                                                                     | 7                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 1 2                                                                               |                                                                                   |                                                                                   | 1 2                                                                               | 8                                                                                  |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 20.0                                                                              | 44.0                                                                              | 20.0                                                                              | 44.0                                                                              | 44.0                                                                              | 34.0                                                                               | 29.0                                                                                |                                                                                     | 34.0                                                                                | 29.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 20.0                                                                              | 44.0                                                                              | 20.0                                                                              | 44.0                                                                              | 44.0                                                                              | 34.0                                                                               | 29.0                                                                                |                                                                                     | 34.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.21                                                                              | 0.46                                                                              | 0.21                                                                              | 0.46                                                                              | 0.46                                                                              | 0.36                                                                               | 0.31                                                                                |                                                                                     | 0.36                                                                                | 0.31                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 5.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                                | 6.0                                                                                 |                                                                                     | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 735                                                                               | 752                                                                               | 382                                                                               | 1618                                                                              | 752                                                                               | 477                                                                                | 1015                                                                                |                                                                                     | 842                                                                                 | 583                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.16                                                                             |                                                                                   | 0.09                                                                              | 0.21                                                                              |                                                                                   | 0.01                                                                               | 0.05                                                                                |                                                                                     | c0.04                                                                               | 0.08                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.01                                                                              |                                                                                   |                                                                                   | c0.24                                                                             | 0.03                                                                               |                                                                                     |                                                                                     | c0.23                                                                               |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.77                                                                              | 0.02                                                                              | 0.44                                                                              | 0.45                                                                              | 0.51                                                                              | 0.11                                                                               | 0.17                                                                                |                                                                                     | 0.74                                                                                | 0.25                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 35.3                                                                              | 13.8                                                                              | 32.6                                                                              | 17.2                                                                              | 17.9                                                                              | 20.2                                                                               | 24.2                                                                                |                                                                                     | 25.3                                                                                | 24.9                                                                                |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                |                                                                                     | 0.47                                                                                | 0.25                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 7.6                                                                               | 0.1                                                                               | 3.6                                                                               | 0.9                                                                               | 2.5                                                                               | 0.5                                                                                | 0.4                                                                                 |                                                                                     | 5.6                                                                                 | 1.0                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 43.0                                                                              | 13.9                                                                              | 36.3                                                                              | 18.1                                                                              | 20.4                                                                              | 20.6                                                                               | 24.5                                                                                |                                                                                     | 17.4                                                                                | 7.2                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | D                                                                                 | B                                                                                 | D                                                                                 | B                                                                                 | C                                                                                 | C                                                                                  | C                                                                                   |                                                                                     | B                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 41.2                                                                              |                                                                                   |                                                                                   | 21.0                                                                              |                                                                                   |                                                                                    | 23.9                                                                                |                                                                                     |                                                                                     | 15.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 23.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.70                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 95.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 65.0%                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



