

State Road 40 PD&E from Breakaway Trail to Williamson Boulevard

Project Development Summary Report

&

State Environmental Impact Report

Prepared for:

Florida Department of Transportation District 5

Financial Management No. 428947-1-22-01

November 2014



Project Development Summary Report
State Environmental Impact Report

State Road 40 PD&E Study
From Breakaway Trail to Williamson Boulevard

Financial Management No. 428947-1-22-01

Volusia County, Florida

November 12, 2014

Prepared For:

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Professional Engineer Certificate

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Kittelson & Associates, Inc., a corporation authorized to operate as an engineering business, FEID No. 93-0964447, by the State of Florida, Department of Professional Regulation, and Board of Professional Engineers. I have reviewed or approved the evaluation, findings, opinions and conclusions as reported in this Project Development Summary Report & State Environmental Impact Report.

The Project Development Summary Report & State Environmental Impact Report includes a summary of design alternatives and environmental, cultural, and social impacts associated with the S.R. 40 PD&E Study from Breakaway Trail to Williamson Boulevard. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.

Signature: _____

Name: _____

John R. Freeman, Jr., P.E.

P.E. Number: _____

25730

Date: _____

November 14, 2014



**FLORIDA DEPARTMENT OF TRANSPORTATION
STATE ENVIRONMENTAL IMPACT REPORT**

1. GENERAL INFORMATION:

- a. Project Name: S.R. 40 - Breakaway Trail to Williamson Boulevard
- b. Project Limits: Breakaway Trail to Williamson Boulevard
- c. ETDM Number: #9491
- d. Financial Project Number: 428947-1-21-01

2. PROJECT DESCRIPTION:

Existing:

Four lane (2-lane each direction) rural highway with an existing depressed median and paved outside shoulders. An existing 8-foot wide sidewalk along the north side of S.R. 40 exists between Breakaway Trail and Tymber Creek Road. Posted 50mph from Breakaway Trail to west of I-95, reducing to 45 mph to Williamson Boulevard. Emerging Strategic Intermodal System (SIS) roadway from Breakaway Trail to I-95.

Proposed Improvements:

Widening of S.R. 40 to six lanes (three lanes each direction), stormwater retention and treatment for the roadway widening, and the widening of the existing S.R. 40 bridges over the Tomoka River. Rural typical section between Breakaway Trail and Tymber Creek Road. Urban typical section between Tymber Creek Road and I-95. Propose to reduce posted speed from 50mph to 45mph from Tymber Creek Road to I-95. Turn lane and signalization improvements at major intersections and in the I-95 interchange area. The project also includes enhancement of pedestrian and bicycle facilities to include a shared use path along the north side.

3. APPROVED FOR PUBLIC AVAILABILITY (BEFORE PUBLIC HEARING)

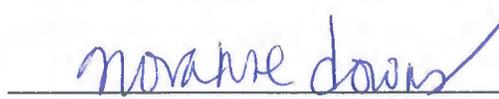


District Secretary or Designee

5 / 30 / 2013
Date

4. A Public Hearing was held on 06 / 25 / 2013
Date

5. APPROVAL OF FINAL DOCUMENT (AFTER PUBLIC HEARING)



District Secretary or Designee

11 / 17 / 14
Date

This block is signed after the Public Hearing.
The final SEIR reflects full consideration of the comments and responses resulting from the Public Hearing.



6. IMPACT EVALUATION

| Topical Categories | Sig | Min | None | NoInv | Basis for Decision * |
|---|-----|-----|------|-------|---|
| A. SOCIAL IMPACTS | | | | | |
| 1. Land Use Changes | [] | [X] | [] | [] | Project Development Summary Report (Section 2.3.4, 4.4.3) |
| 2. Community Cohesion | [] | [] | [X] | [] | Project Development Summary Report (Section 4.4.6) |
| 3. Relocation Potential | [] | [] | [X] | [] | Project Development Summary Report (Section 4.4.5) |
| 4. Community Services | [] | [] | [X] | [] | Project Development Summary Report (Section 4.4.6) |
| 5. Title VI Considerations | [] | [] | [] | [X] | N/A |
| 6. Controversy Potential | [] | [X] | [] | [] | Project Development Summary Report (Section 6.0) |
| 7. Bicycles and Pedestrians | [] | [] | [X] | [] | Project Development Summary Report (Section 3.7.8) |
| 8. Utilities and Railroads | [] | [X] | [] | [] | Utility Assessment Package (October 2012), Project Development Summary Report (Section 3.7.10) |
| B. CULTURAL IMPACTS | | | | | |
| 1. Historic Sites / Districts | [] | [] | [X] | [] | Cultural Resource Assessment Survey (September 2012), Project Development Summary Report (Section 4.3.1) |
| 2. Archaeological Sites | [] | [] | [X] | [] | Cultural Resource Assessment Survey (September 2012), Project Development Summary Report (Section 4.3.1) |
| 3. Recreation Areas | [] | [] | [X] | [] | Project Development Summary Report (Section 4.3.2, 4.3.3) |
| C. NATURAL ENVIRONMENT | | | | | |
| 1. Wetlands | [] | [X] | [] | [] | Natural Environment Report (November 2012), Project Development Summary Report (Section 4.2.10) |
| 2. Aquatic Preserves | [] | [] | [] | [X] | N/A |
| 3. Water Quality | [] | [X] | [] | [] | Natural Environment Report (November 2012), Project Development Summary Report (Section 4.2.9) |
| 4. Outstanding Florida Waters | [] | [X] | [] | [] | Natural Environment Report (November 2012), Project Development Summary Report (Section 4.2.9) |
| 5. Wild and Scenic Rivers | [] | [] | [] | [X] | N/A |
| 6. Floodplains | [] | [X] | [] | [] | Location Hydraulics Report (November 2012), Project Development Summary Report (Section 4.2.5) |
| 7. Coastal Barrier Islands | [] | [] | [] | [X] | N/A |
| 8. Wildlife and Habitat | [] | [X] | [] | [] | Natural Environment Report (November 2012), Project Development Summary Report (Section 4.2.11) |
| 9. Farmlands | [] | [] | [X] | [] | Project Development Summary Report (Section 4.2.4) |
| 10. Essential Fish Habitat | [] | [X] | [] | [] | Natural Environment Report (November 2012), Project Development Summary Report (Section 4.2.2) |
| D. PHYSICAL IMPACTS | | | | | |
| 1. Noise | [] | [X] | [] | [] | Noise Study Report (February 2013), Project Development Summary Report (Section 4.2.12) |
| 2. Air | [] | [X] | [] | [] | Air Quality Technical Memorandum (November 5, 2012), Project Development Summary Report (Section 4.2.1) |
| 3. Construction | [] | [X] | [] | [] | Project Development Summary Report (Section 3.7.13, 3.8) |
| 4. Contamination | [] | [X] | [] | [] | Contamination Screening Evaluation Report (January 2012), Project Development Summary Report (Section 4.2.3) |
| 5. Navigation | [] | [] | [X] | [] | Project Development Summary Report (Section 4.2.7) |
| * Sig = Significant; Min = Minimal; None = None; NoInv = No Involvement. Basis of decision is documented in the referenced attachment(s). | | | | | |
| E. PERMITS REQUIRED | | | | | |
| 7. COMMITMENTS AND RECOMMENDATIONS | | | | | |
| See Section 1.5 of PDSR for Commitments, and Section 1.2 of PDSR for Recommendations. | | | | | |



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- Appendix B** Concept Plans
- Appendix C** Approved Typical Section Package and Design Variations
- Appendix D** Construction Cost Estimate
- Appendix E** Water Quality Impact Evaluation Checklist
- Appendix F** List of Supporting Documents
- Appendix G** Copy of Written Agreements
- Appendix H** Copy of Permits
- Appendix I** Public Hearing Transcript

Section 1
Executive Summary

1. EXECUTIVE SUMMARY

1.1 Project Overview

The purpose of the S.R. 40 from Breakaway Trail to Williamson Boulevard project is to provide the roadway and intersection capacity improvements needed to address future traffic demand along S.R. 40 through 2035; establish continuity on this regionally significant roadway; and maintain important freight and emergency mobility. S.R. 40 is an east-west connection between the Gulf coast and Atlantic coast of Florida, providing connections to the major north-south routes of I-75 in Marion County and I-95 in Volusia County. The section of S.R. 40 west of I-95 is designated as an emerging Strategic Intermodal System (SIS) facility. Additionally, S.R. 40 is designated as a Hurricane Evacuation Route within the project limits by the Florida State Emergency Response Team. It also serves as an evacuation route for other emergencies, including fires. It is recommended that the preferred alternative as described below and as detailed in Section 3.7 be implemented. Section 2.0 of the report describes the project's purpose and need in further detail.

1.2 Recommendations

The Recommended Preferred Alternative is Build Alternative B, including a rural six-lane typical section from Breakaway Trail to Tymber Creek Road, and an urban typical section from Tymber Creek Road to Williamson Boulevard. Section 3.7 (page 3-29) of this report details the recommended preferred alternative. Geometric design features of the roadway widening, intersections, and bridges should be reconsidered during the design phase to adhere to the latest FDOT or other construction and administrative standards.

The recommended preferred alternative concept includes the following components: widening of S.R. 40 from four lanes (two lanes each direction) to six lanes (three lanes each direction), stormwater retention and treatment for the roadway widening, and the widening of the existing S.R. 40 bridges over the Tomoka River. The project also includes enhancement of pedestrian and bicycle facilities to include a shared use path along the north side. Figure 1-1 provides an overview of the study corridor and the proposed improvements associated with the recommended preferred alternative.

The widening of S.R. 40 begins just west of Breakaway Trail and ends just east of Williamson Boulevard. The preferred alternative typical section for the widening of S.R. 40 from Breakaway Trail to just west of Tymber Creek Road is a rural typical section utilizing the existing swale median and two lanes in each direction, and adding an outside lane in each direction. The design speed for the rural typical section follows the existing 65 miles per hour (mph) design speed, and will continue to have a 50 mph posted speed. The preferred typical section for the S.R. 40 widening from Tymber Creek Road to I-95 is an urban typical section with a raised center median using curb and gutter on the roadway's inside and outside shoulders. The urban typical section has a design and posted speed of 45 mph. This is a reduction from the current 50 mph posted speed. Both typical sections include a 5-foot wide sidewalk along the south side and a 12-foot wide shared use path on the north side of S.R. 40. The preferred typical sections are shown in Figure 1-2 and Figure 1-3.

Figure 1-1 Recommended Preferred Alternative Summary Figure

SR40 - Breakaway Trail to Williamson Blvd. PD&E Study (Financial Mgmt. No. 428947-1-22-01)

January 2014

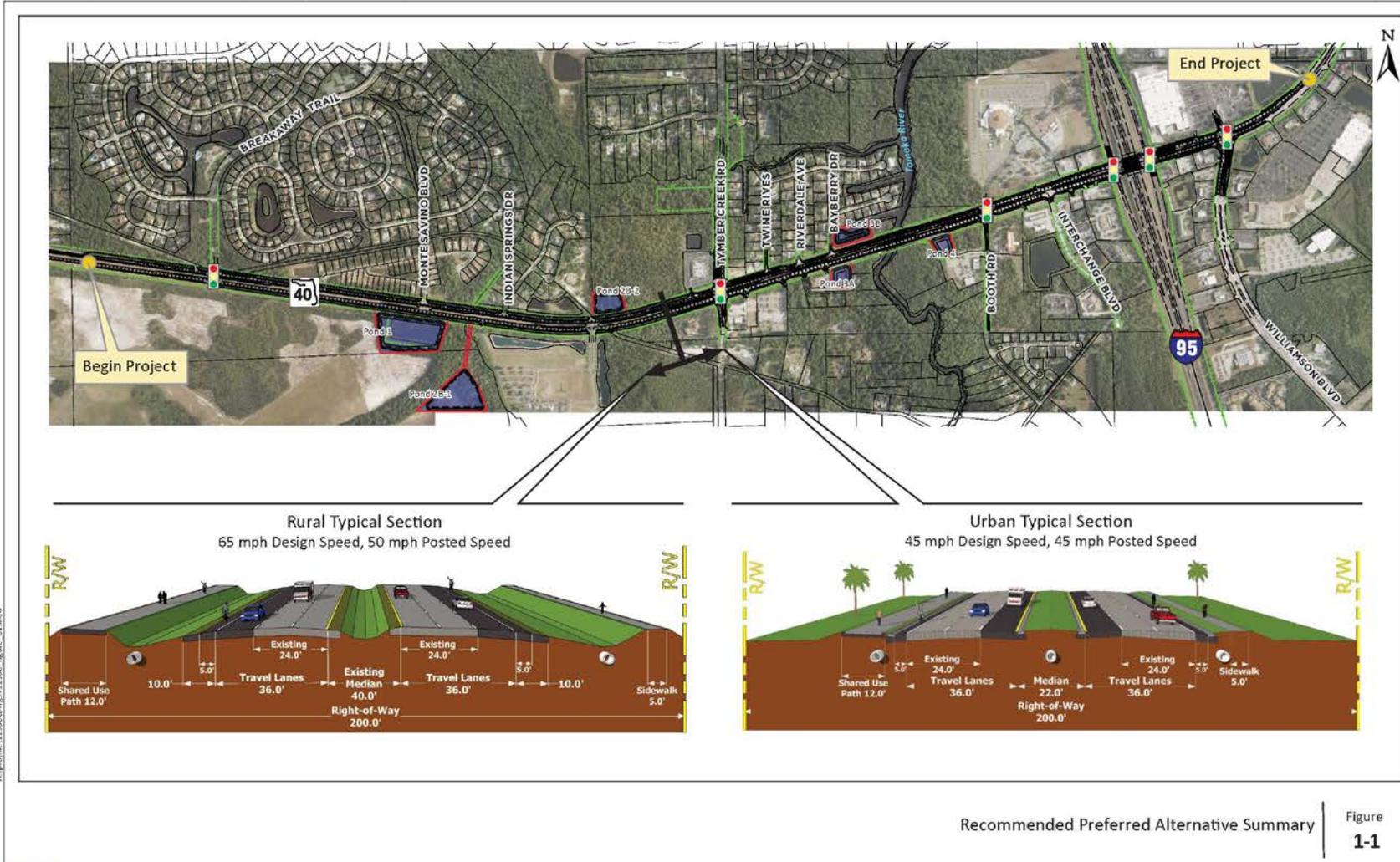


Figure 1-1

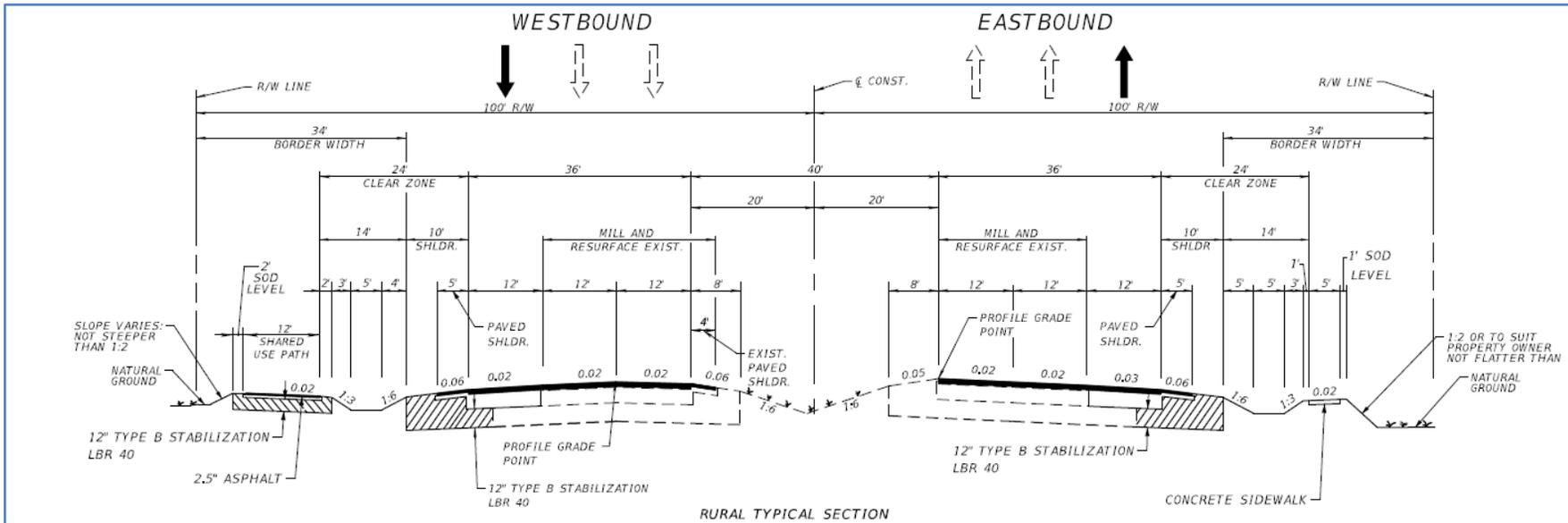


Figure 1-2 Preferred Alternative Rural Typical Section – Breakaway Trail to Tymber Creek Road

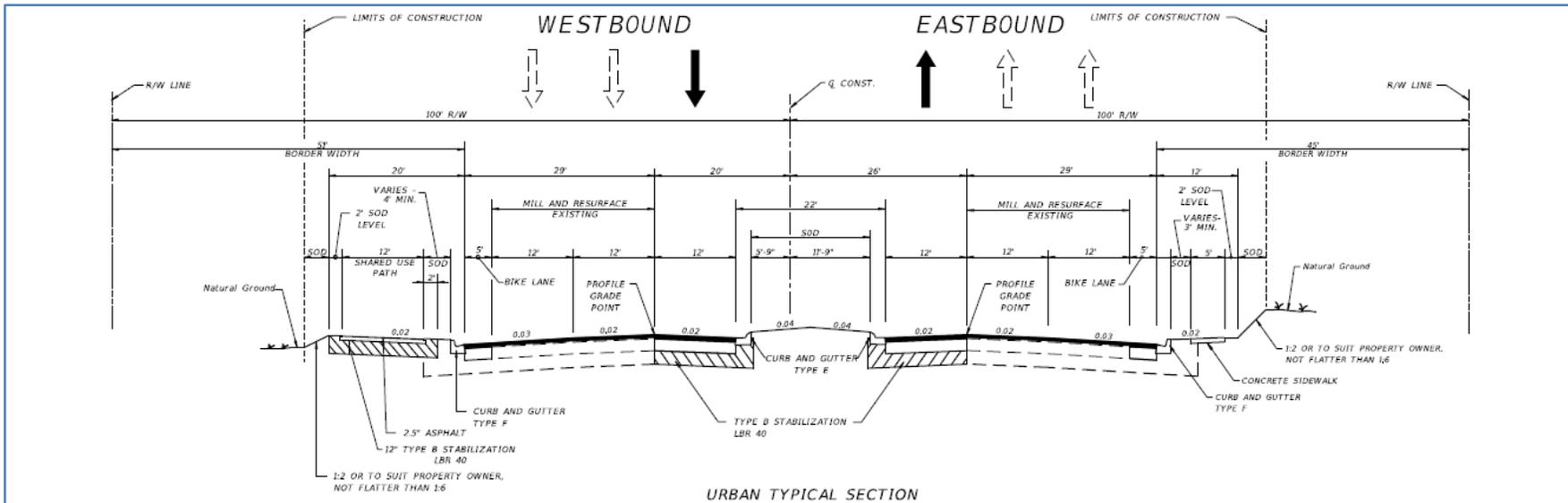


Figure 1-3 Preferred Alternative Urban Typical Section – Tymber Creek Road to I-95

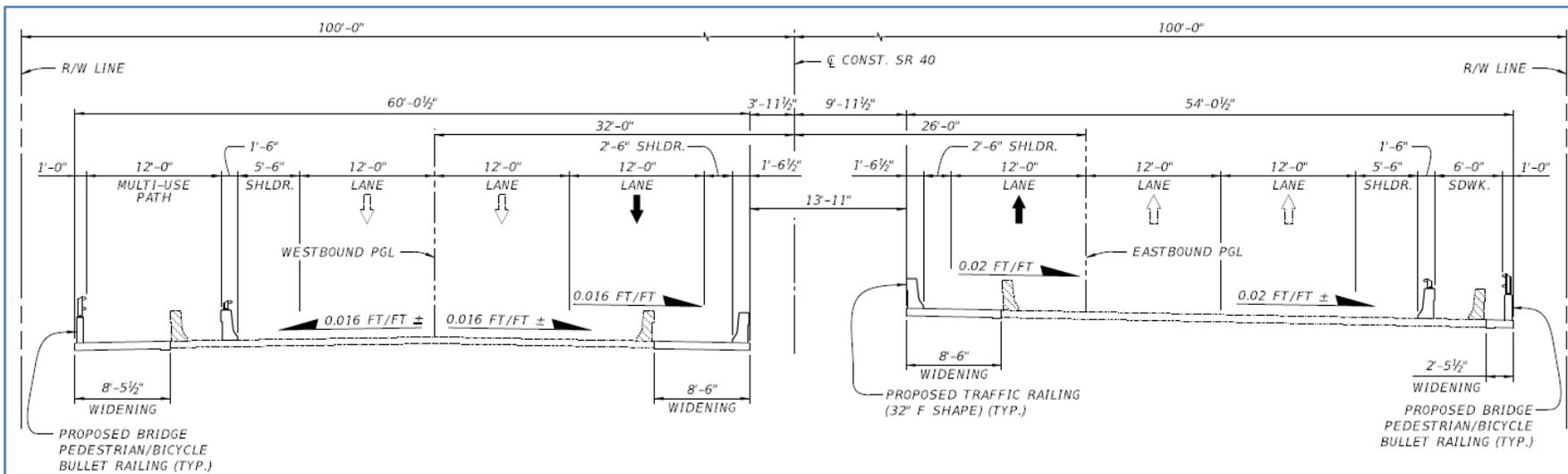


Figure 1-4 Preferred Tomoka River Bridge Typical Section



The segment of S.R. 40 between I-95 and Williamson Boulevard will include three through lanes in each direction, additions of turn lanes at the I-95 ramp intersections and Williamson Boulevard, as well as improvements to pedestrian and bicycle facilities.

The existing S.R. 40 bridges over the Tomoka River consist of two separate eastbound and westbound structures. At the public hearing, the shared use path was presented to be a separate bridge structure on the north side of the westbound bridge (see Figure 3-18). Following the public hearing, FDOT worked with local governments to develop shared use path maintenance agreements. An agreement to maintain the shared-use path adjacent to the roadway was reached with the City of Ormond Beach and is provided in Appendix G. No agreement could be reached to maintain the separated pedestrian bridge. Therefore, FDOT decided to widen the existing westbound structure attaching the shared use path to the existing bridge. The westbound structure will be widened by approximately 17 feet and the eastbound structure will be widened by approximately 11 feet with the preferred typical section. In addition to accommodating the six-lane typical, the westbound structure will be widened to the north in order to accommodate the shared use path over the Tomoka River. The maintenance of the bridge's shared use path will be a part of FDOT's routine bridge maintenance. The revised preferred bridge typical section is provided in Figure 1-4.

The preferred stormwater ponds to treat the runoff associated with the widening of S.R. 40 are shown in Table 1-1 below, as well as in Figure 3-17 (page 3-25).

Table 1-1 Preferred Stormwater Pond Alternatives

| Drainage Basin | Preferred Pond Alternative | Right-of-Way Area (acres) |
|----------------|----------------------------|---------------------------|
| 1 | Pond 1 | 5.69 |
| 2 | Pond 2B-1 and 2B-2 | 4.41 and 1.59 |
| 3 | Pond 3A and 3B | 0.96 and 1.17 |
| 4 | Pond 4 | 0.90 |
| 5 | Pond 5 | 3.56 |

Several intersection turn lane additions and improvements are recommended at the study intersections due to high turning volumes expected by the 2035 design year. A description of the intersection improvements is provided in Section 3.4.3 (page 3-23) and Table 3-4 of this report.

The summary of preliminary project costs is shown in Table 1-2.

Table 1-2 Summary of Project Costs

| Project Cost Component | Cost (2013/2014 \$ in Millions) |
|---------------------------------------|---------------------------------|
| Construction | \$17.72 |
| Design | \$2.13 |
| Construction Engineering & Inspection | \$3.01 |
| Environment Mitigation | \$0.13 |
| Right-of-Way | \$7.43 |
| Total Project Costs | \$30.42 |

1.3 Summary of Impacts

The environmental documentation for this project is a State Environmental Impact Report (SEIR) with minimal impacts to the environment as summarized in Table 1-3. This is consistent with the “Minimal to None” ratings given by the ETAT for the anticipated level of involvement for this project. The alignment and typical sections for the preferred alternative were chosen to minimize the required right-of-way and minimize impacts to existing buildings. As a result, there are no residential or business relocations.

Table 1-3 Summary of Impacts

| Environmental Impacts | Quantity |
|-----------------------|---|
| Right-of-way | 9.19 acres (400,266 sq. ft.), 12 Parcels Affected |
| Relocations | None |
| Wetlands | 1.18 acres impacted |
| Floodplain | Compensation Sites for 2.053 acre-ft Volume |
| Wildlife and Habitat | Determination of “May affect, not likely to adversely affect” for 2 federally-listed species, 14 state-listed species |
| Noise Impacts | Four noise affected sites were identified. No noise barriers are recommended. |
| Contamination Sites | 3 High Risk Sites to be Impacted |
| Cultural Resources | No Archaeological Sites or Historic Resources Found or Eligible |

1.4 Summary of Public Involvement

The S.R. 40 PD&E project followed several outreach techniques as outlined in the Public Involvement Program, geared towards reaching the affected public and the community at-large. Public outreach techniques included a project website (www.stateroad40.com); three project newsletters; small group and agency meetings; mailing invitational and informational letters to local, state, and federal agencies and property owners/tenants in the study area; display advertisements in the *Daytona Beach News Journal*; and press releases to local media outlets. A Project Kick-off Meeting was conducted on July 21, 2011 at the Faith Lutheran Church and an Alternatives Public Meeting was conducted on June 7, 2012 at the Riverbend Community Church both in Ormond Beach. The Public Hearing for the project was conducted on June 25, 2013 at Riverbend Community Church. Table 1-4 summarizes the major public interactions the project team undertook over the course of the project.

Table 1-4 Summary of Public Interactions

| Meeting/Event | Notes |
|--|---|
| Agency Meetings | 8 meetings held |
| Public Kick-Off Meeting (July 21, 2011) | 91 public participants 15 comments |
| Alternatives Public Meeting (June 7, 2012) | 35 public participants 14 comments |
| Public Hearing (June 25, 2013) | 42 public participants 15 written comments 3 public testimony |

1.5 Commitments

The recommended preferred alternative consists primarily of widening the existing roadway facility within the existing right-of-way. Project commitments include:

- Replace the existing 8-foot wide sidewalk on the north side of S.R. 40 between Breakaway Trail and Tymber Creek Road with a 12-foot wide asphalt shared use path. The path is proposed to run the length of the project west of I-95 on the north side of S.R. 40.
- A Level II assessment for contamination at the two “high risk” gas station sites on the south side of S.R. 40 between I-95 and Williamson Boulevard. This assessment should include soil sampling to determine potential presence of petroleum contamination and be conducted during the design and permitting phase of the project.
- The following General Note will be added: Eastern indigo snake habitat has been identified within the project limits. Utilize the US Fish and Wildlife Service Standard Protection Measures for the Eastern Indigo Snake, at the US Fish and Wildlife Service Link:
http://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm
- During permitting, all potential gopher tortoise habitat that could be impacted by the project will be systematically surveyed according to the current guidelines published by the Florida Fish and Wildlife Conservation Commission (FWC). If gopher tortoise burrows are found, all practicable design measures will be employed to avoid impacts to the burrows. For burrows which cannot be avoided, a permit will be obtained from FWC for relocation of gopher tortoises and commensals, and relocation will be performed at a time as close as practicable to the start of construction activities at the site of the burrows.
- As part of the traffic signal upgrade at the S.R. 40 and Williamson Boulevard intersection, accessible pedestrian signals (APS) will be installed at signalized pedestrian crosswalks.

Section 2
Location and Needs
Summary

2. LOCATION AND NEEDS SUMMARY

The project under consideration is for proposed improvements along State Road 40 (S.R. 40) in the vicinity of Interstate 95 (I-95), and located in the City of Ormond Beach and Volusia County, Florida. The limits under consideration are from Breakaway Trail to Williamson Boulevard, a distance of approximately 2 miles. The location and termini are shown in Figure 2-1. S.R. 40 is an east-west connection between the Gulf coast and Atlantic coast of Florida, providing connections to the major north-south routes of I-75 in Marion County and I-95 in Volusia County. The section of S.R. 40 west of I-95 is designated as an emerging Strategic Intermodal System (SIS) facility. Additionally, S.R. 40 is designated as a Hurricane Evacuation Route within the project limits by the Florida State Emergency Response Team. It also serves as an evacuation route for other emergencies, such as fires. The study area and regional context in the vicinity is illustrated in Figure 2-2.

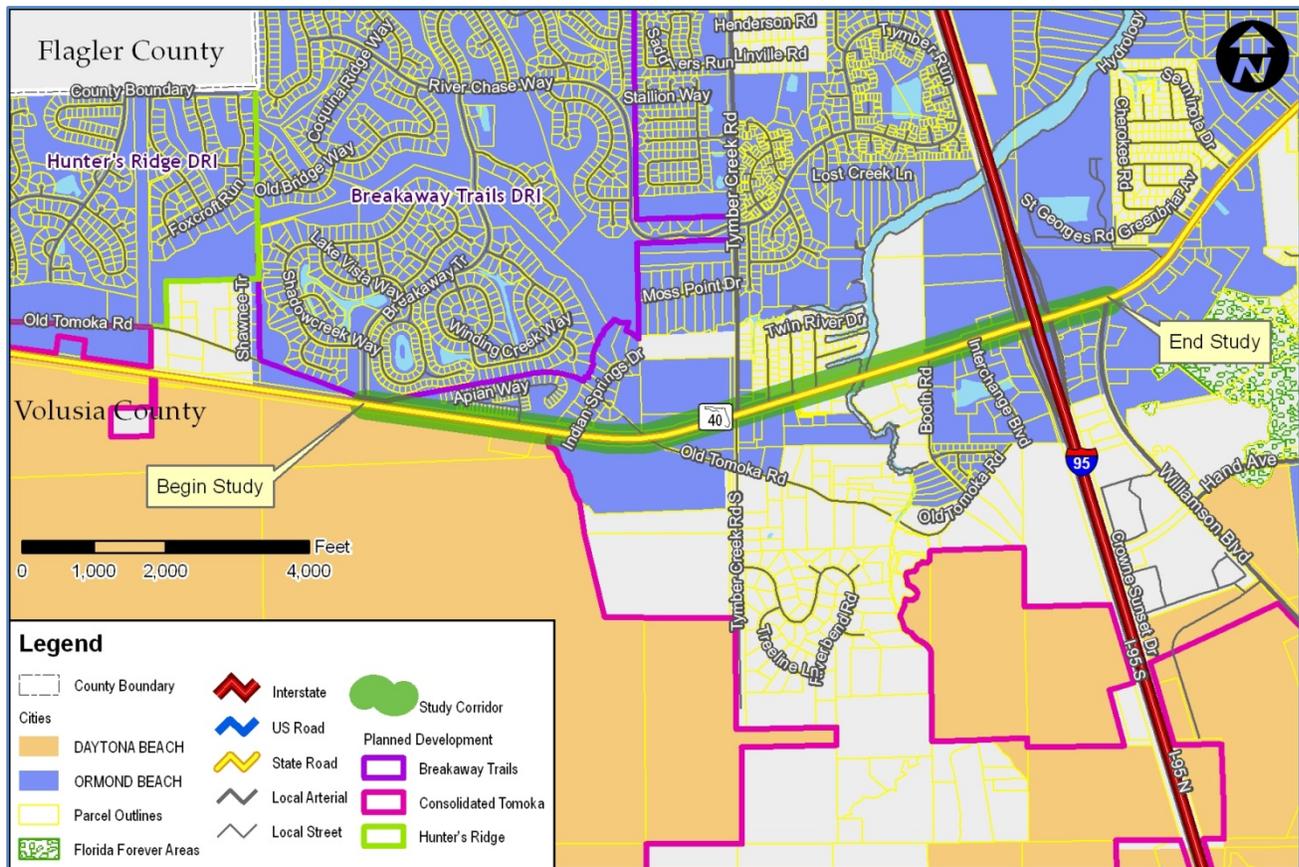


Figure 2-1 Project Location and Termini

Source: Kittelson & Associates

The existing S.R. 40 from Breakaway Trail to Williamson Boulevard is classified as an Urban Other Principal Arterial. Additionally, the segment west of I-95 is identified as a Scenic Byway. The existing roadway consists of four travel lanes (two lanes in each direction) with swale median and shoulders from Tymber Creek Road to Booth Road, and raised median and outside curb and gutter from Booth Road to the eastern extents of the study area. The existing roadway typical section is shown in Figure 3-7 and Figure 3-8 in Section 3.2 (page 3-9). The proposed project is based on increasing traffic capacity and would involve widening the

facility to six lanes (three lanes in each direction). A feasibility study was performed prior to the Efficient Transportation Decision Making (ETDM) and recommended widening S.R. 40 from four to six lanes from Breakaway Trail to Williamson Boulevard.

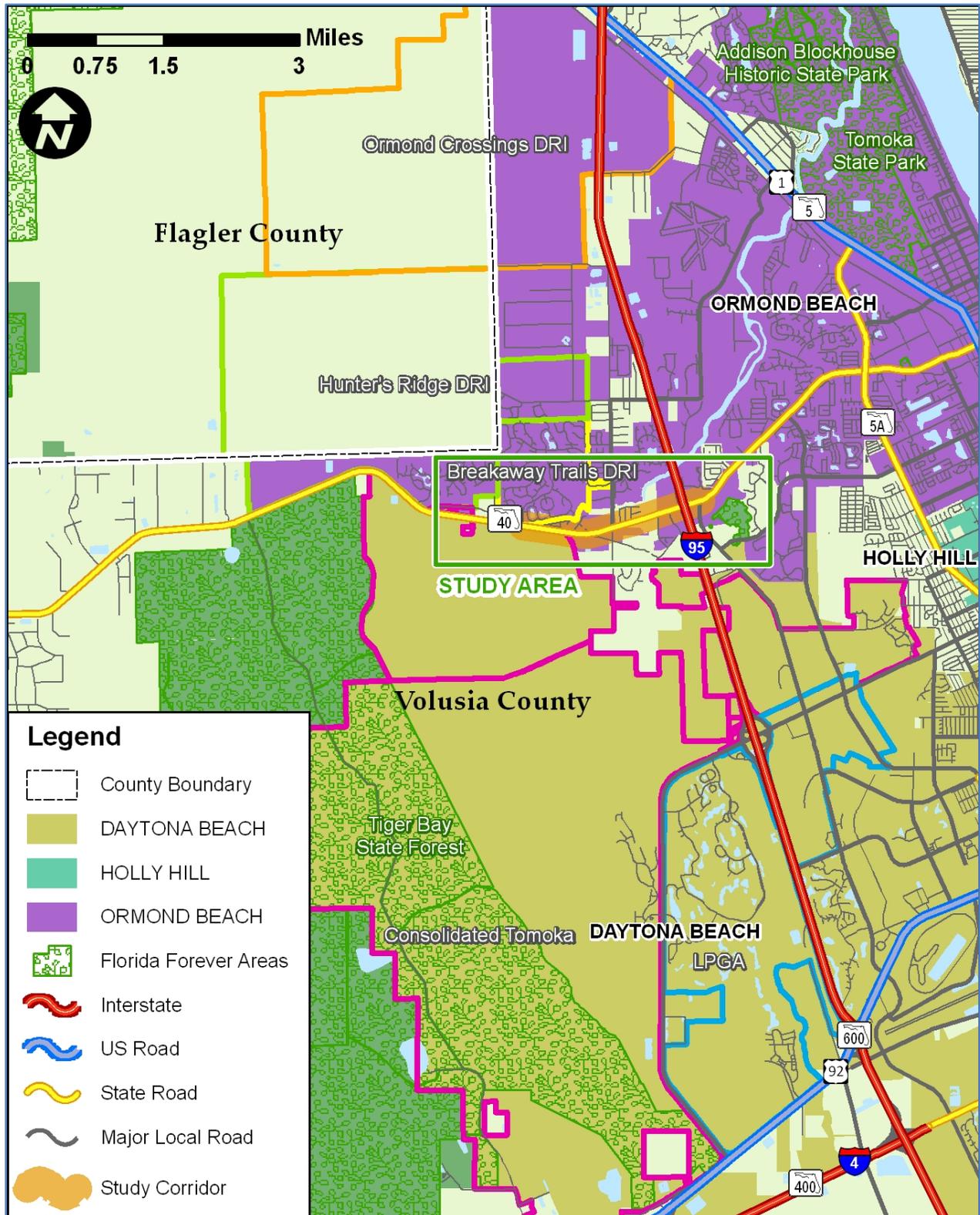


Figure 2-2 Study Area Vicinity

Source: Kittelson & Associates

2.1 Traffic Capacity and Mobility

A traffic study was conducted for this PD&E study and found that S.R. 40 including several signalized intersections between Breakaway Trail and Williamson Boulevard will operate at an unsatisfactory Level of Service (LOS) in the design year 2035. As an emerging SIS facility west of I-95, S.R. 40 is to maintain LOS C. The analysis in the traffic study showed S.R. 40 operating at LOS D from Breakaway Trail to Tymber Creek Road in 2035. The section of S.R. 40 from Tymber Creek Road to Williamson Boulevard is projected to operate at LOS E by 2025 and LOS F by 2035. Additionally, the intersections along the S.R. 40 study corridor are projected to operate as shown in Table 2-1.

Table 2-1 No-Build Intersection Operations

| Intersection | Adopted LOS | AM Design Hour (Delay/LOS) | | | PM Design Hour (Delay/LOS) | | |
|-----------------|-------------|----------------------------|--------|---------|----------------------------|--------|--------|
| | | 2015 | 2025 | 2035 | 2015 | 2025 | 2035 |
| Breakaway Trail | C | 8.3/A | 8.6/A | 15.2/B | 4.9/A | 5.6/A | 10.1/B |
| Tymber Creek Rd | C | 35.8/D | 57.4/E | 103.2/F | 29.8/C | 53.0/D | 80.4/F |
| Booth Rd | C | 23.3/C | 28.2/C | 64.0/E | 19.4/B | 19.9/B | 40.7/D |
| I-95 SB Ramps | C | 15.4/B | 19.0/B | 21.7/C | 18.8/B | 25.7/C | 63.8/E |
| I-95 NB Ramps | C | 15.6/B | 20.4/C | 21.2/C | 20.8/C | 23.6/C | 55.4/E |
| Williamson Blvd | D | 36.2/D | 46.6/D | 70.8/E | 39.6/D | 56.1/E | 92.2/F |

As shown in Table 2-1, almost all intersections are expected to operate at an unsatisfactory LOS in 2035, and many will exceed the adopted LOS standard in 2025 or earlier. The purpose of this project is to provide the roadway and intersection capacity improvements needed to address future traffic demand through 2035, provide continuity on this regionally significant roadway, and maintain important freight and emergency mobility.

2.2 Federal, State and Local Authority

It was identified in the 2040 SIS Multi-Modal Unfunded Needs Plan that there is a need for S.R. 40 from Tymber Creek Road to I-95 to add two lanes in the “long-term.” The proposed S.R. 40 project has been identified in the Volusia County Transportation Planning Organization (TPO) YR 2035 Long Range Transportation Plan (LRTP) as needed in the 2030 to 2035 timeframe and the PD&E Study is contained in the currently adopted Transportation Improvement Plan (TIP). The City of Ormond Beach has approved the amendment of their Comprehensive Plan to include the widening of S.R. 40 to six lanes from their western city boundary to Williamson Boulevard. The short section of S.R. 40 in Volusia County is currently shown as a four lane facility in the Volusia County Comprehensive Plan but County officials have stated their plan will be updated. FDOT is currently coordinating with the Volusia County TPO about amending their TIP to include the design phase for the project. Developer funding for design and construction was committed in the Hunters Ridge Development of Regional Impact (DRI) Transportation Proportionate Share Agreement, dated December 20, 2010, for the section of S.R. 40 from Tymber Creek Road to Williamson Boulevard.

2.3 Existing and Future Land Use

Existing land use is predominately residential communities (single family and multi-family), with big box retail/commercial, office, and agricultural/undeveloped areas intermittently located throughout portions of the corridor. In the future, some areas of undeveloped land are expected to be acquired for conservation and storm water purposes, as well as future development. Community and educational facilities, such as churches and academies, are also located within the study area along S.R. 40. The existing land use map based on current Department of Revenue (DOR) property use data is shown in Figure 2-3.

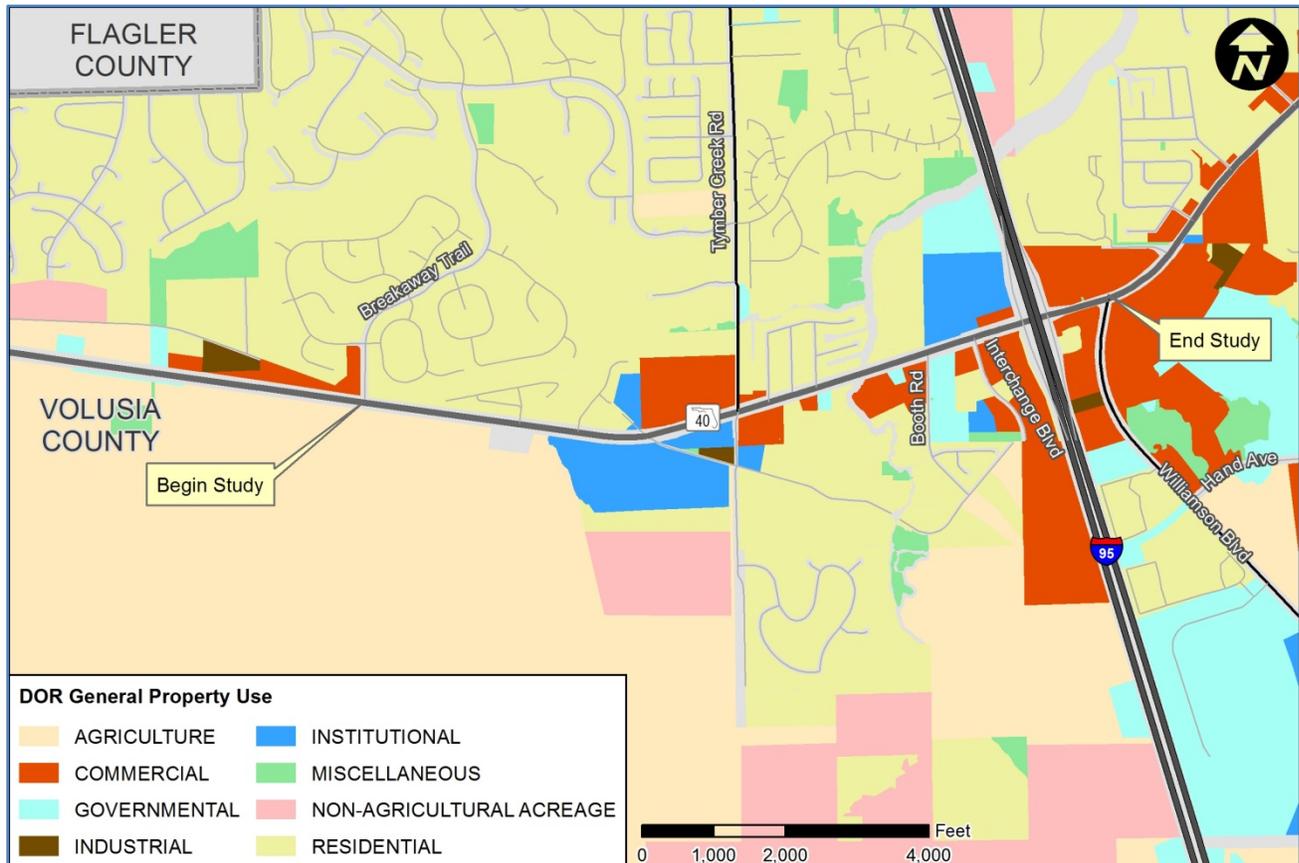


Figure 2-3 Existing Land Use Map

Source: Dept. of Revenue General Land Use Data

Residential developments are currently planned in the vicinity of S.R. 40 within the project limits resulting from two DRIs: Hunters Ridge, and Ormond Crossings and sub-DRI's to include the Consolidated Tomoka Land Co. (CTLC) and LPGA developments. There is the potential the project costs associated with the PD&E, design and construction of S.R. 40 from Tymber Creek Road to Williamson Boulevard could be paid by the Hunter's Ridge DRI which has mitigation requirements on S.R. 40. The future land use map for the study area is shown in Figure 2-4.

This project will address the changing land use patterns and additional development intensity by maintaining safe and efficient access, providing an appropriate roadway context and speed, and serving the increasing multimodal needs (pedestrian and bicycle) of the area.