| Movement                          | EBL   | EBT  | WBT   | WBR  | SWL                       | SWR  |
|-----------------------------------|-------|------|-------|------|---------------------------|------|
| Lane Configurations               | ←←    | →→   | ←←    |      |                           | ←←   |
| Traffic Volume (vph)              | 696   | 575  | 733   | 0    | 0                         | 780  |
| Future Volume (vph)               | 696   | 575  | 733   | 0    | 0                         | 780  |
| Ideal Flow (vphpl)                | 1950  | 1950 | 1950  | 1950 | 1950                      | 1950 |
| Total Lost time (s)               | 4.0   | 4.0  | 5.0   |      |                           | 4.0  |
| Lane Util. Factor                 | 0.97  | 0.95 | 0.95  |      |                           | 0.88 |
| Frt                               | 1.00  | 1.00 | 1.00  |      |                           | 0.85 |
| Flt Protected                     | 0.95  | 1.00 | 1.00  |      |                           | 1.00 |
| Satd. Flow (prot)                 | 3297  | 3495 | 3495  |      |                           | 2832 |
| Flt Permitted                     | 0.95  | 1.00 | 1.00  |      |                           | 1.00 |
| Satd. Flow (perm)                 | 3297  | 3495 | 3495  |      |                           | 2832 |
| Peak-hour factor, PHF             | 0.95  | 0.95 | 0.95  | 0.95 | 0.95                      | 0.95 |
| Adj. Flow (vph)                   | 733   | 605  | 772   | 0    | 0                         | 821  |
| RTOR Reduction (vph)              | 0     | 0    | 0     | 0    | 0                         | 648  |
| Lane Group Flow (vph)             | 733   | 605  | 772   | 0    | 0                         | 173  |
| Heavy Vehicles (%)                | 9%    | 6%   | 6%    | 2%   | 2%                        | 3%   |
| Turn Type                         | Prot  | NA   | NA    |      |                           | Over |
| Protected Phases                  | 1     | Free | 2     |      |                           | 1    |
| Permitted Phases                  |       |      |       |      |                           |      |
| Actuated Green, G (s)             | 20.0  | 95.0 | 20.0  |      |                           | 20.0 |
| Effective Green, g (s)            | 20.0  | 95.0 | 20.0  |      |                           | 20.0 |
| Actuated g/C Ratio                | 0.21  | 1.00 | 0.21  |      |                           | 0.21 |
| Clearance Time (s)                | 4.0   |      | 5.0   |      |                           | 4.0  |
| Lane Grp Cap (vph)                | 694   | 3495 | 735   |      |                           | 596  |
| v/s Ratio Prot                    | c0.22 | 0.17 | c0.22 |      |                           | 0.06 |
| v/s Ratio Perm                    |       |      |       |      |                           |      |
| v/c Ratio                         | 1.06  | 0.17 | 1.05  |      |                           | 0.29 |
| Uniform Delay, d1                 | 37.5  | 0.0  | 37.5  |      |                           | 31.5 |
| Progression Factor                | 1.00  | 1.00 | 0.62  |      |                           | 1.00 |
| Incremental Delay, d2             | 50.0  | 0.1  | 46.0  |      |                           | 1.2  |
| Delay (s)                         | 87.5  | 0.1  | 69.1  |      |                           | 32.7 |
| Level of Service                  | F     | A    | E     |      |                           | C    |
| Approach Delay (s)                |       | 48.0 | 69.1  |      | 32.7                      |      |
| Approach LOS                      |       | D    | E     |      | C                         |      |
| <b>Intersection Summary</b>       |       |      |       |      |                           |      |
| HCM 2000 Control Delay            |       |      | 49.3  |      | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio |       |      | 0.68  |      |                           |      |
| Actuated Cycle Length (s)         |       |      | 95.0  |      | Sum of lost time (s)      | 21.0 |
| Intersection Capacity Utilization |       |      | 53.8% |      | ICU Level of Service      | A    |
| Analysis Period (min)             |       |      | 15    |      |                           |      |
| c Critical Lane Group             |       |      |       |      |                           |      |

# HCM Signalized Intersection Capacity Analysis

## 21: EB DLT & Industry Road

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|                                   |  |      |       |       |                           |       |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-------|-------|---------------------------|-------|
| Movement                          | EBL                                                                               | EBR  | NBL   | NBT   | SBT                       | SBR   |
| Lane Configurations               | ↰↰                                                                                |      |       | ↑↑↑   | ↑↑↑                       | ↰↰    |
| Traffic Volume (vph)              | 696                                                                               | 0    | 0     | 117   | 735                       | 780   |
| Future Volume (vph)               | 696                                                                               | 0    | 0     | 117   | 735                       | 780   |
| Ideal Flow (vphpl)                | 1950                                                                              | 1950 | 1950  | 1950  | 1950                      | 1950  |
| Total Lost time (s)               | 5.0                                                                               |      |       | 4.0   | 6.0                       | 4.0   |
| Lane Util. Factor                 | 0.97                                                                              |      |       | 0.91  | 0.91                      | 0.88  |
| Frt                               | 1.00                                                                              |      |       | 1.00  | 1.00                      | 0.85  |
| Flt Protected                     | 0.95                                                                              |      |       | 1.00  | 1.00                      | 1.00  |
| Satd. Flow (prot)                 | 3297                                                                              |      |       | 5219  | 5219                      | 2832  |
| Flt Permitted                     | 0.95                                                                              |      |       | 1.00  | 1.00                      | 1.00  |
| Satd. Flow (perm)                 | 3297                                                                              |      |       | 5219  | 5219                      | 2832  |
| Peak-hour factor, PHF             | 0.95                                                                              | 0.95 | 0.95  | 0.95  | 0.95                      | 0.95  |
| Adj. Flow (vph)                   | 733                                                                               | 0    | 0     | 123   | 774                       | 821   |
| RTOR Reduction (vph)              | 0                                                                                 | 0    | 0     | 0     | 0                         | 0     |
| Lane Group Flow (vph)             | 733                                                                               | 0    | 0     | 123   | 774                       | 821   |
| Heavy Vehicles (%)                | 9%                                                                                | 2%   | 2%    | 2%    | 2%                        | 3%    |
| Turn Type                         | Prot                                                                              |      |       | NA    | NA                        | Free  |
| Protected Phases                  | 2                                                                                 |      |       | 1 7 8 | 3 4                       |       |
| Permitted Phases                  |                                                                                   |      |       |       |                           | Free  |
| Actuated Green, G (s)             | 20.0                                                                              |      |       | 66.0  | 40.0                      | 95.0  |
| Effective Green, g (s)            | 20.0                                                                              |      |       | 54.0  | 40.0                      | 95.0  |
| Actuated g/C Ratio                | 0.21                                                                              |      |       | 0.57  | 0.42                      | 1.00  |
| Clearance Time (s)                | 5.0                                                                               |      |       |       |                           |       |
| Lane Grp Cap (vph)                | 694                                                                               |      |       | 2966  | 2197                      | 2832  |
| v/s Ratio Prot                    | c0.22                                                                             |      |       | 0.02  | c0.15                     |       |
| v/s Ratio Perm                    |                                                                                   |      |       |       |                           | c0.29 |
| v/c Ratio                         | 1.06                                                                              |      |       | 0.04  | 0.35                      | 0.29  |
| Uniform Delay, d1                 | 37.5                                                                              |      |       | 9.1   | 18.7                      | 0.0   |
| Progression Factor                | 0.39                                                                              |      |       | 0.99  | 1.00                      | 1.00  |
| Incremental Delay, d2             | 29.1                                                                              |      |       | 0.0   | 0.4                       | 0.3   |
| Delay (s)                         | 43.7                                                                              |      |       | 9.0   | 19.1                      | 0.3   |
| Level of Service                  | D                                                                                 |      |       | A     | B                         | A     |
| Approach Delay (s)                | 43.7                                                                              |      |       | 9.0   | 9.4                       |       |
| Approach LOS                      | D                                                                                 |      |       | A     | A                         |       |
| <b>Intersection Summary</b>       |                                                                                   |      |       |       |                           |       |
| HCM 2000 Control Delay            |                                                                                   |      | 19.7  |       | HCM 2000 Level of Service | B     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |      | 0.57  |       |                           |       |
| Actuated Cycle Length (s)         |                                                                                   |      | 95.0  |       | Sum of lost time (s)      | 21.0  |
| Intersection Capacity Utilization |                                                                                   |      | 42.4% |       | ICU Level of Service      | A     |
| Analysis Period (min)             |                                                                                   |      | 15    |       |                           |       |
| c Critical Lane Group             |                                                                                   |      |       |       |                           |       |