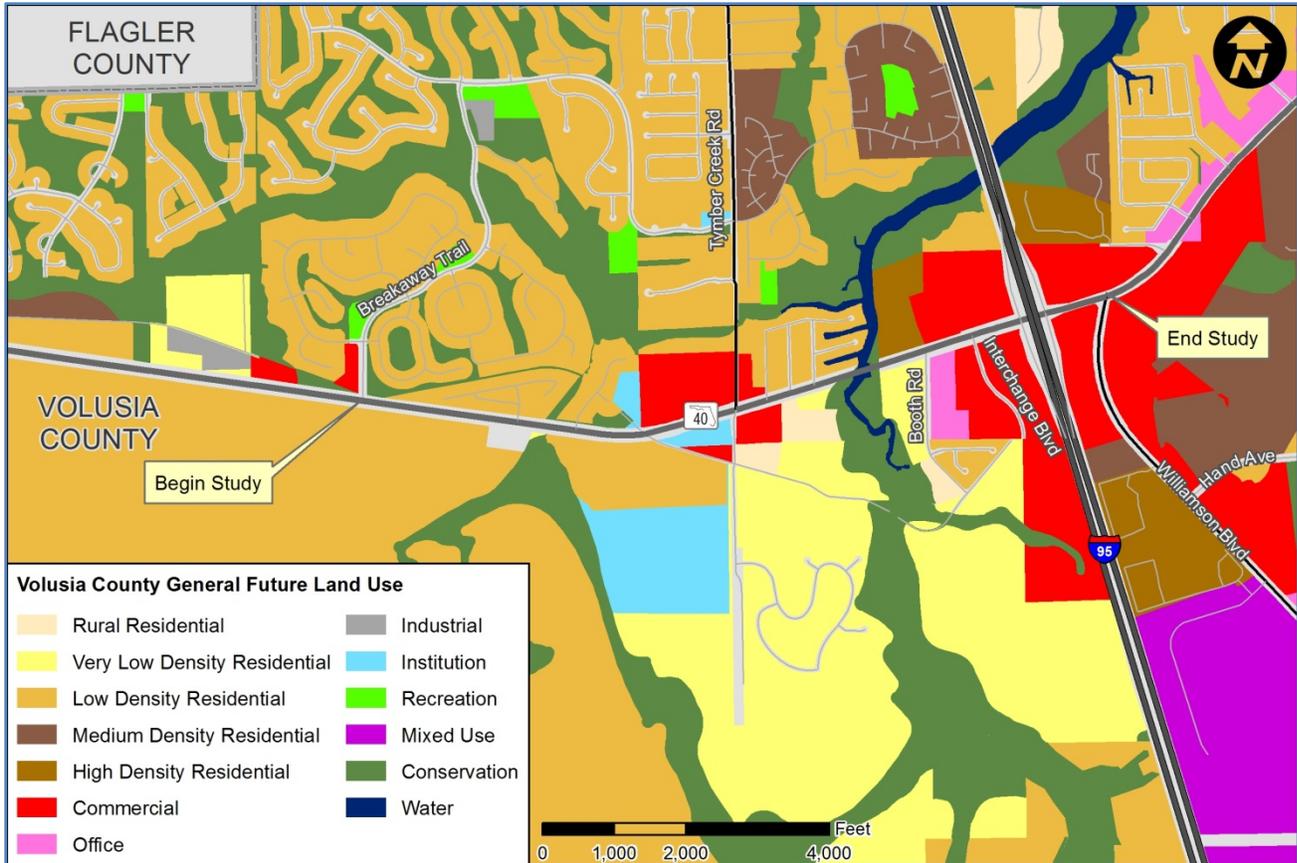


Figure 2-4 Future Land Use Map

Source: Volusia County General Future Land Use Data

2.4 Planned and Programmed Improvements

The following improvements to the roadway network in the immediate and surrounding vicinity of the S.R. 40 study area are planned:

- Tymber Creek Road from S.R. 40 to Airport Road – Volusia County is currently widening from two to four lanes.
 - Improvements are scheduled in two phases. Construction began from S.R. 40 to Peruvian Way in 2013.
- FDOT will prepare final design plans to widen S.R. 40 from two to four lanes for the following sections:
 - S.R. 40 from US 17 (S.R. 15) to S.R. 11 (distance 6.66 miles) – Planned for design in 2014.
 - S.R. 40 from S.R. 11 to Cone Road (distance 7.64 miles) – Currently in design.
- FDOT has obtained approval of a PD&E study to widen S.R. 40 to four lanes from approximately one mile west of S.R. 326 at the end of the existing four lane roadway near Silver Springs in Marion County to US 17 in Volusia County.

- The project is approximately 40 miles in length and crosses portions of Marion, Lake, and Volusia Counties.

The widening of this portion of S.R. 40 will accommodate these future planned improvements by providing an adequate roadway network connection and capacity.

2.5 Multimodal Considerations

The project area is designated as an emerging SIS facility. As part of the SIS, S.R. 40 provides valuable intraregional and interregional freight connectivity by linking the Gainesville/Ocala regions to Florida's East Coast. Trucks historically have averaged a proportion of approximately 10.5% of overall daily traffic on S.R. 40 over the past five years. This demand is expected to continue or increase as a Wal-Mart Distribution Center has been approved to be built off US 17 north of S.R. 40 near Pierson, Florida, approximately 20 miles west of the project site. This facility will generate a reported 800 to 900 trucks per day.

Generally, existing bicycle facilities consist of paved shoulders at the edge of the travel lanes and exist intermittently throughout the study area. An existing 8-foot wide concrete sidewalk is provided along the north side of S.R. 40 between Breakaway Trail and Tymber Creek Road, and on both sides of S.R. 40 from I-95 to the eastern extents of the study area. There are no existing pedestrian or bicycle facilities on the bridges over the Tomoka River. The need for improved quality of safe pedestrian and bicycle facilities will continue to increase due to the heavy amount of residential and retail within the area. The proposed project will provide a shared use path along the north side of S.R. 40 through the study area, sidewalk along the south side, and improved bike lanes on the shoulders.

2.6 Safety Considerations

An analysis of the most recent five years of available crash data (2007-2011) was performed. The analysis split the data into three segments along the corridor; Breakaway Trail to Tymber Creek Road, Tymber Creek Road to Interchange Boulevard, and Interchange Boulevard to Williamson Boulevard. Crashes at individual intersections were also analyzed.

Breakaway Trail to Tymber Creek Road

A total of 35 crashes were recorded in the segment of S.R. 40 from Breakaway Trail to Tymber Creek Road (including the Breakaway Trail and Tymber Creek Road intersections). Of those crashes, 28 were at or influenced by intersections. A total of 22 crashes were recorded at the Tymber Creek Road intersection and 6 crashes were recorded at the Breakaway Trail intersection. Twelve of the 28 intersection crashes (approximately 43%) were found to be rear-end type crashes. No other significant crash trends were identified, although 25 of the total 35 crashes (71% of total crashes) were found to involve injuries. This may suggest speed is an issue on this segment and approaching intersections. Approximately 20 percent of total crashes were found to occur in low light or dark conditions.

Tymber Creek Road to Interchange Boulevard

A total of 14 crashes were reported on the segment of S.R. 40 from Tymber Creek Road to Interchange Boulevard (excluding Tymber Creek Road and Interchange Boulevard intersections). Ten of the total crashes were at, or influenced by an intersection, with 7 occurring at the Booth Road intersection. Eight of the 10 intersection crashes were recorded as rear-end type, and 7 of the 8 rear-end crashes resulted in injuries. Furthermore, 11 of the 14 total crashes (79% of total crashes) were found to involve injuries. This may also suggest speed is an issue on this segment, especially at intersections where drivers may not be aware of a potential stop. Approximately 29% of total crashes occurred in low light or dark conditions.

Interchange Boulevard to Williamson Boulevard

The segment of S.R. 40 from Interchange Boulevard to Williamson Boulevard (including Interchange Boulevard and Williamson Boulevard intersections) had 126 total crashes reported over the 5 years of data. The number of crashes per year rose steadily from 24 reported crashes in 2007 to 30 reported crashes in 2010, but dropped to 19 reported crashes in 2011. Eighty of the total crashes (63%) resulted in injury, and two fatalities were recorded in two separate incidents. One of the fatalities occurred in 2008 on S.R. 40 between Interchange Boulevard and the I-95 SB ramps, and appears to involve a single vehicle traveling west which disregarded a traffic signal and resulted in an explosion. The other fatality crash occurred in 2009 on S.R. 40 west of Williamson Boulevard, and involved an angle crash between vehicles traveling in opposite directions. Speed appears to be a factor in this fatality crash.

Of the 126 total crashes reported between Interchange Boulevard and Williamson Boulevard, 109 of the crashes (approximately 87%) were reported at, or appear to be influenced by an intersection. Of the intersection crashes, 54 crashes (50%) were rear-end. The following is a breakdown of the number of crashes reported at each intersection along the segment:

- Interchange Boulevard: 11 total crashes (2.2 crashes per year)
- I-95 SB Ramp Intersection: 25 reported crashes (5.0 crashes per year)
- I-95 NB Ramp Intersection: 29 reported crashes (5.8 crashes per year)
- Williamson Boulevard: 44 recorded crashes (8.8 crashes per year)

Corridor Crash Data overview

The intersection crashes outlined above show that approximately 56% of all crashes reported along the entire study corridor happened at the three intersections of I-95 southbound ramp intersection, I-95 northbound ramp intersection and Williamson Boulevard. Approximately 66% of crashes (116 of 175 total) resulted in injuries. There were two fatalities recorded in two separate crashes, both in the segment between Interchange Boulevard and Williamson Boulevard. Nearly 30% of the total crashes occurred in low light or dark conditions—although there is currently street lighting present along the north side of the segment of S.R. 40 between Interchange Boulevard and Williamson Boulevard, and high-mast freeway lighting at the I-95/S.R. 40 interchange ramps.

Although no specific trends were found in the crash analysis, the project will aim to improve the safety characteristics of the study area in order to reduce the number of crashes as well as the severity of crashes. Roadway lighting will be further explored to reduce the number of nighttime crashes.

Section 3
Alternatives

3. ALTERNATIVES

This section identifies the alternatives that were evaluated and presents the recommended Build alternative for the S.R. 40 PD&E project. Because the project is based on widening the existing facility from four lanes to six lanes within the existing right-of-way, the primary focus of the study has been on typical section alternatives and the associated impacts. The study has subsequently progressed through stormwater management alternatives and intersection improvement options to accommodate the widening and potential changes in roadway cross-section. These alternatives were presented at the Alternatives Public Meeting conducted on June 7, 2012 and the Value Engineering review on July 16-20, 2012. This section provides information regarding the evaluation process and details the recommended preferred alternative.

3.1 Traffic Volume Development

Future traffic volumes along the study corridor segments and intersections were developed as part of the *Design Traffic Technical Memorandum (DTTM)* prepared by GMB Engineers & Planners in November 2011 for the S.R. 40 PD&E project. An addendum to the DTTM was issued in March 2012. This memorandum is available for review at the FDOT District 5 office in DeLand. The purpose of the DTTM is to determine the impacts and assess the need for future capacity improvements on S.R. 40, Williamson Boulevard, LPGA Boulevard, and the Tymber Creek Road Extension. The design traffic process was divided into two phases as follows:

1. Development of existing traffic volumes, design characteristics, and evaluation of existing operating conditions.
2. Development of future traffic forecasts for No-Build and two Build Alternatives, including any new intersections. The study also includes an evaluation of the characteristics and operating conditions of the corridor and local facilities as appropriate during the service life of the proposed roadway project.

Seven different Build Alternatives were originally evaluated in the DTTM to help decide the best alternative to relieve the S.R. 40 corridor in the future years. The original limits of the study included S.R. 40 from Breakaway Trail to Williamson Boulevard, Williamson Boulevard from S.R. 40 to LPGA Boulevard, LPGA Boulevard from Williamson Boulevard to the proposed Tymber Creek Extension, Tymber Creek Road Extension from S.R. 40 to LPGA Boulevard, and Hand Avenue Extension from Williamson Boulevard to the proposed Tymber Creek Road Extension. Based on preliminary screening and input from FDOT, Volusia County, Cities of Daytona Beach, and Ormond Beach staff, the following Build Alternatives were selected for more detailed analysis in the DTTM.

- **Build Alternative 1:** S.R. 40 widening from Breakaway Trail to Williamson Boulevard (from four to six lanes).
- **Build Alternative 5:** S.R. 40 widening from Breakaway Trail to Williamson Boulevard (from four to six lanes) and Tymber Creek Road Extension (two lanes) from S.R. 40 to LPGA Boulevard.

- **Build Alternative 7:** S.R. 40 widening from Breakaway Trail to Williamson Boulevard (from four to six lanes), Hand Avenue Extension (two lanes) from Williamson Boulevard to Tymber Creek Road Extension (two lanes) and Tymber Creek Road Extension (two lanes) from S.R. 40 to LPGA Boulevard.

Considering potential study limit refinements and input from Volusia County regarding the practicality of the Hand Avenue Extension construction, the following modifications were included in the updated DTTM.

- The western study limit on S.R. 40 (DTTM only) was extended to Cone Road from the original Breakaway Trail.
- The widening of S.R. 40 in the west was extended to the proposed Hunters Ridge Boulevard/Stage Coach Road from the original Breakaway Trail.
- Build Alternative 7 which included the extension of Hand Avenue west of Williamson Boulevard to the proposed Tymber Creek Road Extension was eliminated from further study.

As the extension of Tymber Creek Road from S.R. 40 to LPGA Boulevard is included in the Volusia TPO 2035 LRTP as a planned improvement between 2020 and 2025, the S.R. 40 PD&E project utilized the Build Alternative 5 of the DTTM with the Tymber Creek Road Extension.

3.1.1 DESIGN TRAFFIC MODELING PROCESS

The DTTM entails the development of base year 2011 Average Annual Daily Traffic (AADT), Peak Hour Volumes, and intersection and roadway LOS. The report involves the development of the design traffic characteristics of the study area roadways including Standard K Factor, Design Hour Directional Demand (D_{30}), and percentage of trucks for both the design hour and daily demand (T_{peak} , T_{daily}) for use in the operational analysis of future conditions.

In order to determine the long term needs of the study area, the DTTM includes the development of AADT, Directional Design Hour Volumes (DDHV), intersection and roadway LOS for the opening year 2015, mid-design year 2025, and design year 2035 for the No-Build and Build Alternatives.

3.1.2 DESIGN YEAR TRAFFIC VOLUMES

As described above, future traffic volumes for opening year 2015, mid-design year 2025, and design year 2035 were developed for the No-Build and Build Alternatives. This study focuses primarily on the No-Build and Build Alternative 5 traffic volumes and operational characteristics for the design year 2035 to determine what the ultimate roadway improvements need to be. Figure 3-1 and Figure 3-2 illustrate the No-Build and Build Alternative 5 AADT volumes, respectively, for the various design years, and associated LOS of the links. As shown in Figure 3-1, S.R. 40 in the No-Build conditions is expected to operate at LOS D by 2035 between Breakaway Trail and Tymber Creek Road. S.R. 40 between Tymber Creek Road and Williamson Boulevard is expected to operate at LOS E in 2025 and LOS F in 2035.



Figure 3-1 No-Build Alternative AADT Volumes and Level of Service



Figure 3-2 Build Alternative 5 AADT Volumes and Level of Service

Figure 3-3 and Figure 3-4 illustrate the proposed study area intersection volumes for Build Alternative 5 in 2035. Figure 3-5 and Figure 3-6 show the necessary lane configurations at the study area intersections to accommodate the expected turning volumes. A summary of the intersection operations based on the Build Alternative 5 intersection geometry for the design years is provided in Table 3-1.

Table 3-1 Build Alternative 5 Intersection LOS Summary

| Intersection | Adopted LOS | AM Design Hour (Delay/LOS) | | | PM Design Hour (Delay/LOS) | | |
|------------------|-------------|----------------------------|--------|---------|----------------------------|--------|--------|
| | | 2015 | 2025 | 2035 | 2015 | 2025 | 2035 |
| Breakaway Trail | C | 9.0/A | 10.3/B | 14.5/B | 6.2/A | 6.4/A | 8.7/A |
| Tymber Creek Rd | C | 23.0/C | 32.0/C | 49.1/D | 25.9/C | 28.0/C | 36.6/D |
| Booth Rd | C | 17.1/B | 21.4/C | 34.6/C | 10.1/B | 13.7/B | 15.6/B |
| Interchange Blvd | C | 27.9/D | 43.8/E | 115.6/F | 23.2/C | 24.4/C | 30.9/D |
| I-95 SB Ramps | C | 18.5/B | 19.8/B | 22.5/C | 15.0/B | 16.0/B | 26.1/C |
| I-95 NB Ramps | C | 17.4/B | 20.6/C | 29.6/C | 17.1/B | 18.6/B | 25.1/C |
| Williamson Blvd | D | 30.6/C | 41.1/D | 54.4/D | 34.9/C | 41.6/D | 54.4/D |

With the lane configurations shown, most study intersections are projected to operate at or better than the adopted LOS standard specified for that intersection. The exceptions are the Tymber Creek Road intersection and Interchange Boulevard intersection.

The Tymber Creek Road intersection is expected to operate at LOS D in 2035. Tymber Creek Road is a signalized intersection with an adopted LOS standard of LOS C. No further intersection improvements beyond what are shown in Figure 3-5 were recommended to bring the intersection to LOS C in 2035 due to the number of through lanes and turning lanes already proposed. The eastbound through movement and the southbound left-turn are expected to have high volumes in the 2035 AM peak hour. Both movements are proposed to have three lanes to handle the volumes, and these two conflicting movements compete for signal green time. In the 2035 PM peak hour the westbound through and right turns will have high volumes, which takes signal green time from the eastbound and southbound left-turns which have relatively high volumes. The eastbound left-turn will have two turn lanes, and the southbound left-turn will have three turn lanes, so further turn lane improvements were not found to be feasible.

The northbound approach of the Interchange Boulevard intersection is expected to start to exceed the adopted LOS standard "C" by the opening year 2015 AM peak hour. The S.R. 40 major street movement at the intersection is expected to operate within the LOS standard for all analysis scenarios except the 2035 AM peak hour. The intersection is currently unsignalized with stop-control on the northbound approach and does not meet signal warrants. The intersection should be monitored for traffic signal warrants and safety issues, to determine the future needs for a traffic signal.



Source: DTTM Figure 19-2

Figure 3-3 2035 Build Alternative 5 Intersection Volumes – Breakaway Trail to Tymber Creek Road

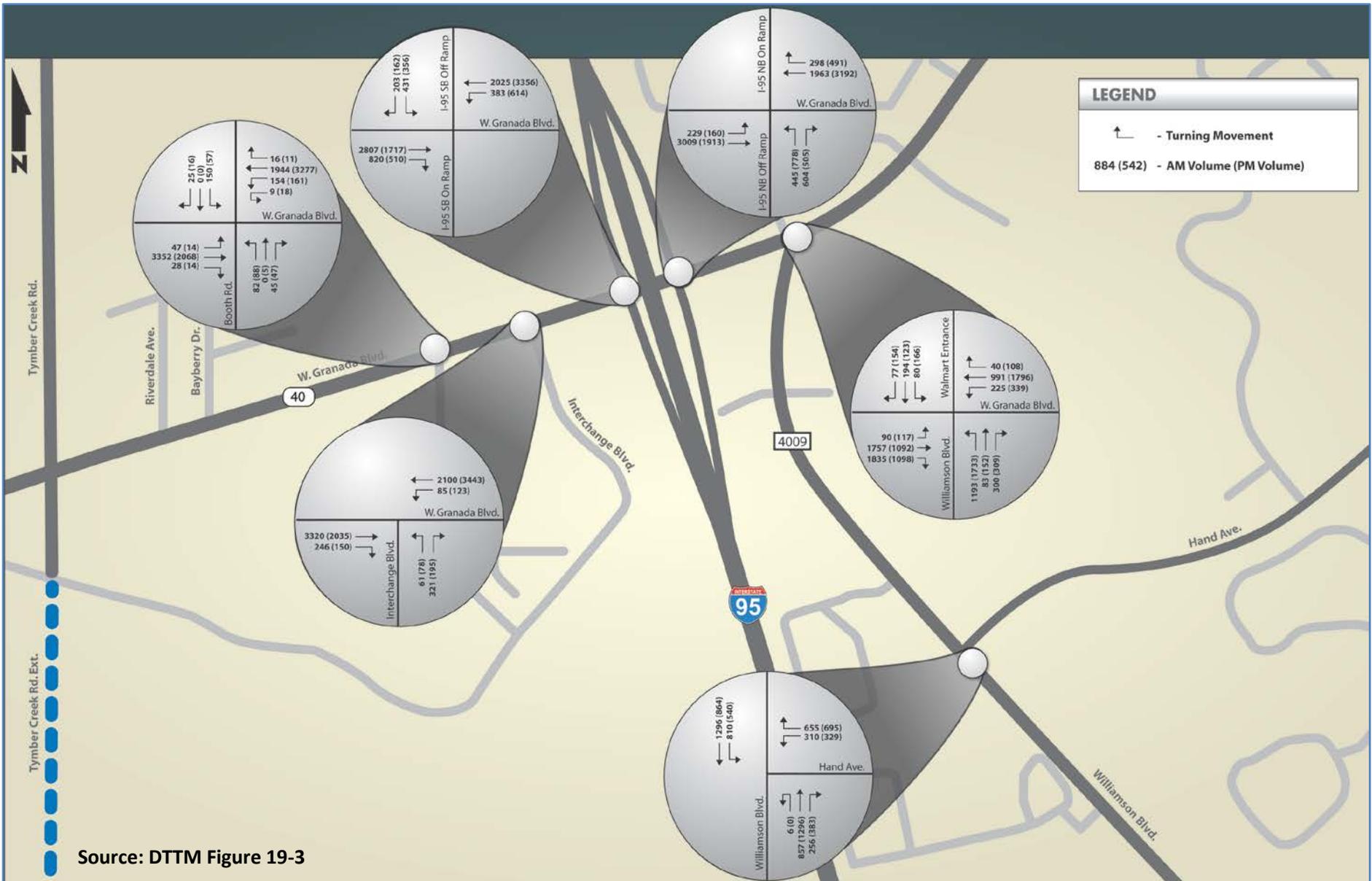


Figure 3-4 2035 Build Alternative 5 Intersection Volumes – Tymber Creek Road to Williamson Boulevard

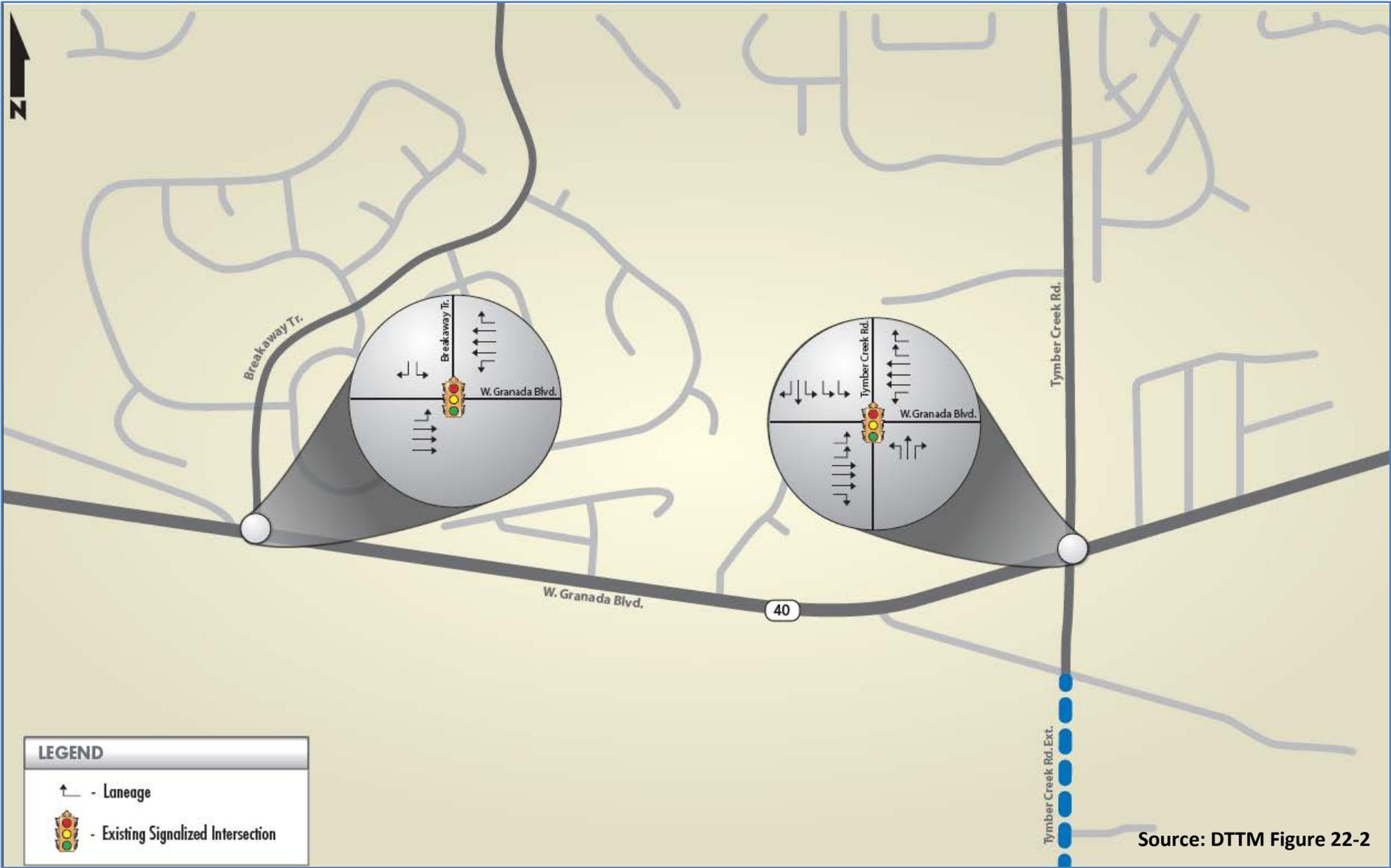


Figure 3-5 Build Alternative 5 Intersection Geometry – West Segment

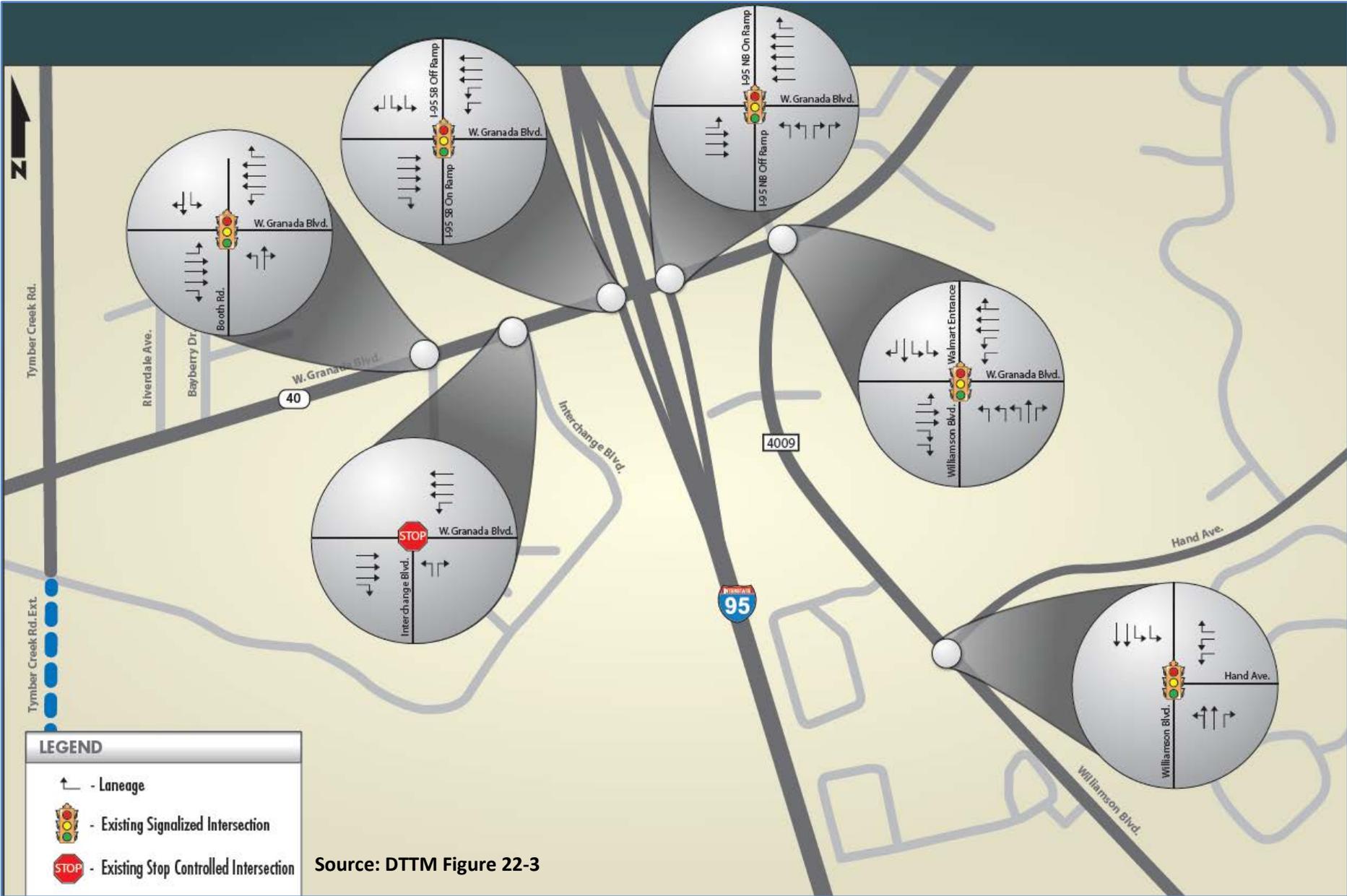


Figure 3-6 Build Alternative 5 Intersection Geometry – East Segment

3.2 Roadway Typical Sections

The existing roadway section for S.R. 40 consists of four 12-foot wide travel lanes (two lanes in each direction). The segment between Breakaway Trail and Tymber Creek Road has an existing 40-foot wide depressed median, paved outside shoulders, and an existing 8-foot wide sidewalk along the north side. The existing eastbound lanes are sloped out from the inside shoulder, while the westbound lanes are crowned in the center of the two existing lanes. Figure 3-7 illustrates the existing roadway typical section from Breakaway Trail to Tymber Creek Road.

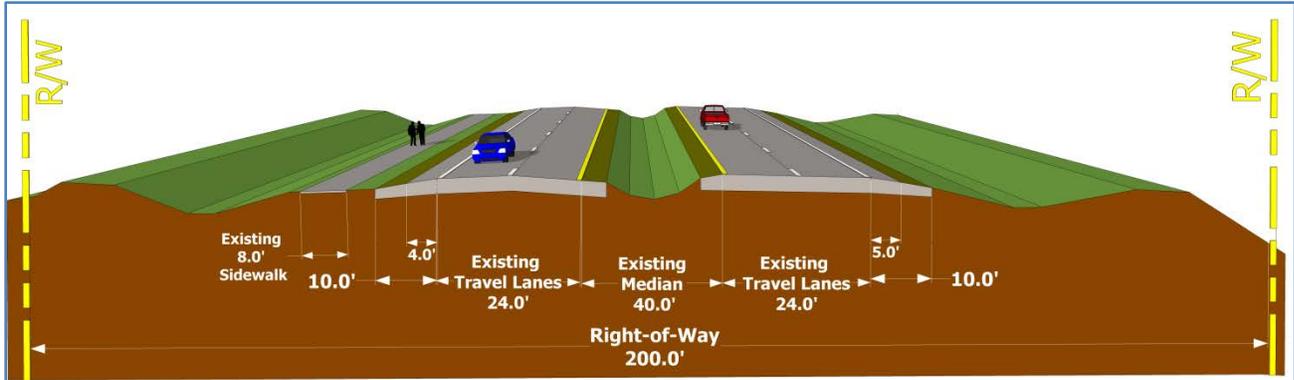


Figure 3-7 Existing Roadway Typical Section – Breakaway Trail to Tymber Creek Road

The existing segment of S.R. 40 between Tymber Creek Road and Booth Road has a depressed median varying in width between 40 and 46 feet. Paved shoulders are provided on both the median and the outside of the roadway. Both the existing eastbound and westbound lanes are sloped out from the inside shoulders on this segment. No existing pedestrian facilities are provided between Tymber Creek Road and Booth Road. Figure 3-8 illustrates the existing roadway typical section from Tymber Creek Road to Booth Road.

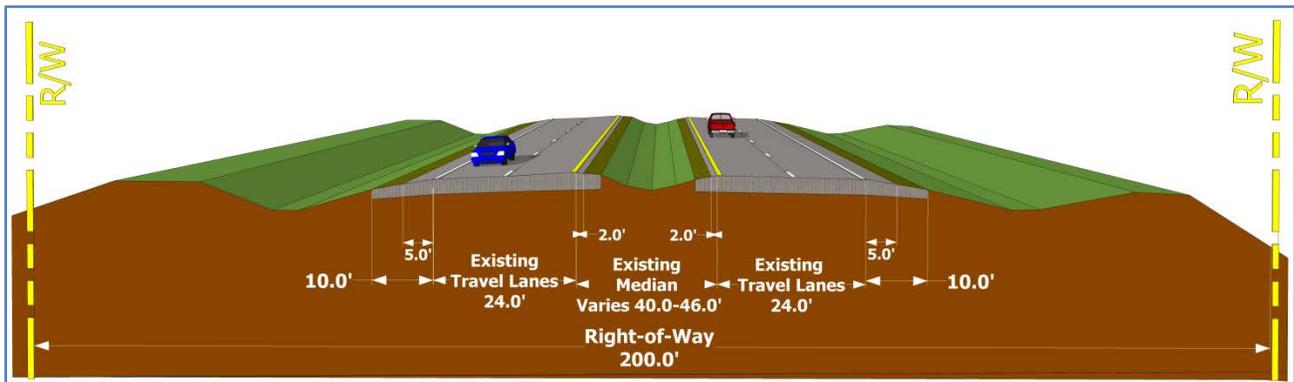


Figure 3-8 Existing Roadway Typical Section – Tymber Creek Road to Booth Road

From Booth Road to Williamson Boulevard, an existing raised median of varying width is provided. Outside curb and gutter with adjacent sidewalks are provided from I-95 to Williamson Boulevard.

The posted speed limit for a majority of the corridor is 50 mph from Breakaway Trail to just west of I-95. Through the I-95 interchange area to Williamson Boulevard the posted speed limit is 45 mph. An 8-foot wide

concrete sidewalk runs on the north side of S.R. 40 between Breakaway Trail and Tymber Creek Road, and sidewalk is provided on both sides of S.R. 40 from I-95 through the eastern extents of the study area.

Because the right-of-way is typically 200-feet along the study corridor, the focus of the project was to widen the roadway within the existing right-of-way. This effectively eliminates the need for evaluating roadway alignment alternatives, and led to the conclusion that the widening would generally be symmetrical about the roadway centerline. The typical sections were developed in coordination with the Florida Department of Transportation (FDOT) to fit within the physical and environmental constraints of the project context, as well as to meet the applicable design standards outlined in the FDOT Plans Preparation Manual (PPM).

The study area was broken into three segments for the PD&E Study because of the differing character and context of the roadway as it changes from rural to urban; from Breakaway Trail to Tymber Creek Road, from Tymber Creek Road to west of I-95 vicinity of Interchange Boulevard and from the vicinity of Interchange Boulevard to Williamson Boulevard. Four typical sections for the widening of S.R. 40 from four to six lanes were presented for public comment at the Public Kick-off Meeting in July 2011.

1. Breakaway Trail to Tymber Creek Road - The alternatives included a rural (maintain existing 65 mph design speed, to be posted at 50 mph), suburban (50 mph), and high-speed urban (50 mph) typical sections.
2. Tymber Creek Road to Interchange Boulevard - The alternatives included a suburban (50 mph), high-speed urban (50 mph), and urban (45 mph).
3. Interchange Boulevard to Williamson Boulevard – This segment was developed as an independent alternative to fit within the constraints of the existing roadway, I-95 overpass bridge, and right-of-way, as well as address the capacity needs of the I-95 interchange and Williamson Boulevard intersections. One of the project objectives is to use the recent I-95 and S.R. 40 interchange improvement and minimize any further major enhancement in the interchange area.

3.2.1 OVERVIEW OF ROADWAY TYPICAL SECTIONS

The roadway typical sections described below were developed and evaluated for the widening of S.R. 40 from Breakaway Trail to Williamson Boulevard. As mentioned above, the following typical sections were considered for each section of the study area corridor:

- Breakaway Trail to Tymber Creek Road: Typical sections #1, #2, and #3.
- Tymber Creek Road to Interchange Boulevard: Typical sections #2, #3 and #4.
- Interchange Boulevard to Williamson Boulevard: No typical section used.

Roadway Typical Section #1 – Rural Typical Section with Wide Median

Typical section #1 shown in Figure 3-9 utilizes the existing 40-foot wide swale median and maintains the rural character of the roadway, with uncurbed, depressed median and flush outside shoulder. The widening for this typical section would all occur outside of the existing roadway. The existing center crown of the westbound direction will remain, and will be at the outside edge of the inside westbound travel lane. By widening to the outside only, maintenance of traffic during construction can be easily achieved, and

construction impacts to the existing travel lanes will be limited. A 5-foot wide pedestrian sidewalk is provided on the south side and a 12-foot wide shared use path is provided on the north side of S.R. 40. Both pedestrian facilities are located outside the clear zone. The 5-foot paved shoulders in both directions also serve as bicycle lanes. The 40-foot border width specified for arterials with flush shoulder in the FDOT Plans Preparation Manual (PPM) cannot be achieved for typical section #1. The border width from Breakaway Trail to Tymber Creek Road will generally be 34-feet wide on each side of S.R. 40, which requires a design variance to be approved by FDOT.

The widening for typical section #1 matches the geometrics (horizontal and vertical alignment) of the existing roadway, which was constructed with a 65 mph design speed for the segment between Breakaway Trail and Tymber Creek Road. The segment is currently posted at 50 mph and the turn lane and other geometric features will accommodate a 50 mph design speed.

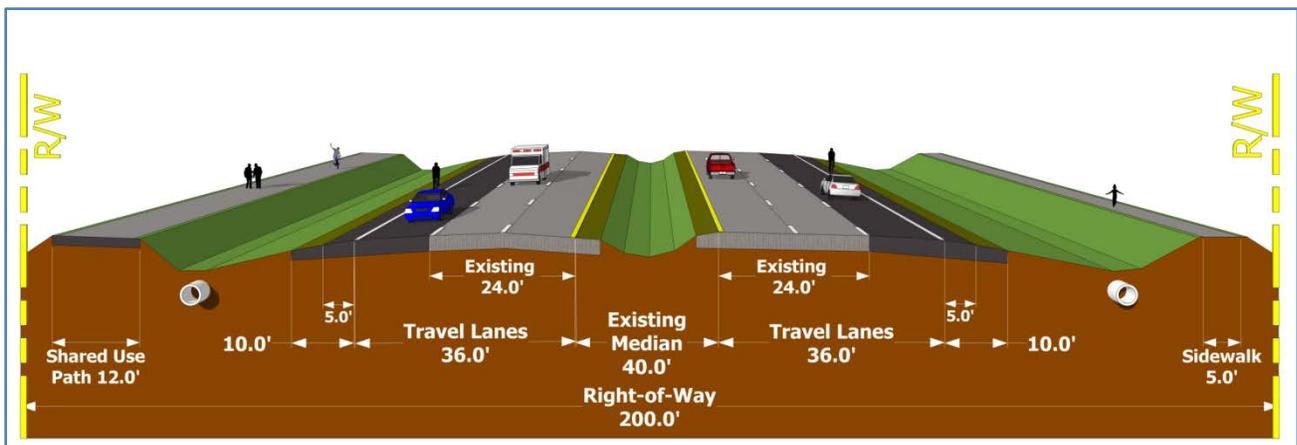


Figure 3-9 Typical Section #1 – Rural With Wide Median

Roadway Typical Section #2 – Suburban Typical Section

The widening for typical section #2, shown in Figure 3-10, occurs both on the inside and outside of the existing travel lanes, reducing the median to the 30-foot minimum specified in the FDOT PPM for suburban highways. Median curb and gutter are used, and the outside shoulders remain uncurbed. Because of the existing center crown of the westbound direction from Breakaway Trail to Tymber Creek Road, a portion of the roadway will need to be milled and overbuilt to achieve a new crown for that direction of travel, which would be at the outside edge of the inside travel lane. From Tymber Creek Road to Interchange Boulevard the existing westbound roadway is sloped from the inside shoulder, so overbuilding would not be necessary. A 5-foot wide pedestrian sidewalk is provided on the south side and a 12-foot wide shared use path is provided on the north side of S.R. 40. Both pedestrian facilities are located outside the clear zone. The 5-foot paved outside shoulder in both directions also serves as a bicycle lane. Typical section #2 utilizes a 50 mph design speed.

The FDOT PPM specifies that a 40-foot border width be provided for arterials with flush shoulders. This cannot be achieved on the south side of S.R. 40 for typical section #2 for the majority of the corridor. By reducing the median width, the border width between Breakaway Trail and Tymber Creek Road will be 39-feet on both sides of S.R. 40. From Tymber Creek Road to Interchange Boulevard the border width will

generally be 42-feet on the north side and 36-feet wide on the south side of S.R. 40. The right-of-way becomes irregular about the roadway center line between Booth Road and Interchange Boulevard, so the border width varies significantly. A design variance for border width is required with this alternative.

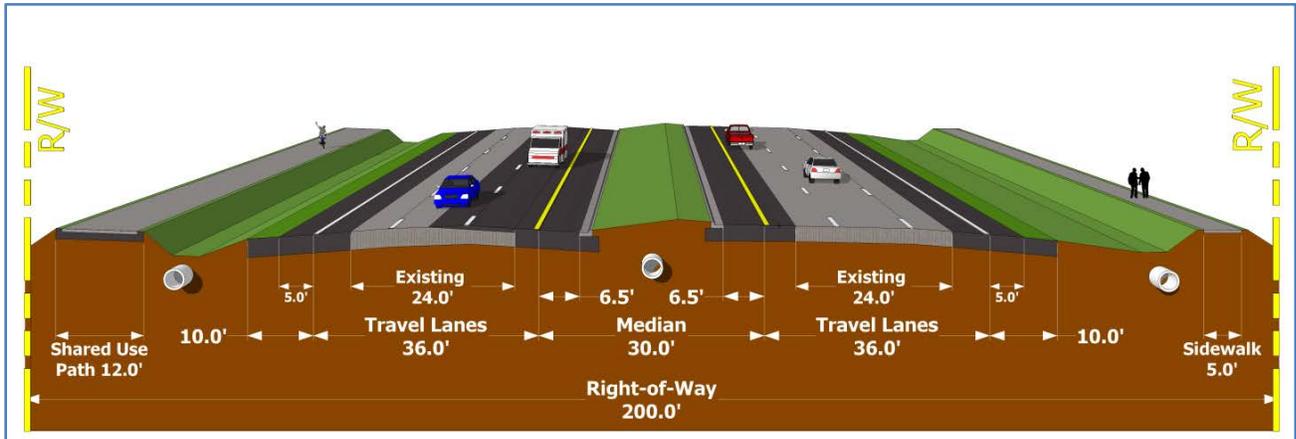


Figure 3-10 Typical Section #2 – Suburban Typical Section

Roadway Typical Section #3 – High Speed Urban Typical Section

The widening for typical section #3, shown in Figure 3-11, occurs both on the inside and outside of the existing travel lanes, but maintains a 40-foot wide median, including inside shoulders. Curb and gutter are used for the outside shoulder and the median, and the sidewalk and multi-use path are brought in closer to the roadway. By maintaining the wide median and the two existing lanes as the inside travel lanes, the overbuild of the westbound lanes needed for typical section #2 is avoided and an easier maintenance of traffic during construction will be possible. Similar to typical sections #1 and #2, the crown for the westbound direction will be at the outside edge of the inside travel lane. Though an urban cross-section, this typical section still utilizes wide shoulders because of the 50 mph design speed, and thus maintains a wide footprint similar to the suburban typical sections. The wider 6.5-foot outside shoulders also serve as bicycle lanes.

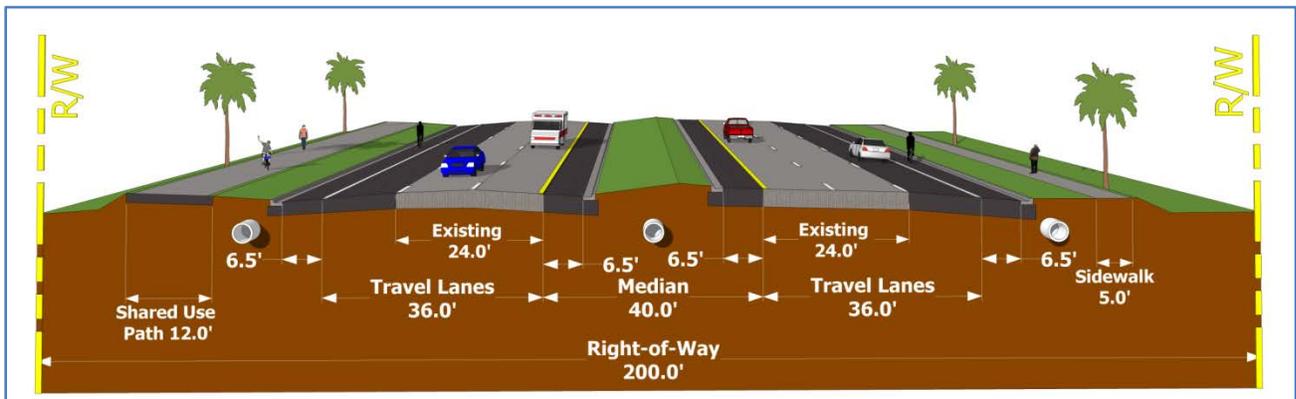


Figure 3-11 Typical Section #3 – High Speed Urban Typical Section

The border width requirement is 14 feet from the edge of pavement to the right-of-way line for roadways with curb or curb and gutter on the outside edge. Typical section #3 meets the border width requirement for the entirety of the study corridor.

Roadway Typical Section #4 – Urban Typical Section

The widening for typical section #4, shown in Figure 3-12 below, occurs primarily on the inside of the roadway, creating a narrower 22-foot median. Additionally, 5-foot paved shoulders are added on the outside of the roadway to serve as bicycle lanes. The 5-foot shoulder width is wider than the 4-foot minimum width for a bicycle lane in the FDOT PPM. This has been included at the request of the Volusia TPO Bicycle-Pedestrian Advisory Committee. Curb and gutter are provided both for the outside shoulder and the median, and a sidewalk and multi-use path are provided closer to the travelled-way than in the suburban and urban high-speed typical sections. Because of the lower 45 mph design speed, the shoulders are narrower for this typical section, allowing for a smaller overall roadway footprint. Since S.R. 40 is designated as an Emerging SIS facility, the desirable posted speed limit is 50 mph. This typical section requires a design variance to reduce the posted speed limit to 45 mph.