## Queues

Industry Partial DLT 2045 PM.syn

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1:

|                         |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                                | SBL                                                                                 | SBT                                                                                 |
| Lane Group Flow (vph)   | 567                                                                               | 38                                                                                | 168                                                                               | 721                                                                               | 767                                                                               | 51                                                                                | 279                                                                                | 625                                                                                 | 148                                                                                 |
| v/c Ratio               | 0.77                                                                              | 0.05                                                                              | 0.44                                                                              | 0.44                                                                              | 0.67                                                                              | 0.11                                                                              | 0.25                                                                               | 0.74                                                                                | 0.25                                                                                |
| Control Delay           | 43.5                                                                              | 0.1                                                                               | 36.9                                                                              | 17.6                                                                              | 5.2                                                                               | 17.3                                                                              | 11.4                                                                               | 16.9                                                                                | 7.3                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.1                                                                                 | 1.8                                                                                 |
| Total Delay             | 43.5                                                                              | 0.1                                                                               | 36.9                                                                              | 17.6                                                                              | 5.2                                                                               | 17.3                                                                              | 11.4                                                                               | 16.9                                                                                | 9.1                                                                                 |
| Queue Length 50th (ft)  | 171                                                                               | 0                                                                                 | 89                                                                                | 146                                                                               | 16                                                                                | 18                                                                                | 27                                                                                 | 129                                                                                 | 32                                                                                  |
| Queue Length 95th (ft)  | 231                                                                               | 0                                                                                 | 151                                                                               | 193                                                                               | 95                                                                                | 40                                                                                | 58                                                                                 | 180                                                                                 | 62                                                                                  |
| Internal Link Dist (ft) | 310                                                                               |                                                                                   |                                                                                   | 867                                                                               |                                                                                   |                                                                                   | 92                                                                                 |                                                                                     | 70                                                                                  |
| Turn Bay Length (ft)    |                                                                                   | 180                                                                               | 450                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 735                                                                               | 823                                                                               | 382                                                                               | 1655                                                                              | 1146                                                                              | 477                                                                               | 1123                                                                               | 842                                                                                 | 583                                                                                 |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 5                                                                                   | 303                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Reduced v/c Ratio       | 0.77                                                                              | 0.05                                                                              | 0.44                                                                              | 0.44                                                                              | 0.67                                                                              | 0.11                                                                              | 0.25                                                                               | 0.75                                                                                | 0.53                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |



| Lane Group              | EBL  | EBT  | WBT  | SWR  |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph)   | 733  | 605  | 772  | 821  |
| v/c Ratio               | 1.06 | 0.17 | 1.05 | 0.53 |
| Control Delay           | 87.4 | 0.1  | 71.5 | 1.3  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 87.4 | 0.1  | 71.5 | 1.3  |
| Queue Length 50th (ft)  | ~251 | 0    | ~270 | 0    |
| Queue Length 95th (ft)  | #364 | 0    | #391 | 0    |
| Internal Link Dist (ft) |      | 1340 | 310  |      |
| Turn Bay Length (ft)    | 250  |      |      |      |
| Base Capacity (vph)     | 694  | 3495 | 735  | 1553 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.06 | 0.17 | 1.05 | 0.53 |

#### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
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| Lane Group              | EBL   | NBT  | SBT  | SBR  |
|-------------------------|-------|------|------|------|
| Lane Group Flow (vph)   | 733   | 123  | 774  | 821  |
| v/c Ratio               | 1.06  | 0.03 | 0.35 | 0.29 |
| Control Delay           | 47.7  | 4.5  | 19.3 | 0.3  |
| Queue Delay             | 0.0   | 0.8  | 0.1  | 0.0  |
| Total Delay             | 47.7  | 5.3  | 19.3 | 0.3  |
| Queue Length 50th (ft)  | ~262  | 6    | 113  | 0    |
| Queue Length 95th (ft)  | m#236 | m11  | 145  | 0    |
| Internal Link Dist (ft) | 107   | 70   | 872  |      |
| Turn Bay Length (ft)    |       |      |      | 300  |
| Base Capacity (vph)     | 694   | 3625 | 2197 | 2832 |
| Starvation Cap Reductn  | 0     | 3269 | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 257  | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.06  | 0.35 | 0.40 | 0.29 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

*SR 524 at Industry Road Signalized Cost Estimate*

[illegible]

*SR 524 at Industry Road Partial Displaced Left Turn Cost Estimate*

| PAY<br>ITEM<br>NO. | DESCRIPTION                                                                       | UNIT | QUANTITY | UNIT COST           | COST            |
|--------------------|-----------------------------------------------------------------------------------|------|----------|---------------------|-----------------|
| 101-1              | Mobilization                                                                      | LS   | 1        | \$ 215,318.41       | \$ 215,318.41   |
| 102-1              | Maintenance of Traffic                                                            | LS   | 1        | \$ 215,318.41       | \$ 215,318.41   |
| 110-1-1            | Clearing and Grubbing                                                             | AC   | 8.2      | \$ 18,895.19        | \$ 154,017.49   |
| 110-4-10           | Removal of Existing Concrete                                                      | SY   | 14,474.4 | \$ 20.72            | \$ 299,910.49   |
| 160-4              | Type B Stabilization                                                              | SY   | 16,567.1 | \$ 5.83             | \$ 96,586.26    |
| 285-709            | Optional Base, Base Group 09                                                      | SY   | 16,567.1 | \$ 19.27            | \$ 319,248.23   |
| 334-154            | Superpave Asphalt Concrete Friction Course, Traffic D, PG76-22 (165lb/yd^2)       | TN   | 1,366.8  | \$ 95.68            | \$ 130,774.15   |
| 337-7-81           | Asphalt Concrete Friction Course, Traffic B, FC-12.5, PG 76-22 (165 lb/yd^2)      | TN   | 1,366.8  | \$ 114.05           | \$ 155,882.02   |
| 520-1-07           | Concrete Curb & Gutter, Type E                                                    | LF   | 3,582.3  | \$ 23.65            | \$ 84,721.40    |
| 520-1-10           | Concrete Curb & Gutter, Type F                                                    | LF   | 1,850.4  | \$ 26.67            | \$ 49,350.17    |
| 522-1              | Concrete Sidewalk and Ramps, 4" Thick                                             | SY   | 1,473.7  | \$ 43.68            | \$ 64,369.76    |
| 527-2              | Detectable Warnings                                                               | SF   | 207.1    | \$ 29.11            | \$ 6,028.68     |
| 570-1-2            | Performance Turf, Sod                                                             | SY   | 4,055.1  | \$ 2.62             | \$ 10,624.39    |
| 630-2-11           | Conduit, Furnish & Install, Open Trench                                           | LF   | 5,034.0  | \$ 8.74             | \$ 43,997.16    |
| 632-7-1            | Signal Cable - New Or Reconstructed Intersection, Furnish & Install               | PI   | 1.0      | \$ 6,178.01         | \$ 6,178.01     |
| 635-2-11           | Pull & Splice Box, F&I, 13" X 24" Cover Size                                      | EA   | 44.0     | \$ 753.91           | \$ 33,172.04    |
| 639-1-122          | Electrical Power Service, F&I, Underground, Meter Purchased By Contractor         | AS   | 1.0      | \$ 3,390.41         | \$ 3,390.41     |
| 639-2-1            | Electrical Service Wire                                                           | LF   | 1,467.4  | \$ 5.23             | \$ 7,674.50     |
| 641-2-12           | Prestressed Concrete Pole, F&I, Type P-II Service Pole                            | EA   | 6.0      | \$ 1,651.12         | \$ 9,906.72     |