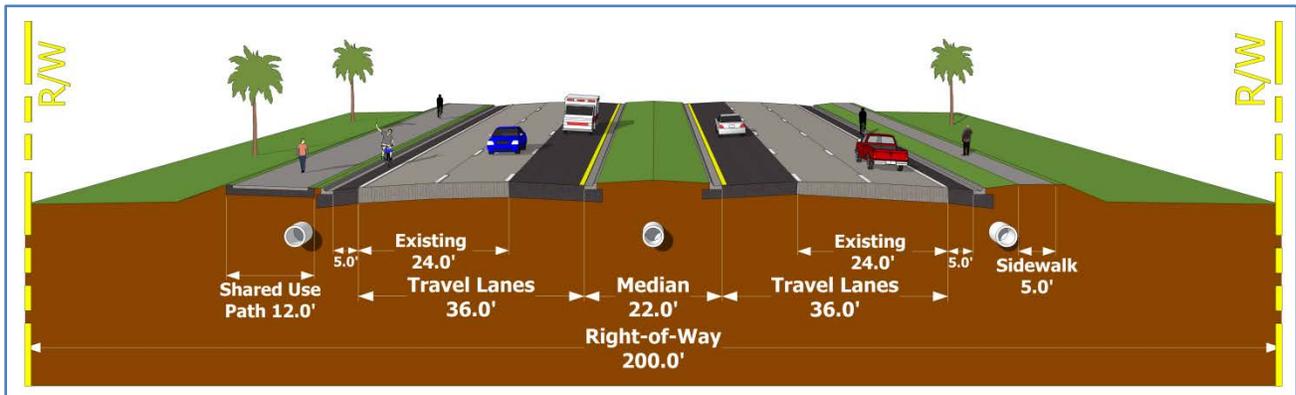


Figure 3-12 Typical Section #4 – Urban Typical Section

3.2.2 TYPICAL SECTION ANALYSIS TECHNICAL MEMORANDUM

Subsequent to presenting the typical sections at the Public Kick-off Meeting, a *Typical Section Analysis Technical Memorandum* was prepared to provide a comparative evaluation of the typical sections based on the following criteria:

- Design Speed
- Surrounding Character/Future Land Use Patterns
- Cost
- Construction Impacts
- Safety Impacts

A comparative evaluation matrix was created to rank the typical sections against each other for the above criteria. Based on the evaluation, the suburban typical section (Typical Section #2) was eliminated from

further study for both segments of S.R. 40 in the study area. Typical section #2 was found to be the alternative that least met the objectives of the project for fitting the surrounding character and future land use patterns. Moreover, it poses more significant construction impacts, and does not show an appreciable benefit in safety characteristics over the other alternatives. Additionally the potential right-of-way impacts of typical section #2 are likely to outweigh the construction cost savings over typical section #3.

The *Typical Section Analysis Technical Memorandum* is provided in Appendix A for further detail on the evaluation and conclusions.

3.3 Bridge Typical Sections

3.3.1 OVERVIEW OF BRIDGE TYPICAL SECTIONS

Several typical sections were developed for the Tomoka River Bridge, located just east of Tymber Creek Road, to accommodate the widening of S.R. 40. The typical sections for the bridge were coordinated with the roadway typical sections to provide preliminary compatibility.

Of the five bridge typical sections that were initially developed, two (#2 and #5) were thrown out early in the PD&E process due to impracticality or cost of construction. Bridge typical section #2 was an urban typical section that added the third lane in each direction on the inside of the structures, and added separate pedestrian and bicycle structures on the outside of both the eastbound and westbound directions of S.R. 40. Bridge typical section #5 was a high speed urban typical section that added most of the lane widening to the outside of the structures, including pedestrian and bicycle facilities added to the existing structure on the outside of both directions of travel.

Bridge typical section #4 was developed to be compatible with the high speed urban roadway typical section #3 with a 40-foot median, but is no longer needed for evaluation because of the revision of the median width for the high speed urban typical section #3B to 30-feet (see discussion in Section 3.4.2). Bridge typical section alternatives #1 and #3 outlined below were brought forward to be compatible with the roadway typical sections outlined above.

Existing Bridges

S.R. 40 Westbound and Eastbound Over Tomoka River

The existing S.R. 40 bridges over the Tomoka River are two separate structures, constructed 32 years apart. The westbound bridge was constructed in 1965 to accommodate both directions of the original two-lane roadway. The traffic railing barriers and deck overhangs for the westbound bridge were reconstructed in 1998. The eastbound bridge was constructed in 1997 with the widening of S.R. 40 to a four-lane divided cross-section. The superstructure of the westbound bridge consists of AASHTO Type II prestressed concrete beams with a 7" composite reinforced concrete deck while the superstructure of the eastbound bridge consists of AASHTO Type IV prestressed concrete beams with an 8" composite reinforced concrete deck. The superstructure of the westbound bridge is supported on concrete end bents founded on HP 12x53 piles and intermediate bent caps founded on 18" square prestressed concrete piles. The superstructure of the

eastbound bridge is supported on concrete end bents and intermediate bent caps, both founded on 24" square prestressed concrete piles. The westbound bridge crosses over the Tomoka River with nine equal spans of 40'-0" for a total bridge length of 360'-0". The eastbound bridge spans the Tomoka River with five equal spans of 72'-0" for a total bridge length of 360'-0". The embankments of both bridges consist of spill slopes that are protected by sand-cement riprap. Figure 3-13 shows the existing bridge typical sections and dimensions.

According to the latest bridge inspection reports, dated October 15, 2013, the sufficiency ratings are 98.0 and 99.0 (out of a possible 100) for the eastbound and westbound bridges, respectively. Based on these reports, widening the existing bridges is a viable option which would also present the least cost alternative compared to complete replacement of both bridges. During final design in the Bridge Development Report (BDR) phase, a load rating will be performed for each bridge to determine if the existing bridges may be widened per the latest FDOT criteria. For a comprehensive overview of bridge characteristics see Table 3-2, Summary of Existing Bridge Characteristics.

I-95 OVER S.R. 40

The I-95 bridge over S.R. 40 is a single span structure constructed in 2006. The bridge carries three lanes of northbound and southbound traffic in each direction along I-95. The superstructure of the bridge consists of steel plate girders with an 8.5" composite reinforced concrete deck. The superstructure is supported on concrete end bents founded on 24" square prestressed concrete piles. The bridge clear spans two eastbound through lanes, two westbound through lanes, two southbound left turn lanes, one northbound left turn lane and a concrete median. The total bridge length is approximately 154'. The typical section under the bridge is expandable to meet the proposed six lane section of S.R. 40. The embankments of the bridge are supported by MSE walls. According to the latest bridge inspection report, dated July 9, 2012, the sufficiency rating is 98.0 out of a possible 100. For a comprehensive overview of bridge characteristics see Table 3-2, Summary of Existing Bridge Characteristics.

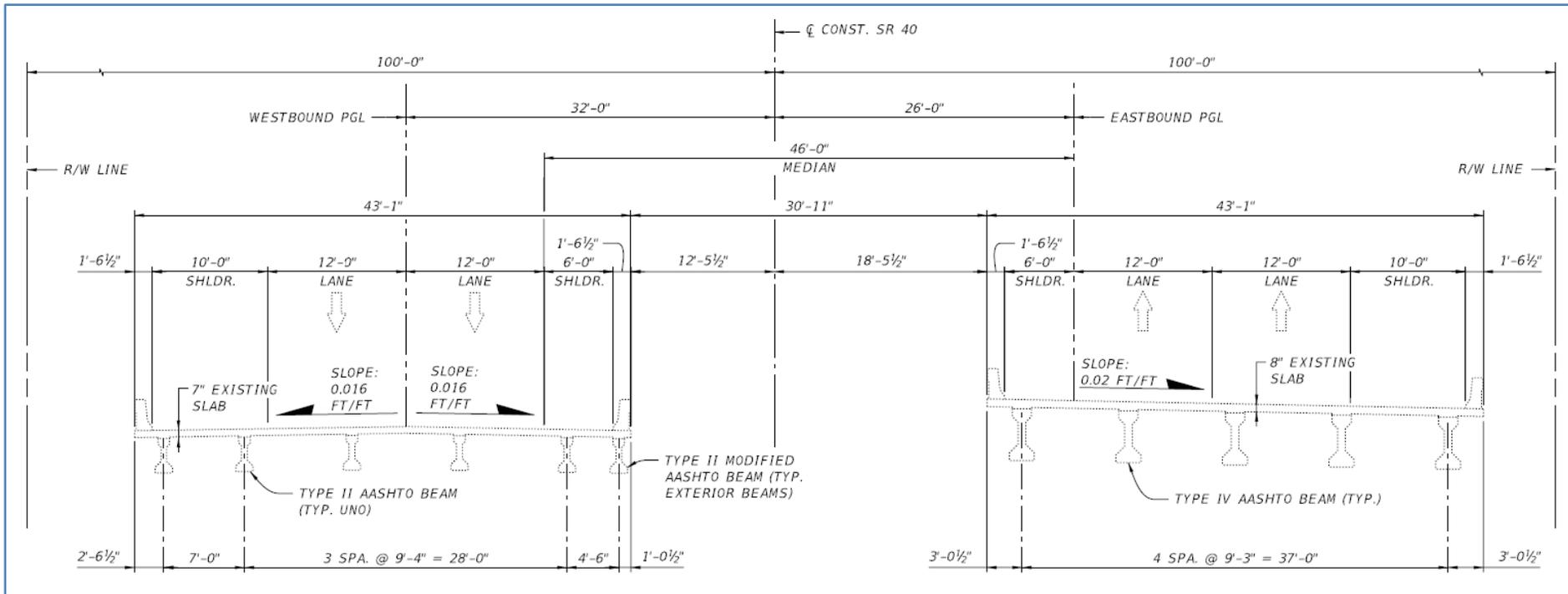


Figure 3-13 Existing Tomoka River Bridge Typical Section (looking east)

Table 3-2 Summary of Existing Bridge Characteristics

| Structure Location | Bridge No. | Year Constructed | Sufficiency Rating | Bridge Length | Bridge Width | Cross Slope | Vertical Clearance | Travel Lanes | Super-structure Type | Sub-structure Type | Horiz. Curve | Vert. Curve |
|------------------------------|------------|------------------|--------------------|----------------------------|--------------|-----------------------|--------------------|--------------|----------------------|---------------------------------|--------------|-------------|
| S.R. 40 WB Over Tomoka River | 790027 | 1965 | 99.0 | 9 Spans @ 40'-0" = 360'-0" | 43'-1" | Crowned 0.0156 FT/FT | 15.4' | 2 | AASHTO Type II Beam | Steel H-Pile and Concrete Piles | Tangent | No Grade |
| S.R. 40 EB Over Tomoka River | 790163 | 1997 | 98.0 | 5 Spans @ 72'-0" = 360'-0" | 43'-1" | 0.02 FT/FT to Outside | 15.4' | 2 | AASHTO Type IV Beam | Concrete Piles | Tangent | Crest |
| I-95 Over S.R. 40 | 790193 | 2006 | 98.0 | 154'-0" | 134'-10" | Crowned 0.02 FT/FT | 16.6' | 6 | Steel Plate Girder | Concrete Piles | Tangent | Crest |

BRIDGE ALTERNATIVE #1 – URBAN TYPICAL SECTION

This typical section for the Tomoka River bridge was developed to be compatible with Roadway Typical Section #4, and provides the lane widening to the inside of the bridge. Approximately 9.5 feet would be added to the inside of the westbound span and approximately 11.5 feet added to the inside of the eastbound span. Approximately 5.5 feet of width is added to the outside of the eastbound span to accommodate a 6-foot wide pedestrian sidewalk, and a separate 14-foot wide structure would be constructed to the north of the westbound span for the shared use path. Figure 3-14 illustrates Bridge Alternative #1.

BRIDGE ALTERNATIVE #3 – HIGH SPEED URBAN/SUBURBAN TYPICAL SECTION WITH 30' MEDIAN

This typical section for the bridge was developed to be compatible with the suburban Roadway Typical Section #2 and the revised high speed urban Roadway Typical Section #3B described in Section 3.4.2 (page 3-19) below. It provides the lane widening to both the inside and the outside of the bridge spans. The westbound span would be widened by 19.5 feet to the outside and by approximately 13 feet to the inside. The eastbound span would be widened by 13 feet to the outside and by approximately 15 feet to the inside. The widening accommodates the additional lane widths as well as a 5-foot wide pedestrian sidewalk on the south side and a 12-foot wide shared use path on the north side of the bridge spans. Bridge Alternative #3 is illustrated in Figure 3-15.

3.4 Alternatives Analysis

3.4.1 NO-BUILD ALTERNATIVE

The No-Build alternative maintains S.R. 40 as a four-lane divided roadway as described in Section 3.2 (page 3-9) above. The existing roadway typical sections are shown in Figure 3-7 (page 3-9) and Figure 3-8 (page 3-9). S.R. 40 would maintain the existing posted speed of 50 mph between Breakaway Trail and Interchange Boulevard, and 45 mph between Interchange Boulevard and Williamson Boulevard. All intersections would maintain the existing geometry and traffic control under the No-Build alternative. The existing S.R. 40 bridge over the Tomoka River will be maintained.

The No-Build alternative would have no impacts to cultural, physical or natural resources. However, the No-Build alternative does not address the needed future capacity along S.R. 40, or the need for enhanced mobility along the corridor for evacuation, emergency response, and alternative transportation modes. No pedestrian facilities would be provided along S.R. 40 between Tymber Creek Road and Booth Road, including over the Tomoka River Bridge. Additionally, no signalized pedestrian crossings would be provided across S.R. 40 at any of the signalized intersections. The level-of-service along the study corridor is expected to exceed the adopted standard in the 2025 and 2035 design years. For these reasons the No-Build alternative does not meet the intended purpose of the project.

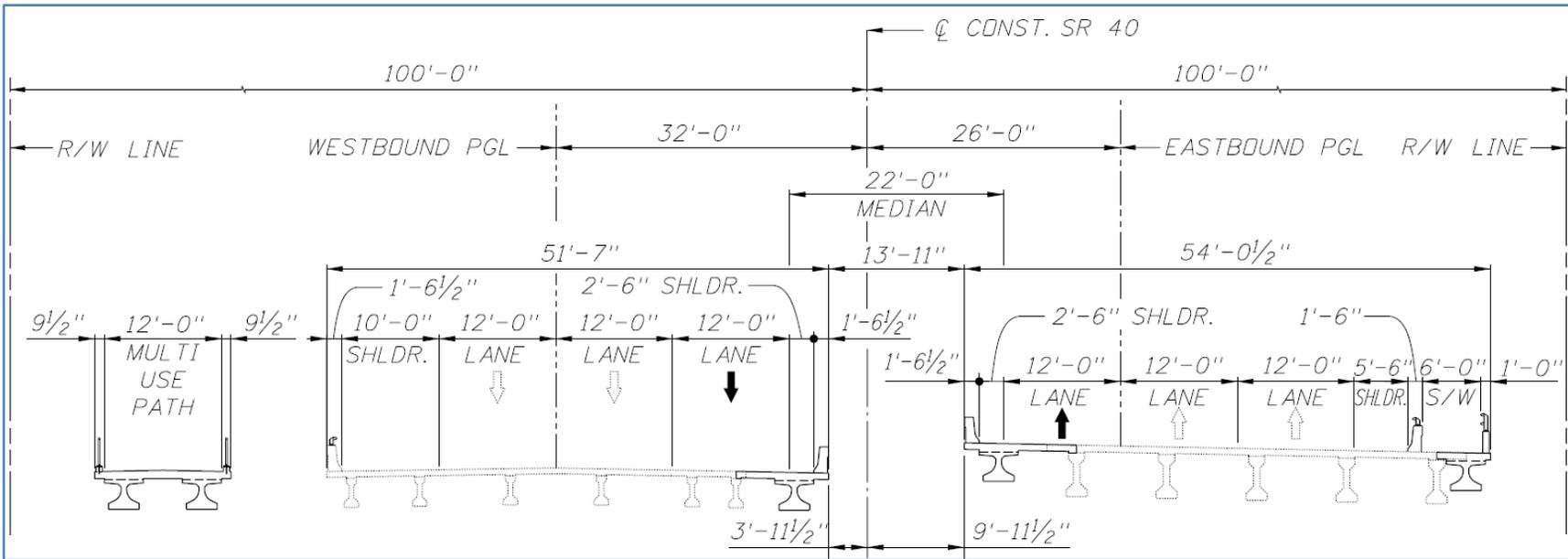


Figure 3-14 Bridge Alternative #1 – Urban Typical Section

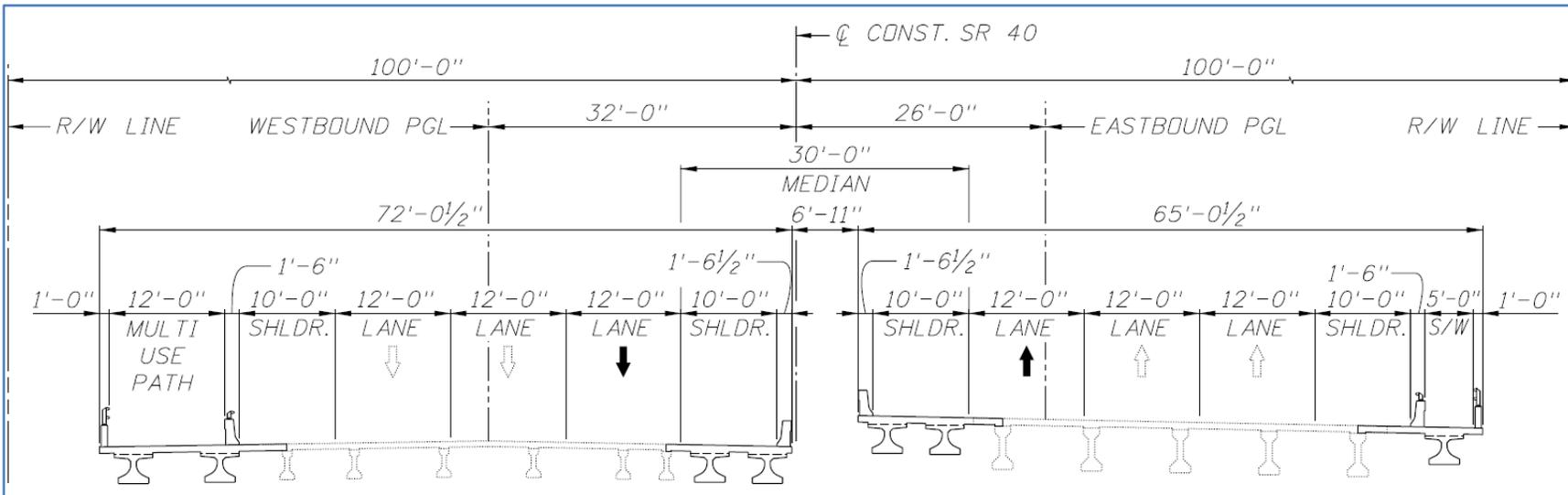


Figure 3-15 Bridge Alternative #3 – High Speed Urban/Suburban Typical Section

3.4.2 TYPICAL SECTION ALTERNATIVES

Following the elimination of typical section #2 from further consideration the remaining two typical sections for each study segment were applied to the roadway alignment in order to assess the right-of-way and environmental impacts of each typical section. The roadway design alternatives described in Table 3-3 were developed based on the different combinations of typical sections possible for the corridor.

Table 3-3 Roadway Typical Section Alternatives

| Alternative | Typical Section | | |
|-------------|---|--|--|
| | Breakaway Trail to Tymber Creek Road | Tymber Creek Road to I-95 | I-95 to Williamson Boulevard |
| A | #1 - Rural (65 mph design, 50 mph posted) | #3B – High Speed Urban (30-ft median)(50 mph) | Same for Alternatives A, B, C, D. Includes sidewalk adjacent to roadway both sides of S.R. 40. |
| B | #1 - Rural (65 mph design, 50 mph posted) | #4 - Urban (45 mph) | |
| C | #3A – High Speed Urban (40-ft median)(50 mph posted) | #3B – High Speed Urban (30-ft median)(50 mph) | |
| D | #3A - High Speed Urban (40-ft median)(50 mph posted) | #4 - Urban (45 mph) | |

As shown in Table 3-3, typical section #3 presented in Section 3.2.1 (page 3-10) above was broken into two separate high speed urban typical sections, re-named #3A and #3B. The two typical sections are identical in dimensions and cross-sectional elements with the exception of the median width. It was recognized after preliminary layouts of the typical sections along the roadway alignment that typical section #3 with the existing 40-foot median would present challenges fitting within the existing right-of-way in the segment of S.R. 40 between Tymber Creek Road and Interchange Boulevard because of the varying right-of-way width relative to the roadway centerline. Reducing the median to the minimum 30-feet allowable by FDOT for a high speed urban roadway mostly mitigates the impacts to right-of-way due to the roadway widening. The high speed urban typical section for the segment of S.R. 40 between Breakaway Trail and Tymber Creek Road fits within the existing 200-foot right-of-way and was left with the existing 40-foot median in order to avoid additional reconstruction to the westbound travel lanes to shift the location of the existing roadway crown, as well as to simplify construction staging and maintenance of traffic during construction.

As shown in Table 3-3, typical section #3A has a 40-foot median and was evaluated for the segment of S.R. 40 from Breakaway Trail to Tymber Creek Road. Typical section #3B has a 30-foot median and was evaluated for the segment from Tymber Creek Road to Interchange Boulevard. Typical section #3B is shown in Figure 3-16 below. Typical section #3A is identical to that presented in Figure 3-11 (page 3-12).

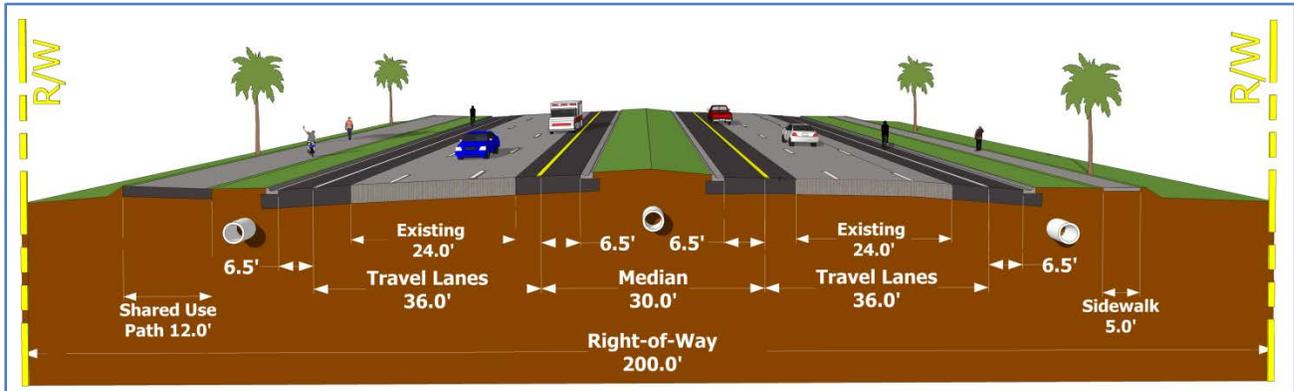


Figure 3-16 Typical Section #3B – High Speed Urban Typical Section (30' Median)

Each of the four roadway alternatives was laid out along the study corridor in order to determine the physical footprint and impacts of each alternative. The four typical section alternatives as well as the No-Build alternative are described in more detail below. Plan sheets of the preliminary design for each alternative were created and are included in Appendix B.