| 646-1-11           | Aluminum Signals Pole, Pedestal                                                   | EA   | 6.0      | \$ 1,625.89         | \$ 9,755.34     |
| 646-1-12           | Aluminum Signals Pole, F&I Pedestrian Detector Post                               | EA   | 6.0      | \$ 1,104.51         | \$ 6,627.06     |
| 649-21-1           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 30'                      | EA   | 3.0      | \$ 36,515.87        | \$ 109,547.61   |
| 649-21-3           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 40'                      | EA   | 1.0      | \$ 40,867.45        | \$ 40,867.45    |
| 649-21-6           | Steel Mast Arm Assembly, Furnish and Install, Single Arm 50'                      | EA   | 2.0      | \$ 41,505.98        | \$ 83,011.96    |
| 649-21-15          | Steel Mast Arm Assembly, Furnish and Install, Single Arm 70'                      | EA   | 2.0      | \$ 53,510.36        | \$ 107,020.72   |
| 650-1-14           | Traffic Signal, Furnish & Install Aluminum, 3 Section, 1 Way                      | AS   | 19.0     | \$ 1,029.91         | \$ 19,568.29    |
| 650-1-19           | Vehicular Traffic Signal, Furnish & Install Aluminum, 5 Section Cluster, 1 Way    | AS   | 1.0      | \$ 1,669.13         | \$ 1,669.13     |
| 653-1-11           | Pedestrian Signal, Furnish & Installed Led Countdown, 1 Way                       | AS   | 4.0      | \$ 677.73           | \$ 2,710.92     |
| 660-4-11           | Vehicle Detection System - Video, Furnish & Install Cabinet Equipment             | EA   | 8.0      | \$ 7,308.13         | \$ 58,465.04    |
| 660-4-12           | Vehicle Detection System - Video, Furnish & Install Above Ground Equipment        | EA   | 8.0      | \$ 5,812.31         | \$ 46,498.48    |
| 665-1-11           | Pedestrian Detector, Furnish & Install, Standard                                  | EA   | 4.0      | \$ 292.89           | \$ 1,171.56     |
| 670-5-111          | Traffic Controller Assembly, F&I, Nema, 1 Preemption                              | AS   | 1.0      | \$ 30,363.51        | \$ 30,363.51    |
| 710-11-101         | Painted Pavement Marking, Standard, White, Solid, 6"                              | GM   | 1.52     | \$ 1,008.98         | \$ 1,534.57     |
| 710-11-123         | Painted Pavement Marking, Standard, White, Solid, 12"                             | LF   | 801      | \$ 0.91             | \$ 728.91       |
| 710-11-125         | Painted Pavement Markings, Standard, White, Solid for Stop Line or Crosswalk, 2'  | LF   | 613      | \$ 3.60             | \$ 2,206.80     |
| 710-11-201         | Painted Pavement Marking, Standard, Yellow, Solid, 6"                             | GM   | 0.74     | \$ 1,038.01         | \$ 770.39       |
| 710-11-131         | Painted Pavement Marking, Standard, White, Skip, 6"                               | GM   | 0.58     | \$ 479.38           | \$ 279.57       |
| 710-11-160         | Painted Pavement Marking, Standard, White, Message                                | EA   | 53       | \$ 61.25            | \$ 3,246.25     |
| 715-1-13           | Lighting Conductors, F&I, Insulated, No 4 to No 2                                 | LF   | 4,020    | \$ 2.12             | \$ 8,522.40     |
| 715-4-13           | Light Pole Complete, Furnish & Install Standard Pole Standard Foundation, 40' Max | EA   | 24       | \$ 5,501.51         | \$ 132,036.24   |
| 715-7-12           | Load Center, F&I, Primary Voltage                                                 | EA   | 1.0      | \$ 10,750.00        | \$ 10,750.00    |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          |                     |                 |
|                    |                                                                                   |      |          | Construction Cost:  | \$ 2,583,820.88 |
|                    |                                                                                   |      |          | PE (Design Phase):  | \$ 645,955.22   |
|                    |                                                                                   |      |          | Contingency (25%):  | \$ 807,444.03   |
|                    |                                                                                   |      |          | TOTAL PROJECT COST: | \$ 4,037,220.13 |

*SR 524 at Industry Road Restricted Crossing U-Turn Cost Estimate*

[illegible]

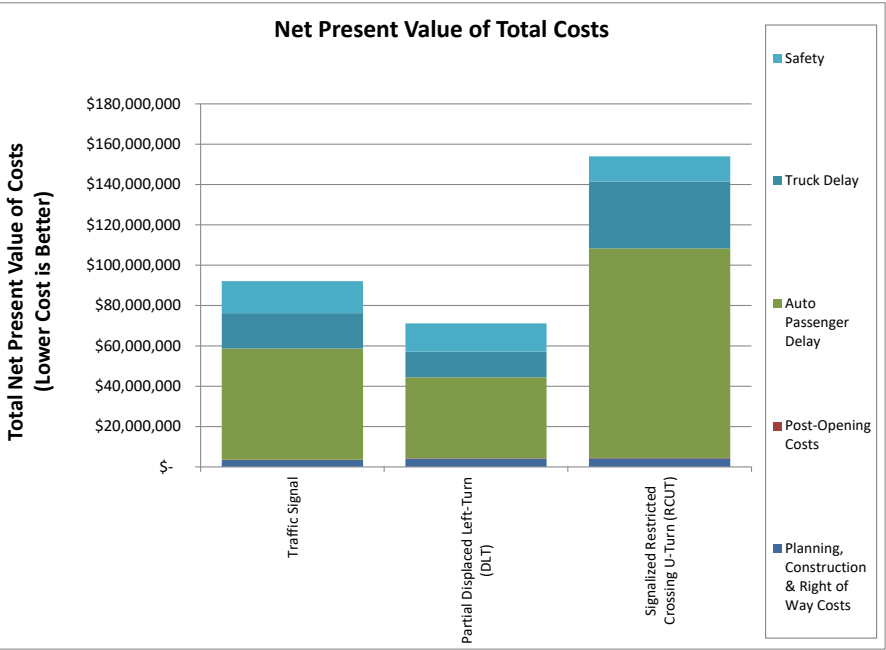
|                            |                        |
|----------------------------|------------------------|
| Construction Cost:         | \$ 2,679,455.08        |
| PE (Design Phase):         | \$ 669,863.77          |
| Contingency (25%):         | \$ 837,329.71          |
| <b>TOTAL PROJECT COST:</b> | <b>\$ 4,186,648.56</b> |

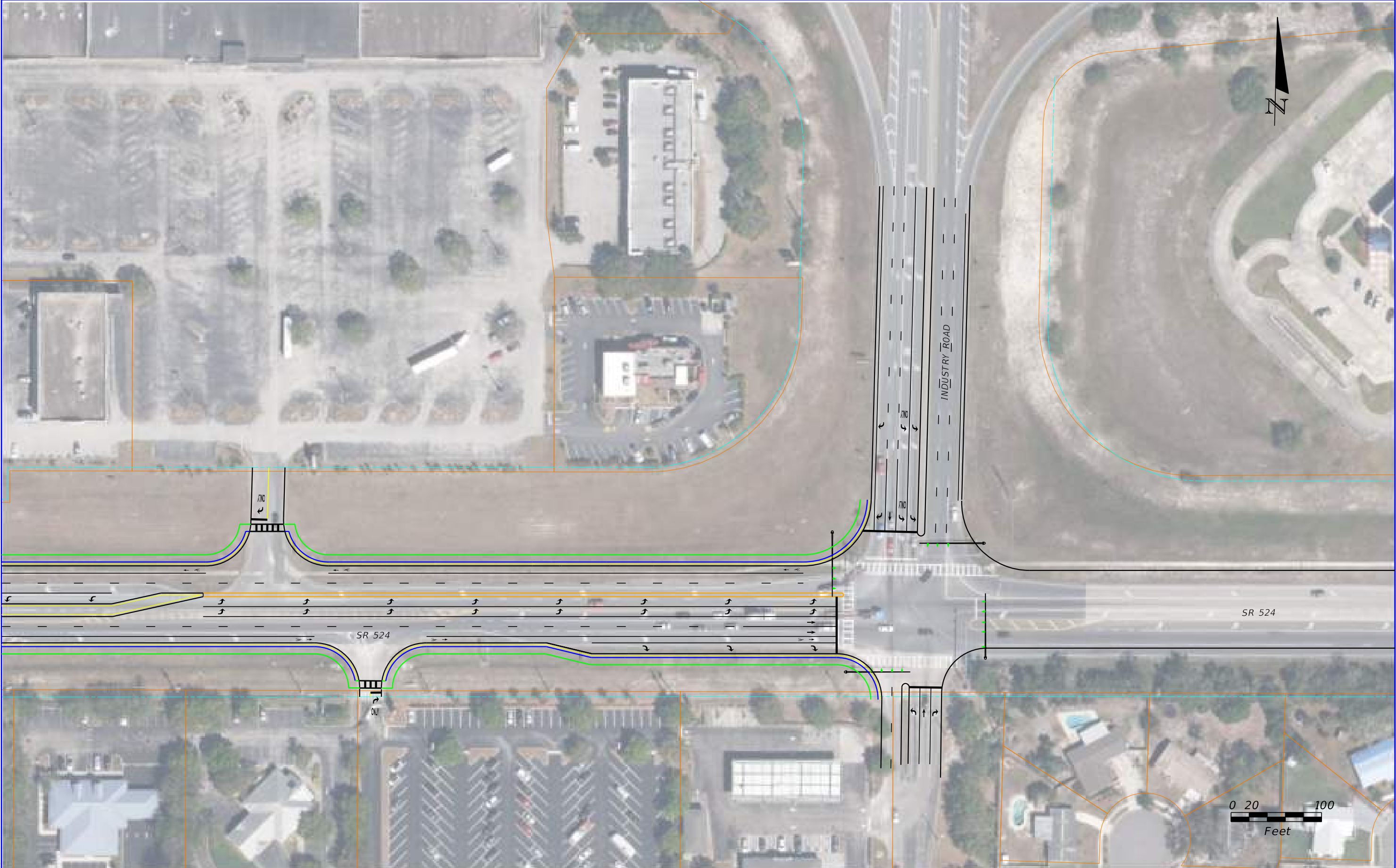
|                                        |                              |
|----------------------------------------|------------------------------|
| Agency:                                | FDOT - District 5            |
| Project Name:                          | SR 524 PD&E                  |
| Project Reference:                     | 14321                        |
| Intersection:                          | SR 524 at Industry Rd        |
| City:                                  | Cocoa                        |
| State:                                 | Florida                      |
| Performing Department or Organization: | Department of Transportation |
| Date:                                  | 7/23/2021                    |
| Analyst:                               | Michael Zoellner             |
| Analysis Type                          | At-Grade Intersection        |