Multimodal Improvements

Transit service is not provided along this section of S.R. 40. There is existing transit service on S.R. 40 to the east of Williamson Boulevard and on Williamson Boulevard south of S.R. 40. The Wal-Mart has a bus stop near the front entrance of the store. Discussions with Votran, the local transit provider, indicate there are no plans to expand service to the west of I-95. FDOT's planning office conducted an analysis of placing a park-and-ride lot near the I-95 interchange at the S.R. 40 and Williamson Boulevard intersection. After a site analysis and discussions with Votran and the City of Ormond Beach in September 2012, it was decided that adding a park-and-ride lot at this location was not feasible for the following reasons:

- Access issues to the site due to multiple proposed left- and right-turn lanes at Williamson Boulevard, as well as the requirement for right-in-only movements to the site.
- Concerns with transit service delays related to access issues.
- Better potential options for park-and-ride lots in the near vicinity.

The City of Ormond Beach has identified S.R. 40 from Williamson Boulevard to S.R. A1A to be constrained from capacity improvements only and has designated this corridor to be a multimodal corridor having enhanced transit, pedestrian, and bicycle facilities.

Several multimodal improvements are proposed for all roadway alternatives that were considered. A 12-foot wide asphalt shared use path is proposed along the north side of S.R. 40 and a 5-foot wide concrete sidewalk is proposed along the south side of S.R. 40 for the majority of the length of the project. The exception to this is between the I-95 southbound ramps and Williamson Boulevard where an 8-foot wide concrete sidewalk is proposed adjacent to the back of curb on the north side, and a 6-foot wide sidewalk is proposed on the south side of S.R. 40 where the sidewalk is adjacent to the back of curb. Accessible pedestrian ramps will be included where the shared use path or sidewalk intersects with S.R. 40 or the side streets. Accessible pedestrian signal (APS) pushbuttons will also be installed at the pedestrian crossings at

the S.R. 40 and Williamson Boulevard intersection. Bicycle lanes with 5-foot minimum width will be included on the outside shoulders of S.R. 40 for all alternatives.

Roadway Alternative A

Roadway typical section Alternative A utilizes the rural typical section #1 (Figure 3-9 on page 3-11) between Breakaway Trail and Tymber Creek Road, and the high speed urban typical section #3B (Figure 3-16 on page 3-20) between Tymber Creek Road and Interchange Boulevard. The transition from the existing four-lane roadway to the proposed six-lane roadway occurs just west of the Breakaway Trail intersection. The median width transition from 40-feet to 30-feet occurs for both the eastbound and westbound directions occurring just west of the Tymber Creek Road intersection. The curbed median would begin at the start of the eastbound left-turn lanes of the Tymber Creek Road intersection's western leg in order to provide separation between the opposing directions of traffic.

At the Tomoka River the high speed urban bridge typical section, as shown in Figure 3-15 (page 3-18), would be used for Alternative A. This alternative includes the 12-foot shared use path as an extension of the existing westbound bridge structure to the north. A 5-foot sidewalk would be added to the south side of the eastbound bridge. All other pedestrian and bicycle improvements for Alternative A are as described in the Multimodal Improvements section above.

Between Booth Road and the I-95 southbound ramps, the alignment of S.R. 40 must be slightly modified to provide a smooth transition between typical section #3B and the existing roadway geometry between I-95 and Williamson Boulevard. The raised medians in this segment were modified due to the realignment. They also provide the paved inside shoulder required with typical section #3B. Between I-95 and Williamson Boulevard three through lanes in each direction are provided in addition to the required turn lanes by restriping the existing 12-foot lanes to 11-feet wide. The existing curb-to-curb width of S.R. 40 under the I-95 bridge is maintained with the proposed improvements. Some outside widening is required between I-95 and Williamson Boulevard to accommodate the additional turn lanes. S.R. 40 transitions back to a four-lane roadway on the east side of the Williamson Boulevard intersection.

Roadway Alternative B

Roadway typical section Alternative B utilizes the rural typical section #1 (Figure 3-9 on page 3-11) between Breakaway Trail and Tymber Creek Road, and the urban typical section #4 (Figure 3-12 on page 3-13) between Tymber Creek Road and Interchange Boulevard. The transition from the existing four-lane roadway to the proposed six-lane roadway occurs just west of the Breakaway Trail intersection. The transition of the median width from 40-feet to 22-feet occurs symmetrically about the roadway center-line, with the transition of the median for both the eastbound and westbound directions occurring just west of the Tymber Creek Road intersection. The curbed median would begin at the start of the eastbound left-turn lanes of the Tymber Creek Road intersection's western leg in order to provide separation between the opposing directions of traffic.

At the Tomoka River the urban bridge typical section as shown in Figure **3-14** (page 3-18) would be used for Alternative B. This alternative includes the 12-foot shared use path as a separate structure to the north of

the existing westbound bridge. The 5-foot sidewalk would be added as an extension to the south side of the eastbound bridge. All other pedestrian and bicycle improvements for Alternative B are as described in the Multimodal Improvements section above.

Between Booth Road and the I-95 southbound ramps, the alignment of S.R. 40 must be slightly modified to provide a smooth transition between typical section #4 and the existing roadway geometry between I-95 and Williamson Boulevard. The raised medians in this segment were modified due to the realignment. Between I-95 and Williamson Boulevard three through lanes in each direction are provided in addition to the required turn lanes by restriping the existing 12-foot lanes to 11-foot wide. The existing curb-to-curb width of S.R. 40 under the I-95 bridge is maintained with the proposed improvements. Some outside widening is required between I-95 and Williamson Boulevard to accommodate the additional turn lanes. S.R. 40 transitions back to a four-lane roadway on the east side of the Williamson Boulevard intersection.

Roadway Alternative C

Roadway typical section Alternative C utilizes the high speed urban typical section #3A (Figure 3-11 on page 3-12) between Breakaway Trail and Tymber Creek Road, and the high speed urban typical section #3B (Figure 3-16 on page 3-20) between Tymber Creek Road and Interchange Boulevard. The transition from the existing four-lane roadway to the proposed six-lane roadway occurs just west of the Breakaway Trail intersection. The transition of the median width from 40-feet to 30-feet occurs for both directions just east of the Tymber Creek Road intersection.

The Tomoka River bridge typical section for Alternative C is shown in Figure 3-15 (page 3-18) and is the same as that described for Alternative A in Section 3.4.2 (page 3-19). The improvements for Alternative C between Booth Road and Williamson Boulevard are the same as those described for Alternative A in Section 3.4.2.

Roadway Alternative D

Roadway typical section Alternative D utilizes the high speed urban typical section #3A (Figure 3-11 on page 3-12) between Breakaway Trail and Tymber Creek Road, and the urban typical section #4 (Figure 3-12 on page 3-13) between Tymber Creek Road and Interchange Boulevard. The transition from the existing four-lane roadway to the proposed six-lane roadway occurs just west of the Breakaway Trail intersection. The transition of the median width from 40-feet to 22-feet occurs symmetrically about the roadway center-line, with the transition of the median in the eastbound direction occurring just west of the Tymber Creek Road intersection, and the westbound median transition occurring just west of the Tymber Creek Road intersection.

The Tomoka River bridge typical section for Alternative D is shown in Figure **3-14** (page 3-18) and is the same as that described for Alternative B in Section 3.4.2. The improvements for Alternative D between Booth Road and Williamson Boulevard are the same as those described for Alternative B in Section 3.4.2.

3.4.3 INTERSECTION IMPROVEMENTS

The *Design Traffic Technical Memorandum* (DTTM)(December 2011) was used to determine the turn lane requirements at the signalized intersections along the S.R. 40 corridor to accommodate future traffic demand. No modifications to the number or locations of existing signalized or unsignalized median openings were made throughout the corridor in order to maintain the same level of access to adjacent land uses, though in some cases right-turn lanes were eliminated for some unsignalized locations in order to eliminate the need for additional right-of-way, and because the additional lane on S.R. 40 will provide the capacity needed for the right-turn volumes.

The signalized intersections requiring turn lane modifications include Breakaway Trail, Tymber Creek Road, Booth Road, the I-95/S.R. 40 ramp intersections, and Williamson Boulevard. The intersection modifications include adding or extending turn lanes as well as improvements to the signalization schemes. No existing unsignalized intersections were found to warrant signalization in the design year. Table 3-4 includes a summary of modifications made at signalized and unsignalized locations beyond the four- to six-lane widening of the through lanes on S.R. 40.

Preliminary layouts of each intersection were prepared for each typical section alternative in order to assess the impacts to right-of-way or access to adjacent properties. The intersection layouts are provided in the preliminary plans in Appendix B.

Table 3-4 Proposed Intersection Turn Lane Modifications

| Intersection | Proposed Modification |
|---|---|
| Breakaway Trail | <ul style="list-style-type: none"> Reduce WB right-turn lane length to minimum required |
| Walgreens Access (Sta 1344+00) | <ul style="list-style-type: none"> Remove WB right-turn lane into Walgreens site |
| Tymber Creek Road | <ul style="list-style-type: none"> Add 2nd EB left-turn lane Add EB, NB right-turn lane Add 2nd WB right-turn lane (dual WB right-turns to be signalized) Add 3rd SB left-turn lane |
| Tymber Creek Plaza Access (Sta 1353+00) | <ul style="list-style-type: none"> Remove EB right-turn lane into Tymber Creek Plaza |
| Elder Law Office Access (Sta 1357+00) | <ul style="list-style-type: none"> Remove EB right-turn taper into Elder Law Office site |
| Booth Road | <ul style="list-style-type: none"> Add EB right-turn lane Remove exclusive WB right-turn lane (Cavalry Christian Church access) |
| Cavalry Christian Church Access (Sta 1381+00) | <ul style="list-style-type: none"> Remove WB right-turn taper at Cavalry Christian Church secondary access |
| Interchange Boulevard | <ul style="list-style-type: none"> Extend EB right-turn lane |
| I-95 SB Ramp Intersection | <ul style="list-style-type: none"> Add EB right-turn lane (through/right-turn lane becomes through lane) Add WB through lane |
| I-95 NB Ramp Intersection | <ul style="list-style-type: none"> Add WB through lane |
| Williamson Boulevard | <ul style="list-style-type: none"> Add 2nd EB right-turn lane (dual EB right-turns to be signalized) Add 3rd NB left-turn lane Remove exclusive WB right-turn lane Place NB right-turn under signal control and remove island |

3.5 Stormwater Management Alternatives

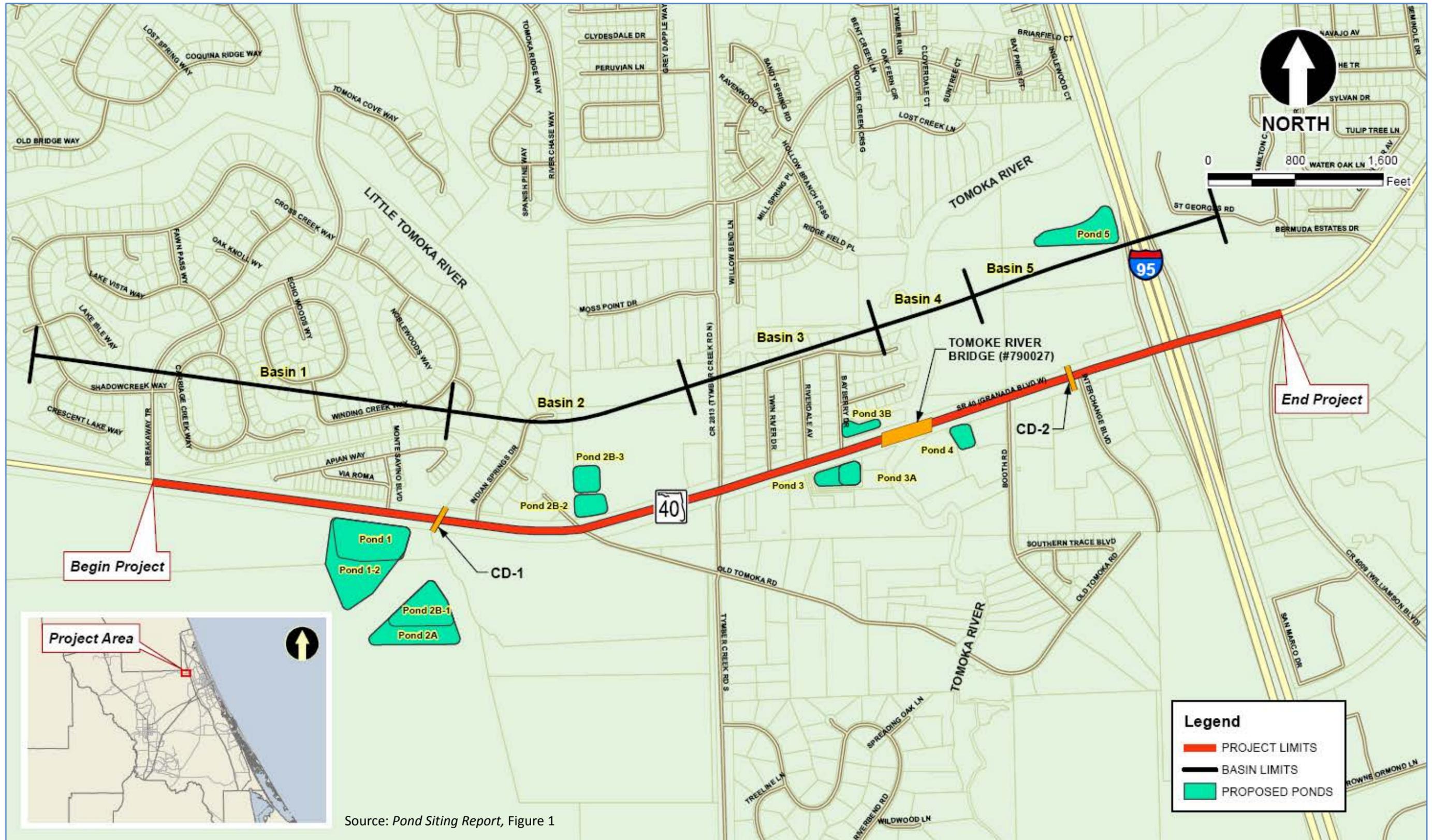
The S.R. 40 PD&E project is located within the Northern Coastal Basin located within the St. Johns River Water Management District (SJRWMD). The S.R. 40 study area is further divided into five (5) local drainage sub-basins for stormwater management. These basins ultimately discharge to the Tomoka River which is considered an Outstanding Florida Waters (OFW) and is also on the Florida Department of Environmental Protection (FDEP) 303(d) list of Impaired Water Bodies. The limits of the basins are shown in Table 3-5 for a summary of existing and proposed drainage basins. The drainage basins are illustrated in Figure 3-17. A Pond Siting Report has been prepared and describes the existing and proposed stormwater management characteristics in detail. This report is available for review at the FDOT District 5 office in DeLand.

Table 3-5 Summary of Existing and Proposed Drainage Basins

| Basin Name | Begin Station | End Station | Outfall Location |
|------------|---------------|-------------|-------------------------------------|
| 1 | 1282+00 | 1320+50 | CD-1: Little Tomoka River Tributary |
| 2 | 1320+50 | 1347+00 | CD-1: Little Tomoka River Tributary |
| 3 | 1347+00 | 1365+20 | Tomoka River |
| 4 | 1365+20 | 1375+00 | Tomoka River |
| 5 | 1375+00 | 1398+13 | Tomoka River |

There are four (4) existing permitted stormwater treatment ponds to treat and attenuate the runoff from S.R. 40 between Breakaway Trail and Williamson Boulevard. Currently, the stormwater runoff from S.R. 40 is collected by roadside swale systems flowing to the existing stormwater ponds and discharged to the Little Tomoka River in Basin 1 or the Tomoka River in Basins 3, 4, and 5. Basin 2, lying between CD-1 (Cross Drain Structure #1), at approximate station 1320+15, and Tymber Creek Road at station 1346+50, is collected in a roadside swale system which discharges directly to CD-1 and the Little Tomoka River. At the time when S.R. 40 was widened from two (2) to four (4) lanes, Basin 2 was permitted to flow untreated to the Little Tomoka River. The untreated runoff was compensated for by treating the two (2) existing lanes of S.R. 40 in Basin 1. There are two (2) cross drains and one (1) bridge conveying stormwater runoff under S.R. 40 and, with the exception of CD-2 (Cross Drain Structure #2), serve as outfall locations for the roadway.

With the proposed roadway widening improvements, the stormwater runoff will be collected and treated for pollutant removal before discharging to surface waters based on FDOT stormwater management regulations. Considering the various roadway typical section alternatives and the additional pavement area added with the widening project, stormwater management options include roadside and median swales, closed drainage systems, and stormwater ponds.



Source: Pond Siting Report, Figure 1

Figure 3-17 Stormwater Pond Alternatives



Several pond alternatives for the stormwater drainage basins along the study corridor are proposed to accommodate the project requirements, and have been evaluated for right-of-way costs, environmental impacts, and construction costs. Several of the proposed pond options utilize or expand the existing FDOT stormwater treatment ponds along the S.R. 40 corridor. The proposed stormwater pond alternatives are outlined in Table 3-6, and illustrated in Figure 3-17.

Table 3-6 Stormwater Pond Alternatives

| Drainage Basin Area | Alternative | Proposed Ponds |
|------------------------|-------------|---|
| Basin 1 | 1 | Pond 1 (expansion of existing FDOT pond) |
| Basin 2 | 1 | Pond 2A |
| | 2 | Pond 2B-1 and Pond 2B-2 |
| | 3 | Pond 2B-1 and Pond 2B-3 |
| Combined Basin 1 and 2 | 1 | Pond 1-2 (larger expansion of existing FDOT pond) |
| Basin 3 | 1 | Pond 3A (expansion of existing FDOT pond) |
| | 2 | Pond 3B and existing FDOT pond |
| Basin 4 | 1 | Pond 4 (utilizes existing FDOT pond) |
| Basin 5 | 1 | Pond 5 (utilizes existing FDOT pond) |

See the *Pond Siting Report (November 2012)* prepared for this study for more details on the drainage basins and stormwater pond alternatives considered.

3.6 Comparative Evaluation of Alternatives

An evaluation matrix was developed to determine the alternative best addressing the purpose and need of the project. Important factors in the evaluation include impacts to social, cultural, natural, and physical environment, as well as construction cost estimates. Input was sought from the various team members involved in the historical and archeological investigation, the environmental investigation, the contaminated site investigation, and utility coordination to determine the specific impacts of each alternative on the various criteria. The evaluation matrix provided in Table 3-7 summarizes the evaluation of alternatives. The comparative evaluation of alternatives shows:

- All build alternatives met the project purpose and need, and accommodate future traffic demand in an equal manner.
- Alternatives B and D had the fewest number of parcels impacted and lowest overall right-of-way costs.
- Environmentally, all build alternatives were equal in impacts. Alternative B was the lowest overall cost, at approximately 10% lower than the next least costly build alternative.

The draft evaluation matrix was presented at the Alternatives Public Meeting on June 7, 2012 along with the presentation of roadway alternatives and typical sections. Following the Alternatives Public Meeting, the recommendation of Build Alternative B was made as the Preferred Alternative and served as the basis for the Value Engineering (VE) review.

A draft version of this PDSR document was prepared and distributed in advance to participants of the VE review. All other relevant supporting documentation, analysis, and the preliminary design plans were also provided for review. The VE review took place over five days and resulted in several recommendations—outlined in the following sections of this report.

Considering the results of the comparative evaluation, the project team recommended to carry forward Alternative B as the preferred alternative due to its relative impacts and costs compared to the other alternatives evaluated. FDOT has concurred with this recommendation. Section 3.7 (page 3-29) provides a detailed summary of the Recommended Preferred Alternative B.



Table 3-7 Comparative Evaluation Matrix

| EVALUATION CRITERIA | | ROADWAY BUILD ALTERNATIVES | | | | NO-BUILD ALTERNATIVE | |
|---|---|----------------------------|----------------|----------------|----------------|----------------------|---------------|
| | | A | B | C | D | | |
| PURPOSE AND NEED | ADDRESSES NEED FOR PROJECT | | | | | | |
| | Provides Improved Level-of-Service | YES | | | | NO | |
| | Accommodates Future Traffic Demand | YES | | | | NO | |
| SOCIAL ENVIRONMENT | PRIVATE PROPERTY IMPACTS | | | | | | |
| | Number of Parcels Impacted | 13 | 10 | 13 | 13 | 0 | |
| | -Residential Parcels | 1 | 0 | 1 | 0 | 0 | |
| | -Commercial Parcels | 3 | 2 | 3 | 2 | 0 | |
| | -Vacant/Unimproved Parcels | 9 | 8 | 9 | 8 | 0 | |
| | Number of Relocations Anticipated | 0 | 0 | 0 | 0 | 0 | |
| | TOTAL RIGHT-OF-WAY | | | | | | |
| | Number of Impacted Acres | 13.13 | 13.08 | 13.13 | 13.08 | 0 | |
| | COMMUNITY FACILITIES | | | | | | |
| | Number of Parcels Impacted | 0 | 0 | 0 | 0 | 0 | |
| BICYCLE AND PEDESTRIAN FACILITY IMPROVEMENTS | | | | | ENHANCED | NONE | |
| CULTURAL ENVIRONMENT | PUBLIC PARKS/LANDS | | | | | | |
| | Number of Parcels Impacted | 0 | 0 | 0 | 0 | 0 | |
| | HISTORIC AND ARCHEOLOGICAL SITES | | | | | | |
| | Number of Historical Resources Potentially Impacted | 0 | 0 | 0 | 0 | 0 | |
| Archeological Site Potential (Low/Moderate/High) | | Low | Low | Low | Low | 0 | |
| NATURAL ENVIRONMENT | WETLAND AREAS (acres impacted) | | 1.18 | 1.18 | 1.18 | 1.18 | 0 |
| | FLOODPLAINS (acre-feet impacted) | | 0.514 | 0.514 | 0.514 | 0.514 | 0 |
| | THREATENED AND ENDANGERED (T&E) SPECIES | | | | | | |
| | Low/Moderate/High Potential Involvement | | Low | Low | Low | Low | None |
| | FARMLANDS (parcels impacted) | | 0 | 0 | 0 | 0 | 0 |
| PHYSICAL ENVIRONMENT | POTENTIAL CONTAMINATION SITES | | | | | | |
| | -Number of Medium Risk Sites Impacted | | 0 | 0 | 0 | 0 | 0 |
| | -Number of High Risk Sites Impacted | | 3 | 3 | 3 | 3 | 0 |
| | POTENTIAL UTILITY INVOLVEMENT | | | | | | |
| Low/Moderate/High Potential Involvement | | Moderate | Moderate | Moderate | Moderate | None | |
| PROJECT COST (2012 \$ IN MILLIONS) | DESIGN COST | | \$1.75 | \$1.55 | \$2.00 | \$1.80 | \$0.00 |
| | WETLAND MITIGATION | | \$0.10 | \$0.10 | \$0.10 | \$0.10 | \$0.00 |
| | RIGHT-OF-WAY | | \$9.50 | \$8.95 | \$9.50 | \$8.95 | \$0.00 |
| | CONSTRUCTION COST | | \$17.40 | \$15.40 | \$19.75 | \$17.70 | \$0.00 |
| | CONSTRUCTION ENGINEERING & INSPECTION (C.E.I.) | | \$3.00 | \$2.60 | \$3.40 | \$3.00 | \$0.00 |
| | TOTAL PROJECT COST | | \$31.75 | \$28.60 | \$34.75 | \$31.55 | \$0.00 |

3.7 Recommended Preferred Alternative

The recommended preferred alternative is Alternative B, utilizing typical section #1 (Figure 3-9 on page 3-11) for the west segment of S.R. 40 between Breakaway Trail and Tymber Creek Road, and typical section #4 (Figure 3-12 on page 3-13) between Tymber Creek Road and Interchange Boulevard. Between Interchange Boulevard and Williamson Boulevard, the proposed improvements are common between all alternatives and address the specific capacity and operational needs of the interchange and intersections. The geometric design and other features of the recommended preferred alternative are described in further detail in this section of the report.