### Analysis Summary

| Cost Categories                             | Net Present Value of Costs |                                   |                                              |  |
|---------------------------------------------|----------------------------|-----------------------------------|----------------------------------------------|--|
|                                             | Traffic Signal             | Partial Displaced Left-Turn (DLT) | Signalized Restricted Crossing U-Turn (RCUT) |  |
| Planning, Construction & Right of Way Costs | \$ 3,428,538               | \$ 4,037,220                      | \$ 4,186,649                                 |  |
| Post-Opening Costs                          | \$ 98,229                  | \$ 238,276                        | \$ 238,276                                   |  |
| Auto Passenger Delay                        | \$ 55,153,366              | \$ 40,144,579                     | \$ 103,943,272                               |  |
| Truck Delay                                 | \$ 17,531,480              | \$ 12,767,086                     | \$ 33,101,957                                |  |
| Safety                                      | \$ 15,861,032              | \$ 13,957,708                     | \$ 12,451,252                                |  |
| <b>Total cost</b>                           | <b>\$92,072,644</b>        | <b>\$71,144,868</b>               | <b>\$153,921,406</b>                         |  |

| Select Base Case for Benefit-Cost Comparison:<br>(Choose from list) | Traffic Signal                                      |                                   |                                                                                                      |  |
|---------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------|--|
| Benefit Categories                                                  | Net Present Value of Benefits Relative to Base Case |                                   |                                                                                                      |  |
|                                                                     | Traffic Signal                                      | Partial Displaced Left-Turn (DLT) | Signalized Restricted Crossing U-Turn (RCUT)                                                         |  |
| Auto Passenger Delay                                                |                                                     | \$ 15,008,787                     | \$ (48,789,906)                                                                                      |  |
| Truck Delay                                                         |                                                     | \$ 4,764,394                      | \$ (15,570,477)                                                                                      |  |
| Safety                                                              |                                                     | \$ 1,903,324                      | \$ 3,409,779                                                                                         |  |
| <b>Net Present Value of Benefits</b>                                |                                                     | <b>\$ 21,676,506</b>              | <b>\$ (60,950,604)</b>                                                                               |  |
| <b>Net Present Value of Costs</b>                                   |                                                     | <b>\$ 748,730</b>                 | <b>\$ 898,158</b>                                                                                    |  |
| <b>Net Present Value of Improvement</b>                             |                                                     | <b>\$ 20,927,776</b>              | <b>\$ (61,848,762)</b>                                                                               |  |
| Benefit-Cost (B/C) Ratio                                            |                                                     | 28.95                             | Control Strategy not preferred. Benefits are less than base case and cost is greater than base case. |  |
| Delay B/C                                                           |                                                     | 26.41                             | Control Strategy not preferred. Benefits are less than base case and cost is greater than base case. |  |
| Safety B/C                                                          |                                                     | 2.54                              | 3.80                                                                                                 |  |