3.7.1 HORIZONTAL & VERTICAL ALIGNMENT

The proposed improvements on S.R. 40 between Breakaway Trail and Williamson Boulevard will generally follow the existing horizontal and vertical alignment of the existing roadway. The segment between Breakaway Trail and Tymber Creek Road was constructed with a 65 mph design speed, and will keep the current 50 mph posted speed limit with typical section #1. The turn lanes and other geometric features will be designed to accommodate a 50 mph design speed. The segment of S.R. 40 between Tymber Creek Road and Interchange Boulevard was originally constructed with a 50 mph design speed, and is currently posted at 50 mph from Tymber Creek Road to just east of Booth Road, where the posted speed transitions to 45 mph through the eastern extents of the project area. With the proposed typical section #4, the posted speed would be reduced to 45 mph from just west of Tymber Creek Road through the eastern extents of the project.

3.7.2 TYPICAL SECTION

The typical sections associated with the recommended preferred Alternative B are typical section #1 for the western segment of S.R. 40 from Breakaway Trail to Tymber Creek Road, and typical section #4 for the eastern segment from Tymber Creek Road to Interchange Boulevard. The proposed improvements for the segment between Interchange Boulevard and Williamson Boulevard are based on the capacity and traffic control needs on S.R. 40 and the intersecting ramps and intersections, as well as the right-of-way constraints. A Typical Section Package was prepared for this project, showing the detailed roadway and bridge elements for each typical segment of S.R. 40. The approved Typical Section Package is included in Appendix C.

The preferred typical section from Breakaway Trail to Tymber Creek Road utilizes the existing 40-foot wide swale median and maintains the rural character of the roadway with uncurbed, depressed median and flush outside shoulder. The widening for this typical section would all occur to the outside of the roadway. The existing center crown of the westbound direction will remain, and will be at the outside edge of the inside westbound travel lane. A 5-foot wide paved outside shoulder in each direction will be provided with the rural typical section. An existing 4-foot wide paved median shoulder will be maintained in the westbound direction between Breakaway Trail and Tymber Creek Road, and an existing 4-foot wide paved median shoulder will be maintained for the eastbound direction from approximately Indian Springs Drive to Tymber Creek Road. Asphalt base course is proposed to be used for the outside widening of the westbound roadway

through the superelevated horizontal curve from approximate Sta. 1325+50 to Sta. 1341+00, to mitigate base clearance issues above high groundwater in the low side of the curve. Refer to Section 3.7.14 (page 3-46) for more detailed discussion of the use of asphalt base course.

A 5-foot wide pedestrian sidewalk is provided on the south side and a 12-foot wide shared use path is provided on the north side of S.R. 40. Both pedestrian facilities are located outside the clear zone. The 5-foot paved shoulders in both directions also serve as bicycle lanes. The 40-foot border width specified for arterials with flush shoulder in the FDOT *Plans Preparation Manual (PPM)* cannot be achieved for the preferred typical section. The border width from Breakaway Trail to Tymber Creek Road will generally be 34-foot wide on both sides of S.R. 40. A design variation was prepared to reduce the border width for typical section #1. The approved design variation is provided in Appendix C.

The widening between Tymber Creek Road and Booth Road occurs primarily on the inside of the roadway, creating a narrower 22-foot median using an urban typical section. Additionally, 5-foot bicycle lanes are added on the outside of the roadway. The 5-foot width is wider than the 4-foot minimum width for a bicycle lane in the FDOT PPM. This has been included at the request of the Volusia TPO Bicycle-Pedestrian Advisory Committee. Curb and gutter are provided both for the outside shoulder and the median. A 5-foot wide sidewalk and 12-foot wide multi-use path are provided behind a narrow landscape strip on the south and north sides of S.R. 40, respectively. Because of the lower 45 mph design speed, the median and shoulders are narrower for this typical section, allowing for a smaller overall roadway footprint and minimizing impacts. Since S.R. 40 is designated as an Emerging SIS facility, the desirable posted speed limit is 50 mph. A design variation was prepared for this typical section to reduce the posted speed limit to 45 mph from just west of Tymber Creek Road to Interchange Boulevard. The approved design variation is provided in Appendix C.

3.7.3 DRAINAGE

The *Pond Siting Report* details the existing and proposed stormwater drainage characteristics of the study area, and provides the evaluation and selection of the preferred stormwater pond alternatives. Section 3.5 of this report summarizes the existing conditions and pond siting alternatives for the five (5) drainage sub-basins contained within the project area.

With the selection of the rural typical section for the S.R. 40 project area's western segment between Breakaway Trail and Tymber Creek Road, stormwater runoff will be collected by roadside swales and flow to wet detention ponds. For the east segment between Tymber Creek Road and Williamson Boulevard, stormwater runoff will be collected by curb and gutter and will flow to offsite dry retention ponds to be treated. An Alternatives Evaluation Matrix was developed for the Pond Siting Report in order to select the preferred pond alternatives for each sub-basin. Table 3-8 summarizes the preferred pond alternatives for the project.

Table 3-8 Summary of Stormwater Pond Recommendations

| Drainage Basin | Preferred Pond Alternative | Right-of-Way Area (acres) |
|----------------|----------------------------|---------------------------|
| 1 | Pond 1 | 5.69 |
| 2 | Pond 2B-1 and 2B-2 | 4.41 and 1.55 |
| 3 | Pond 3A and 3B | 0.96 and 1.17 |
| 4 | Pond 4 | 0.90 |
| 5 | Pond 5 | 3.56 |

Basin 1

The preferred pond alternative for Basin 1 is Pond 1. Pond 1 is located south of S.R. 40 at approximately station 1315+00. This pond alternative is an expansion of the existing permitted (#4-127-67904-1) FDOT wet detention pond to treat and attenuate the additional impervious area from the newly proposed travel lanes on S.R. 40 in Basin 1. Through a review of the existing permit and as-built plans for this portion of S.R. 40, an ICPR model was created to determine the feasibility of the proposed pond expansion. Preliminary pond sizing calculations indicate that this pond requires approximately 5.69 acres.

Pond 1 is designed as a wet detention pond with a control elevation set at 16.00 feet NGVD. This control elevation is lower than the previously permitted elevation of 17.00 feet NGVD, and is necessary in order to provide hydraulic grade line clearance from the low point of the roadway. In order to avoid impacting the hydroperiod of the adjacent wetland by drawing down the water table, an impervious liner was factored into the cost of this pond alternative. A control structure at the northeast side of the pond provides the required treatment and attenuation for Basin 1. The outfall structure will discharge directly to CD-1, the tributary to the Little Tomoka River. The tailwater condition for the outfall structure as well as the boundary elevation for the routing model were set at the upstream end of CD-1 at elevation 15.60 feet NGVD, which was determined from the existing drainage maps.

Basin 2

The preferred pond alternative for Basin 2 is a combination of Pond 2B-1 and Pond 2B-2.

Pond 2B-1 is located on the south side of S.R. 40 at approximately station 1321+00 and is designed to treat and attenuate a portion of Basin 2 between station 1320+50 and station 1345+00. This pond site sits primarily upon one (1) parcel, with the conveyance to the proposed outfall passing through one (1) additional parcel. With the data compiled it was determined that Pond 2B-1 will be a wet pond with the normal water level/control elevation set at elevation 16.60 feet, which is lower than the estimated SHWT in the area, but is necessary to maintain hydraulic grade line clearance from the low point in the roadway. In order to avoid impacting the hydroperiod of the adjacent wetland by drawing down the water table, an impervious liner was factored into the cost of this pond alternative. Preliminary pond sizing calculations indicate that this pond requires 4.41 acres of area. This pond will outfall to the tributary to the Little Tomoka River upstream of CD-1.

Pond 2B-2 is located on the north side of S.R. 40 at approximately station 1335+00 and is designed to treat and attenuate a portion of Basin 2 between station 1335+00 and 1345+00. This pond is proposed to be used

in conjunction with Pond 2B-1. This pond site sits upon one (1) parcel. With the data compiled it was determined that Pond 2B-2 will conservatively be a wet pond with the normal water level/control elevation set at elevation 12.00 feet. Preliminary pond sizing calculations indicate that this pond requires approximately 1.59 acres of area. This pond will outfall to the downstream end of CD-1

Basin 3

The preferred pond alternative for Basin 3 is a combination of Ponds 3A and 3B. Ponds 3A and 3B are a proposed offline dry retention system where treatment will occur in the existing FDOT Pond 3A and attenuation will occur in a new site, Pond 3B. Pond 3A is the existing footprint of the FDOT pond already located on the south side of S.R. 40 at approximately station 1359+00. Pond 3B is a proposed pond located on the north side of S.R. 40 at approximately station 1361+00. In the original permit (#4-127-23005-2), attenuation was accomplished in the roadside swales for this basin, and required approximately 0.50 ac-ft of attenuation volume. With the additional impervious area proposed in this basin, another 0.62 ac-ft of attenuation volume is required. In total, 1.12 ac-ft of attenuation volume is required. This pond site would require approximately 1.17 acres of right-of-way.

Basin 4

The preferred alternative for Basin 4 is Pond 4. Pond 4 is an existing FDOT dry retention pond (permit #4-127-23005-2) located on the south side of S.R. 40 at approximately station 1370+00. This pond site will require re-grading and expansion within the existing right-of-way to accomplish the stormwater treatment and attenuation. Since Pond 4 is the only alternative within Basin 4 for stormwater treatment and attenuation, a review of the existing permit and as-built plans for this portion of S.R. 40 was performed so that an accurate PONDS model could be created to determine the feasibility of the proposed pond re-grading and expansion within the right-of-way.

Pond 4 was designed as an online dry retention pond with the bottom elevation set at 13.50 feet NGVD. An emergency overflow structure at the northwest side of the pond will provide emergency relief for extreme storm events. The emergency overflow structure will discharge directly to the Tomoka River.

Basin 5

The preferred alternative for Basin 5 is Pond 5. Pond 5 is an existing dry retention pond located approximately 1,100 feet north of S.R. 40 behind the Calvary Christian Center and east of I-95. This pond treats and attenuates for I-95 and the proposed six-laning of S.R. 40 from Booth Road to Williamson Boulevard. The basin limits on I-95 extend from the high point of the bridge over S.R. 40 to the south end of the dual bridges over the Tomoka River, a distance of approximately 1,923 feet and includes the ramps from the reconstructed S.R. 40 interchange. The existing pond site is approximately 1.77 acres at the bottom (EL. 14.76 feet NGVD) and outfalls to the Tomoka River via the existing roadside swale along I-95. This pond was previously permitted (#4-127-23036-5) in the Interstate 95/S.R. 9 – US 92 to Airport Boulevard Overpass project and is referred to as Pond 7 for that project.

The permitted calculations showed no breakdown of area between the proposed six lane section of I-95 and the future six lane section of S.R. 40. The only items provided were the ultimate basin area (Basin 1000A: 42.23 ac), pavement area (23.841 ac) and grassed area (18.389 ac), along with a drainage basin map. The approach taken was to replicate the basin area delineation in Microstation, and compare it to the permitted ultimate condition area. The area delineated in Microstation was computed to be 36.95 acres; 5.28 acres less than the permitted ultimate condition. The proposed impervious area along S.R. 40 was also measured in Microstation and resulted in 19.58 acres of total impervious area, which included offsite areas, I-95, and S.R. 40 impervious areas. Since the measured areas in Microstation were less than the permitted areas, the standards to which the permit was issued should remain.

3.7.4 BRIDGE ANALYSIS

There are two existing bridge sites that are within the limits of this project; S.R. 40 over the Tomoka River and I-95 over S.R. 40. The S.R. 40 bridges over the Tomoka River will need to be widened or replaced to accommodate the proposed typical section of S.R. 40. The existing I-95 bridge over S.R. 40 accommodates the proposed typical section of S.R. 40 under I-95 and therefore does not require replacement or modification. The purpose of the bridge analysis is to establish the typical sections, geometry, vertical clearance, and structure types for the S.R. 40 bridges over the Tomoka River that require widening or replacement. The analysis was prepared in accordance with the requirements of Chapter 26.8 "Bridge Analysis" of the Florida Department of Transportation *Plans Preparation Manual* (PPM) dated January 2014.

The S.R. 40 westbound and eastbound bridges over the Tomoka River are suitable for widening since there are no proposed changes to the vertical geometry and both have very high sufficiency ratings, making them excellent candidates for widening. To achieve the required bridge width for the preferred typical section of S.R. 40, both the westbound and eastbound bridges will be widened to the inside and outside. Viable span configurations, superstructure and substructure types will be identified for the two bridges. The following factors are considered in the identification of the proposed bridge concepts:

- Environmental and site considerations
- Vertical and horizontal clearances (existing and proposed)
- Vertical and horizontal geometry
- Typical Section
- Aesthetic level for bridge and bridge approaches
- Location Hydraulics Report
- Bridge deck drainage considerations
- Stream bottom profile
- Conceptual geotechnical data

S.R. 40 WESTBOUND AND EASTBOUND BRIDGES OVER TOMOKA RIVER

S.R. 40 will be widened from a four lane section to a six lane section within the limits of the existing bridges which span the Tomoka River. The proposed westbound and eastbound bridges will match the urban roadway typical leading up to the bridges. The westbound and eastbound travel lanes are separated by a 22'-0" median. One of the proposed features of this widening was a physically separated shared use path bridge on the north side adjacent to the westbound bridge. Figure 3-18 shows the proposed widening presented at the public hearing. Following the public hearing, FDOT worked with local governments to develop shared use path maintenance agreements. No maintenance agreement could be reached for maintenance of the separated shared use path bridge. FDOT has decided to attach the shared use path to the north side of the westbound bridge and widen as described below and shown in Figure 3-19. By making the shared use path a part of the existing bridge its maintenance would be included in the routine bridge maintenance. The proposed 12-ft shared use path width has been maintained in this modification.

As shown in Figure 3-19, the westbound bridge will accommodate three 12'-0" lanes, 2'-6" inside shoulder, 5'-6" outside shoulder with a 1'-6" traffic railing separating the travel lanes from a 12'-0" shared use path along the north side of the bridge. A 1'-0" pedestrian/bicycle railing will be placed along the outside of the deck edge adjacent to the shared use path and a 1'-6" traffic railing along the inside of the deck edge adjacent to the travel lanes. A new traffic railing with an aluminum pedestrian/bicycle bullet railing will be retrofitted to the existing deck between the shared use path and the travel lanes. The traffic railing will protect pedestrians and bicyclists on the shared use path from vehicular traffic and the additional bullet railing will be added to accommodate bicyclists riding in the outside shoulder of the bridge who do not wish to use the shared use path. The eastbound bridge will consist of three 12'-0" lanes, 2'-6" inside shoulder, 5'-6" outside shoulder, 1'-6" traffic railing along the inside of the deck edge, and a 1'-0" pedestrian/bicycle railing along the outside of the deck edge. In addition, a 1'-6" traffic railing retrofitted to the existing deck will separate vehicular traffic from a new 6'-0" sidewalk along the south side of the eastbound bridge. The minimum required sidewalk width is 5'-0", however a 6'-0" sidewalk is needed to accommodate potential superstructure options for the proposed widening.

The slope of the proposed bridge widening will match the existing slopes of 0.016 ft/ft crowned about the profile grade line of the westbound bridge and 0.02 ft/ft downward towards the outside for the eastbound bridge. The shoulder widths will be designed to adequately contain spread water on the bridge. Bridge deck runoff will flow along the traffic railings to the end of the bridges where it will be collected into the roadway drainage systems. The overall out-to-out width of the bridges is 60'-0½" and 54'-0½" for the westbound and eastbound bridges, respectively. The overall length of each bridge will be set to match the current bridge lengths of 360'-0". The bridges span the Tomoka River in a tangent alignment with no skew on the westbound bridge and a 20° skew on the eastbound bridge.

The proposed profile of S.R. 40 will match the existing profile which provides a vertical clearance of 15.4' for each of the bridges. A minimum vertical clearance of 12'-0" above Mean High Water (MHW) is required per the PPM Chapter 2.10.1 due to the extremely aggressive environmental classification of the superstructure. In addition, vertical clearances will also be subject to the requirements of the Coast Guard, St. Johns River Water Management District, and any other regulatory agency having appropriate statutory jurisdiction or

authority. The minimum horizontal clearance required between intermediate bents is 10'-0" per the PPM Chapter 2.10.2.

Both of the existing bridges consist of AASHTO beams, which, with the exception of AASHTO Type II beams, are no longer used in new construction. Therefore, viable beam options for widening the bridges are limited to prestressed concrete AASHTO Type II beams or Florida-I Beams (FIBs) with a cast-in-place concrete deck. Florida U beams and steel girders are impractical and too costly for this site. Based on the span lengths of the existing bridges, an AASHTO Type II beam or a FIB 36 will most likely be used for both superstructures. Since both of the bridges will be widened to the low side, a shallow beam section will help to mitigate any issues with meeting the existing vertical clearance. Both the AASHTO Type II beam and FIB 36 are each 3'-0" in height but differ in their beam spacing to span length capabilities. The final selection of beam type will be determined in the design phase of the project; however, in order to accommodate the option of a wide top flange FIB 36, the outside eastbound bridge widening was increased an additional foot which provides a 6'-0" sidewalk in lieu of a 5'-0" sidewalk. All elements of the bridge will be designed to meet the criteria for Level One aesthetics per the PPM Chapter 26.9.4 which may include color pigments in the concrete and texturing of concrete surfaces.

Based on borings from the existing bridge plans and a Preliminary Soil Survey Report, the soils encountered were mostly fine sands with small amounts of silt underlain with clayey sands. The existing bridge plans were used to establish the environmental classification as extremely aggressive for both the superstructure and substructure for both concrete and steel materials. Viable foundation alternatives include prestressed concrete piles, steel H-piles, and steel pipe piles. Shallow foundations were eliminated from further consideration due to their susceptibility to variable settlement issues. Additionally, drilled shafts were eliminated due to the lack of a rock bearing layer at the bridge site. The final selection of the foundations will be based on environmental classification, pile capacities, driving conditions, pile lengths, and economy of pile sizes for design loads during the design phase of the project.

A *Preliminary Soil Survey Report* was completed for this project. In general, the soils encountered were mostly fine sands with small amounts of silt underlain with clayey sands. The existing bridge plans for the adjacent bridges were used to establish the environmental classification as extremely aggressive for both the superstructure and substructure for both concrete and steel materials. Viable foundation alternatives include prestressed concrete piles, steel H-piles, and steel pipe piles. Shallow foundations were eliminated from further consideration due to their susceptibility to variable settlement issues. Additionally, drilled shafts were eliminated due to the lack of a rock bearing layer at the bridge site. The final selection of the foundations will be based on pile capacities, driving conditions, pile lengths, and economy of piles sizes for design loads during the design phase of the project.

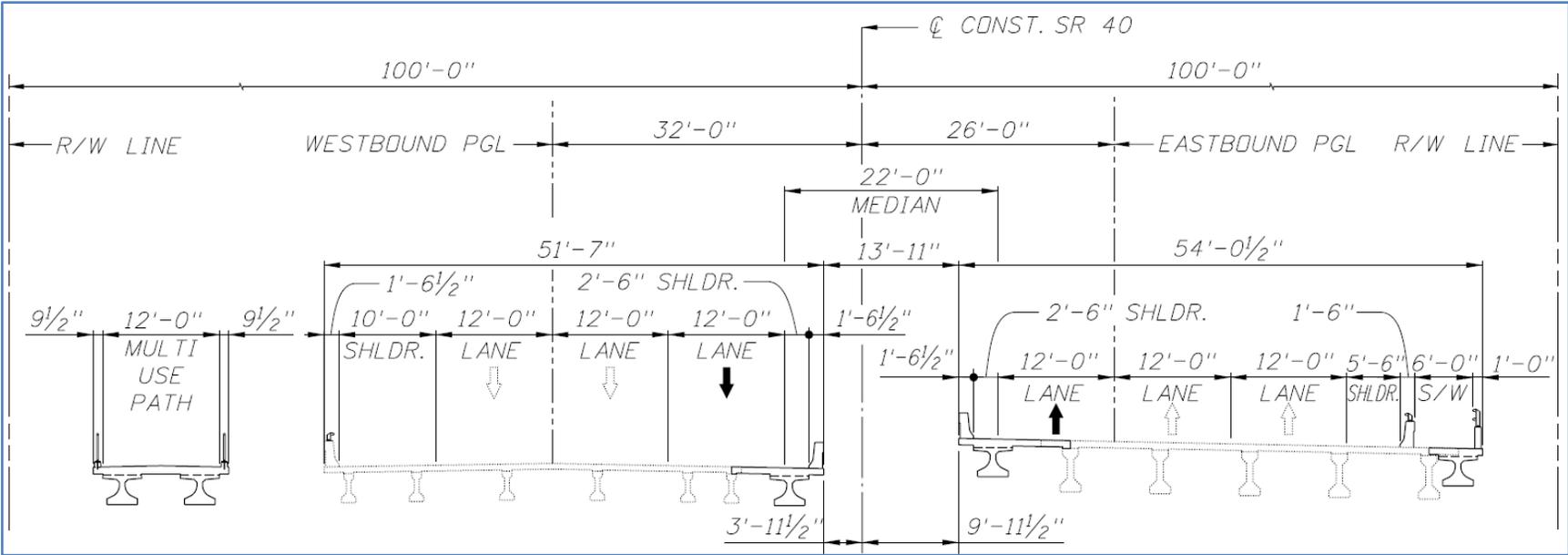


Figure 3-18 Public Hearing Preferred Bridge Alternative

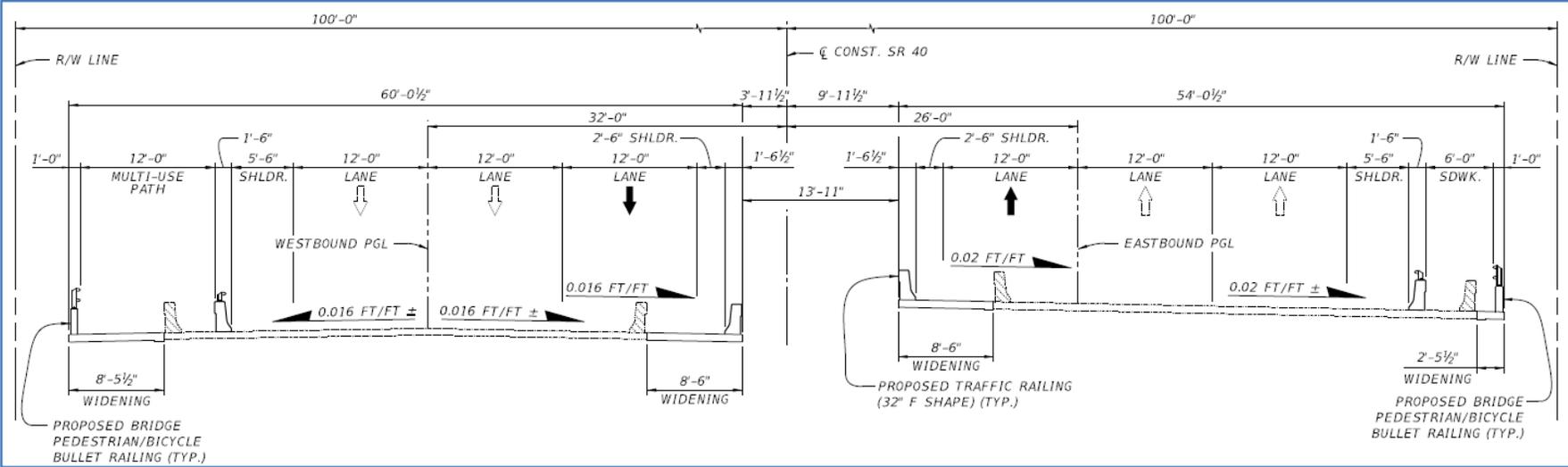


Figure 3-19 Final Preferred Bridge Alternative

SPILL SLOPES VS RETAINING WALLS

Grade separated structures generally are candidates for either end spans or retaining walls holding back the adjoining roadway embankment. Factors that contribute to determining the best alternative include cost, geotechnical information, geometry, and other site and structural considerations. Since the existing bridges use spill slopes along the Tomoka River, the proposed bridge widenings will use sloped end spans in front of the end bents. Retaining walls may be necessary leading up to and away from the bridges along the north and south sides in order to minimize right-of-way impacts. The proposed sloped end spans and potential retaining walls will be protected with rubble riprap by extending the limits of the existing riprap to encompass the areas of new construction.