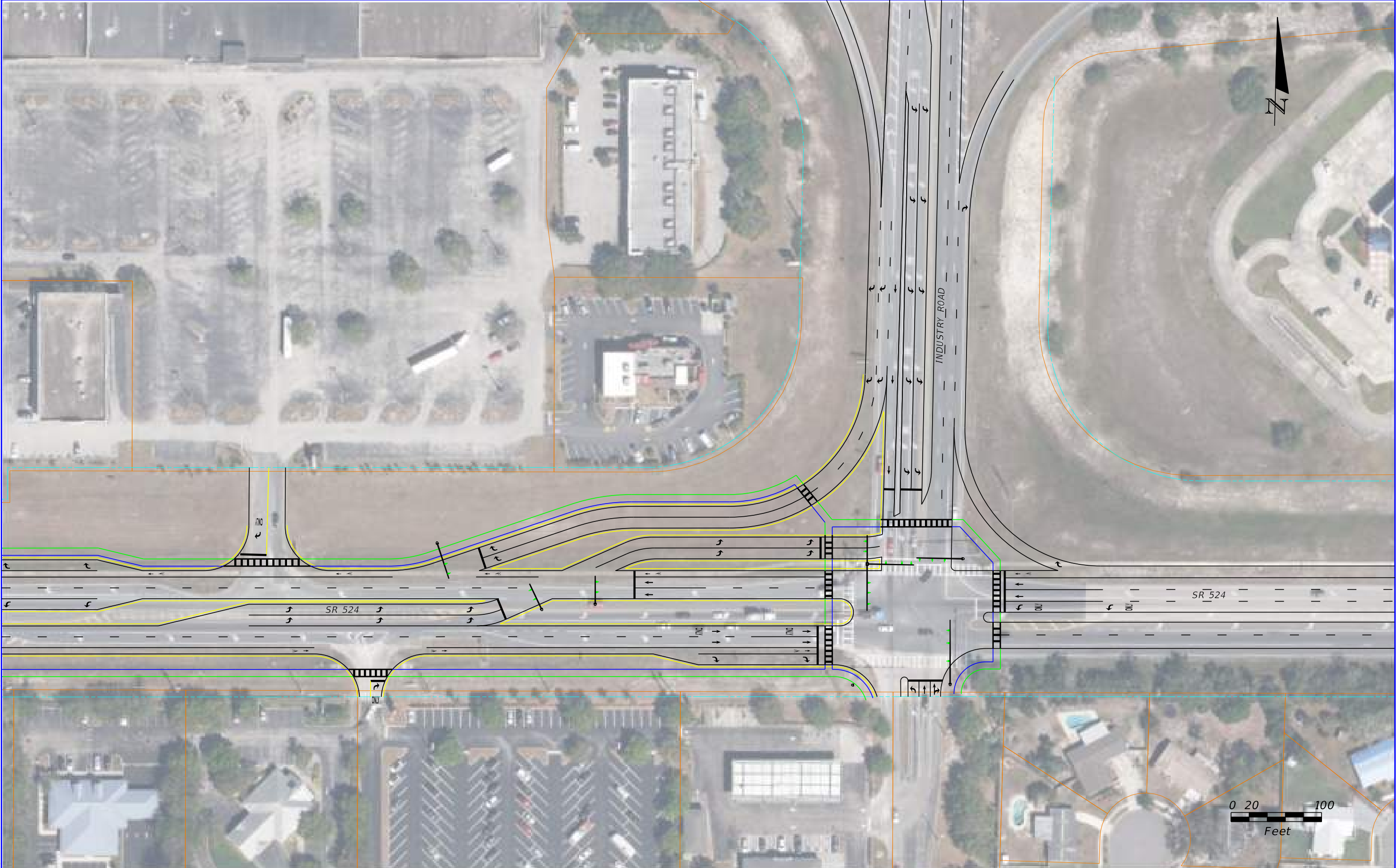




| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT INDUSTRY ROAD<br>SIGNALIZED INTERSECTION<br>CONCEPT PLAN | SHEET<br>NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|--------------------------------------------------------------------|-----------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                    |                       |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                                    |                       |



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT INDUSTRY ROAD<br>RESTRICTED CROSSING<br>U-TURN CONCEPT PLAN | SHEET<br>NO.<br><br>1 |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|-----------------------------------------------------------------------|-----------------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                       |                       |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                                       |                       |



| REVISIONS |             |      |             |  | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |         |                      | SR 524 AT INDUSTRY ROAD<br>PARTIAL DISPLACED<br>LEFT-TURN CONCEPT PLAN | SHEET<br>NO. |
|-----------|-------------|------|-------------|--|--------------------------------------------------|---------|----------------------|------------------------------------------------------------------------|--------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.                                         | COUNTY  | FINANCIAL PROJECT ID |                                                                        | 1            |
|           |             |      |             |  | 524                                              | BREVARD | 437983-1             |                                                                        |              |