3.7.5 DESIGN TRAFFIC VOLUMES

Section 3.1.2 (page 3-2) summarizes the 2035 design year traffic volumes utilized in the development of alternatives for the S.R. 40 PD&E project. The Build Alternative 5 traffic volumes presented in the *Design Traffic Technical Memorandum (DTTM) (December 2011 with March 2012 Addendum #1)* were utilized to determine the ultimate capacity needs for the project area of S.R. 40, as well as the specific turn lane requirements at the intersections along the corridor.

3.7.6 INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

The DTTM determined the turn lane requirements at the signalized intersections along the S.R. 40 corridor to accommodate future traffic demand. No modifications to the number or locations of existing signalized or unsignalized median openings were made throughout the corridor in order to maintain the same level of access to adjacent land uses. In some cases right-turn lanes were eliminated for some low-volume unsignalized locations in order to eliminate the need for additional right-of-way. The removal of these existing right-turn lanes are justified by the additional lane on S.R. 40 that will provide the capacity needed for the right-turn volumes.

The signalized intersections requiring turn lane modifications include Breakaway Trail, Tymber Creek Road, Booth Road, the I-95/S.R. 40 ramp intersections, and Williamson Boulevard. The intersection modifications include adding or extending turn lanes as well as improvements to the signalization schemes. No existing unsignalized intersections were found to warrant signalization in the design year. Table 3-4 in Section 3.4.3 (page 3-23) above includes a summary of modifications needed at signalized and unsignalized locations beyond the four- to six-lane widening of the through lanes on S.R. 40. Figure 3-5 and Figure 3-6 in Section 3.1.2 (page 3-2) above show the necessary lane configurations at the signalized intersections to meet LOS criteria for the 2035 design year.

3.7.7 ACCESS MANAGEMENT DESIGNATION

S.R. 40 is classified by FDOT as an Urban Principal Arterial through the study area. Furthermore, it is designated as an emerging Strategic Intermodal System (SIS) highway facility. The FDOT access management

classification for S.R. 40 is Class 3 from Breakaway Trail to Tymber Creek Road, and Class 5 from Tymber Creek Road to Williamson Boulevard, according to the FDOT Straight Line Diagrams (SLD).

Breakaway Trail to Tymber Creek Road

The Class 3 access management designation for S.R. 40 from Breakaway Trail to Tymber Creek Road is considered a “restrictive” designation and specifies a minimum connection spacing of 660 feet, a minimum directional median opening spacing of 1,320 feet, and a minimum full median opening spacing of 0.5 miles. Furthermore, the minimum signalized intersection spacing for this classification is 0.5 miles.

A review of the existing access characteristics for this segment showed that the existing spacing between several access locations do not meet the minimums specified by FDOT. However, no further modifications to the existing driveway or sidestreet connections, median openings, or signal spacings are proposed. The existing locations that do not meet access spacing requirements are as follows:

- Old Tomoka Road connection west of Breakaway Trail: Approximately 100 feet spacing
- Full median opening/signal at Breakaway Trail east to full median opening at Monte Savino Boulevard: Approximately 2175 feet (0.41 miles) spacing
- Full median opening at Monte Savino Boulevard east to full median opening at Riverbend Community Church: Approx. 1725 feet (0.33 miles) spacing
- Old Tomoka Road connection east of Riverbend Community Church: Approximately 100 feet spacing
- Full median opening at Riverbend Community Church east to full median opening/signal at Tymber Creek Road: Approx. 1400 feet (0.26 miles) spacing
- Walgreens Driveway east to Tymber Creek Road: Approx. 300 feet spacing

Tymber Creek Road to Williamson Boulevard

The Class 5 access management designation for S.R. 40 from Tymber Creek Road to Williamson Boulevard is considered a “restrictive” designation and specifies a minimum connection spacing of 440 feet, a minimum directional median opening spacing of 660 feet, a minimum full median opening spacing of 0.5 miles, and a signalized intersection spacing of 0.5 miles where the speed is posted 50 mph. Where the speed transitions to 45 mph east of Booth Road, a minimum connection spacing of 245 feet, a minimum directional median opening spacing of 660 feet, and a minimum full median opening and signal spacing of 0.25 miles is specified.

A review of the existing access characteristics on S.R. 40 for this segment showed that the existing spacing between several access locations along S.R. 40 do not meet the minimums specified by FDOT. However, no further modifications to the existing driveway or sidestreet connections, median openings, or signal spacing are proposed. The existing locations that do not meet current access spacing requirements are as follows:

- Full median opening/signal at Booth Road east to full median opening at Interchange Boulevard: Approx. 675 feet (0.13 miles) spacing

- Full median opening at Interchange Boulevard east to signal at I-95 Southbound Ramps: Approx. 700 feet spacing
- Signal at I-95 Southbound Ramp east to signal at I-95 Northbound Ramp: Approx. 350 feet spacing
- Signal at I-95 Northbound Ramps east to Williamson Boulevard: Approx. 800 feet (0.15 miles) spacing
- Several existing driveway or sidestreet connections are closer than the minimums specified.
- Several driveway and sidestreet access connections along S.R. 40 between Tymber Creek Road and Williamson Boulevard are closer than the distances specified above.
- With the proposed speed reduction to 45 mph associated with the urban typical section from Tymber Creek Road to I-95, several of the existing access spacing deficiencies will now be within the acceptable minimums. No changes to the existing access configurations are proposed.

3.7.8 PEDESTRIAN AND BICYCLE FACILITIES

The proposed improvements associated with the recommended preferred alternative incorporate improvements to both the pedestrian and bicycle network in the study area. Pedestrian and bicycle facilities will be provided in both directions along the entire length of the project. The preferred rural typical section from Breakaway Trail to Tymber Creek Road will include a 5-foot wide paved shoulder on the outside of both directions of travel, which can be utilized as a bicycle lane. A 12-foot wide asphalt shared-use path will be provided on the north side of S.R. 40 to serve both pedestrians and bicyclists. A 5-foot wide concrete sidewalk will be provided on the south side of S.R. 40 to serve pedestrians.

The preferred urban typical section from Tymber Creek Road to I-95 will include 5-foot wide paved bicycle lanes between the outside travel lane and the edge of gutter in each direction. The proposed typical section exceeds the minimum 4-foot wide paved bicycle lane specified in the FDOT Plans Preparation Manual where curb and gutter are present as a result of a request by the Volusia Transportation Planning Organization (TPO) Bicycle-Pedestrian Advisory Committee. A 12-foot wide asphalt shared-use path is proposed on the north side of S.R. 40, located a minimum of 4-feet behind the back-of-curb. A 5-foot wide concrete sidewalk is proposed along the south side of S.R. 40, located a minimum of 3-feet behind back-of-curb.

The existing 8-foot wide sidewalks along S.R. 40 underneath the I-95 overpass are proposed to remain. The 8-foot wide sidewalk adjacent to back-of-curb is proposed to continue on the north side of S.R. 40 from I-95 to Williamson Boulevard. On the south side of S.R. 40 between I-95 and Williamson Boulevard, the sidewalk will transition to be adjacent to the back of curb and will be 6-feet wide per FDOT standard.

For intersection locations where right-turn lanes are present, a minimum 5-foot wide bike lane will be provided between the outside through lane and the right-turn lane, consistent with guidance in the FDOT Plans Preparation Manual.

At signalized intersection locations, signalized and marked pedestrian crossings will be provided across all intersection approaches. Where median width permits, pedestrian cut-through refuge islands will be provided for protection of slower pedestrians who cannot make the full crossing within one walk cycle. At

unsignalized locations along S.R. 40, marked crosswalks will be provided across the minor street approach where the shared-use path or sidewalk crosses the side street. ADA accessible ramps will be provided at all locations where the shared-use path or sidewalk crosses S.R. 40 or a side street. Accessible pedestrian signals (APS) will be provided at the S.R. 40 and Williamson Boulevard intersection at the signalized pedestrian crosswalks.

The 12-foot shared-use path will be maintained by the City of Ormond Beach per written agreement contained in Appendix G of this document. The shared-use path segment on the Tomoka River bridge will be attached to the bridge's northern side and will be maintained by FDOT.

3.7.9 RIGHT-OF-WAY REQUIREMENTS AND RELOCATIONS

A primary objective in the alternatives development and evaluation was to minimize or eliminate the need for right-of-way acquisition associated with the widening of the roadway. This objective was generally met, with the exclusion of a few locations where intersection turn lane requirements necessitated minor right-of-way impacts. The primary impact associated with the roadway widening is between I-95 and Williamson Boulevard where the existing right-of-way width is constrained. The impacts to the Valero site on the southwest corner of the S.R. 40/Williamson Boulevard intersection represent a large portion of the right-of-way costs because of the strip of right-of-way needed along the site frontage is anticipated to impact the canopy and part of the pump islands, along with paving, signage and monitoring wells. The determination at this study stage is this business will be impacted but may continue to operate. This will be re-evaluated during final design. The future Sunoco site at the southeast corner of S.R. 40 and the I-95 northbound ramps has coordinated with the City of Ormond Beach and FDOT to donate the needed right-of-way as part of the site redevelopment.

The stormwater drainage requirements of the project necessitated more significant right-of-way requirements to accommodate the preferred stormwater retention ponds. The selection of the preferred stormwater pond alternatives took into account the right-of-way impacts and costs, and sought to minimize them.

No relocations are anticipated with the recommended preferred alternative.

3.7.10 UTILITIES AND LIGHTING (INCLUDE MAINTENANCE AGREEMENT)

Utilities

A Utility Assessment Package was assembled to provide information on the existing and proposed utilities. The utility providers and operators were determined using a variety of sources. First, a Sunshine 811 call was made to identify the utility providers and operators registered with the locate service. Next, the project was visited and field investigations and observations were made. Above-ground utility features, including poles, hydrants, valve boxes, manholes, etc. were noted and verified with the utility providers and operators during the coordination process for the project. The final source of data collection was from past FDOT and/or county roadway plans along or adjacent to the S.R. 40 study area.

All of the utility providers and operators were contacted in August 2011 and again in May 2012 and were provided conceptual plans and alternatives for review. Based on the conceptual plans, they were asked to assist in locating and identifying their existing and proposed facilities, as well as provide an estimated relocation cost. Through mark-ups and/or verbal descriptions, each utility provider or operator was able to provide information on the location and type of existing facilities and some information on the planned facilities anticipated in the future. The individual utility providers and operators identified and a description of their existing facilities are outlined below:

- AT&T Florida – AT&T maintains both aerial and buried facilities along the north side of S.R. 40 from Breakaway Trail to just west of I-95, where all AT&T lines enter into a manhole system and cross under the I-95 Bridge. Facilities return to both aerial and buried just east of I-95. There are also two buried cables along the south side of S.R. 40 from Booth Road to just past the I-95 Bridge. AT&T Florida will require adjustment at areas where the FP&L pole line will be relocated. Minor relocations for AT&T Florida’s buried facilities are anticipated. The estimated relocation cost for AT&T Florida on the project is \$50,000.
- AT&T Corporation – AT&T Corporation maintains buried high capacity fiber optic cable (FOC) from Tymber Creek Road to Williamson Boulevard. The FOC is located in six, 1/2-inch conduits (duct bank) located along the south side of S.R. 40 for the limits of the project. The estimated relocation cost for AT&T Corporation on the project is \$50,000.
- Aqua Utilities Florida – No facilities exist in the project area.
- Bright House Networks – The majority of Bright House facilities are under mounted on FP&L poles with buried service drops throughout the project. All facilities are buried for the I-95 bridge crossing. Bright House Networks facilities will require adjustment at areas where the FP&L pole line will be relocated. The estimated relocation cost for Bright House Networks on the project is \$20,000.
- City of Ormond Beach – The City of Ormond Beach maintains a 16-inch potable water main and a 24-inch raw water main on the south side of S.R. 40 for the project limits. There are aerial crossings of two, 12-inch water mains and the 24-inch raw water main at the Tomoka River. A 10-inch force main enters the project at Monte Savino Boulevard and continues along the north side of S.R. 40 to the end of the project where it transitions to an 8-inch force main. There is a segment of 6-inch force main along the south side of S.R. 40 from Booth Road to Interchange Boulevard. Minor impacts are anticipated for the City’s system with the exception of two locations. From Indian Springs Drive to just west of Tymber Creek Road and from I-95 Bridge to Williamson Boulevard, the City’s 24-inch raw water main will be located under the proposed pavement. FDOT typically does not allow utilities to remain under the pavement unless formal approval is provided. Further coordination on this item will be required once the project is under design. Relocation of these two segments would be approximately \$320,000.
- Florida Power & Light Distribution – FP&L distribution has overhead facilities primarily along the north side of S.R. 40 for the project limits. There are numerous buried service points along the alignment and an underground crossing at the I-95 Bridge. The system operates at 23 kV west of I-95 and 13 kV east of I-95. Due to the proposed typical section and areas of limited right-of-way, it is anticipated that approximately 9 power poles will be impacted along with several down guys that

will require adjustment due to the proposed shared-use path. Most of the poles affected are located just west of the I-95 Bridge. The estimated relocation cost for FP&L on the project is \$105,000.

- Florida Power & Light Transmission – No facilities exist in the project area.
- Sunesys – Sunesys maintains aerial fiber optic cable mounted on the FP&L poles from Tymber Creek Road to just west of the I-95 Bridge, where the fiber optic line transitions underground and continues to the end of the project. Sunesys facilities will require adjustment at areas where the FP&L pole line will be relocated. The estimated relocation cost for Sunesys on the project is \$15,000.
- TECO Peoples Gas – Facilities are located outside the project limits.

Table 3-9 summarizes the feedback received, whether the utilities are within the FDOT right-of-way or in place by easement, and the utility relocation costs for the project. All utilities are within the FDOT right-of-way, making the utility companies responsible for the relocations. Thus, the utility relocation cost is not included in the overall project construction costs.

Table 3-9 Utilities Relocation Costs

| Company | Information Provided | ROW or Easement | Estimated Cost |
|--------------------------------------|---|-----------------|------------------|
| AT&T Florida | AT&T provided verbal description of AT&T Distribution's facilities throughout the corridor. | ROW | \$50,000 |
| AT&T Corporation | AT&T Corporation provided marked conceptual plans with existing facilities identified. | ROW | \$50,000 |
| Bright House Networks | Bright House Networks provided a verbal description of Bright House Networks facilities within the project. | ROW | \$20,000 |
| City of Ormond Beach | City of Ormond Beach provided GIS and CAD files of existing facilities. | ROW | \$320,000 |
| FP&L – Distribution | FP&L Distribution provided marked conceptual plans with existing facilities identified. | ROW | \$105,000 |
| Sunesys | Sunesys provided GIS and marked plans of existing facilities within the project. | ROW | \$15,000 |
| Total Estimated Utility Costs | | | \$560,000 |

Lighting

A *Lighting Justification Report (April 2013)* was prepared for the project to determine the need for future roadway lighting. The *Highway Lighting Justification Procedure* contained in Chapter 15 of the *FDOT Manual on Uniform Traffic Studies (MUTS)* was followed to analyze and justify the need for roadway lighting. Warrants contained in the *American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide*, as well as in *NCHRP Report 152* were used to analyze the need for roadway lighting.

The *AASHTO Highway Safety Manual (HSM)* was consulted for quantifiable guidance on the benefits of installing roadway or intersection lighting on an arterial roadway. Installing lighting on an unlit facility is expected to result in a 16-40% reduction in nighttime injury crashes on roadway segments. Installing intersection lighting is expected to result in an 18-58% reduction in nighttime injury crashes at the intersection.

A benefit-cost analysis was performed for the segments found to have high night/day crash rate ratios per the AASHTO lighting warrants, and also meeting the NCHRP Report 152 warrants. The benefit-cost analysis was performed according to the procedure provided in Chapter 15 of the FDOT MUTS. The two segments analyzed for benefit-cost ratio were as follows, with the results shown:

- Tymber Creek Road to I-95 SB Ramps: B/C = 9.8
- I-95 SB Ramps to Williamson Boulevard: B/C = 31.4

The benefit-cost ratios for both segments are greater than the threshold of 2.0, so continuous roadway lighting is justified along both of the segments. Since lighting already exists along the segment from I-95 to Williamson Boulevard, a review of the existing lighting system should be done to determine if improvements are needed to meet current illumination standards.

New FDOT guidance is to provide intersection lighting at all signalized intersections providing pedestrian crosswalks. This would apply to the intersections of S.R. 40 with Breakaway Trail, Tymber Creek Road and Booth Road. Lighting is already provided at the signalized intersections of the I-95 Ramps and Williamson Boulevard.

The following is recommended based on the conclusions of the *Lighting Justification Report*:

- Provide continuous roadway lighting along the segment of S.R. 40 from Tymber Creek Road to the I-95 SB ramps.
- Provide adequate roadway lighting for the segment of SR 40 from I-95 to Williamson Boulevard. A review of the existing lighting is needed to determine if any improvements are needed to meet current illumination standards.
- Provide intersection lighting at, and in the influence areas of, the six signalized intersections along the SR 40 study corridor.

The *Lighting Justification Report* is available for review at the FDOT District 5 office in DeLand.

3.7.11 AESTHETICS AND LANDSCAPING

The rural character of the S.R. 40 corridor from Breakaway Trail to Tymber Creek Road is not expected to change appreciably with the widening from 4-lane to 6-lane. The segment will maintain the existing depressed median, and limited aesthetic or landscaping opportunities are available because of the functional nature of that area for roadside safety and drainage. The outside shoulders will be improved to add a concrete sidewalk on the south side of S.R. 40, and an asphalt shared use path on the north side. Opportunity may exist between the back of the sidewalk and/or shared use path (outside the clear zone) and the right-of-way line to provide enhanced landscaping, if desired.

The urban typical section proposed to be constructed east of Tymber Creek Road will reinforce the changing character of the corridor from rural/suburban to urban. The raised median may present opportunities for landscaping that is acceptable within the clear zone and does not impede intersection sight distance. The outside shoulders will be improved with curb and gutter, with a sidewalk on the south side and a shared use

path on the north side. Opportunity may also exist between the back of the sidewalk and/or shared use path (outside the clear zone) and the right-of-way line to provide enhanced landscaping, if desired.

In the future, aesthetics and landscaping along the project corridor will be reassessed and evaluated as part of the final design phase of this project to take into consideration input from the City of Ormond Beach. The proposed preferred alternative does not include any special landscaping features in addition to the required sod areas in the typical sections.

3.7.12 SPECIAL FEATURES (NOISE BARRIERS, RETAINING WALLS, ETC.)

Retaining walls have been assumed along the Tomoka River bridge approaches in order to reduce the right-of-way footprint of the bridge widening. The retaining walls were estimated to extend 200 feet to the west of the bridge, and 100 feet to the east of the bridge on both the north and south side.

A *Noise Study Report (February 2013)* was performed for the study area to determine the impacts of the preferred roadway alternative on traffic noise levels to properties adjacent to S.R. 40. Four locations east of Tymber Creek Road were found to be impacted, but noise barriers were not found to be feasible or reasonable at any of the locations.

Pedestrian and bicycle railing has been assumed to be needed adjacent to the outside of the shared use path and sidewalk along the approaches to the Tomoka River bridge. The railings will extend at least 300 feet in advance of and beyond the bridge along the retaining walls and steep tie-in slopes in advance of the walls.

The proposed widening will impact the existing guardrail along the inside and outside shoulders of S.R. 40 on the approaches and departures to the Tomoka River bridge. New guardrail is proposed to be installed on the inside and outside shoulders to replace the existing. The extents of the guardrail are anticipated to be similar to what exists.

The Value Engineering (VE) review for the project proposed that asphalt base course (black base) be used instead of Optional Base Group 9 (limerock) for the widening of S.R. 40 through the superelevated curve from approximate Sta. 1325+85 to Sta. 1340+25. The black base will only be used for the additional outside lane and shoulder in the westbound direction, which is on the low side of the superelevation. This is where there is potential groundwater intrusion into the base material. Additional engineering is needed in final design to confirm the need to use black base for clearance above the seasonal high groundwater elevation, as well as the thickness of the base course layer.

3.7.13 PRELIMINARY TRAFFIC MANAGEMENT PLAN

The construction of the proposed widening of S.R. 40 through the study area can be achieved while maintaining traffic flow in both directions. Guidance on construction traffic management contained in Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)*, as well as Index 600 of the FDOT Construction Standards should be used in developing a detailed construction traffic management plan. Construction of the proposed improvements could be managed as follows:

Lane Widening

- Breakaway Trail to Tymber Creek Road:
 - The widening to add a third travel lane in each direction is proposed to be to the outside of the roadway. This will allow construction activities to be staged to the outside of the roadway. Separation distance between traffic and construction activities can be achieved by narrowing the existing travel lanes in either direction to 10 feet wide, or by shifting traffic inside to utilize the 4-foot inside shoulder in the westbound direction. An inside shoulder only exists in the eastbound direction from Sta. 1320+60 to Sta. 1342+65 where traffic could be shifted inside to utilize the shoulder. Where an inside shoulder does not exist, temporary shoulder paving could be used to allow for an inside lane shift.
- Tymber Creek Road to I-95:
 - The widening to add a third travel lane in each direction is proposed to be to the inside (median) of the roadway. Construction activities will need to be staged within the existing 46-foot median, and adequate separation distance will be needed between construction activities and vehicular traffic. The construction of the segment between Tymber Creek Road and I-95 could be completed in the following steps:
 - Shift traffic to the outside to utilize the existing 5-foot paved shoulder during the construction of the raised median and additional travel lane. This would provide at least 5 feet of separation in the existing inside travel lane if 12-foot travel lanes are maintained through the construction zone.
 - Once the raised median and additional inside travel lane are complete, shift traffic to the inside, close the outside travel lane, and maintain flow of two lanes of traffic in each direction. Construct the bike lane, curb and gutter, and sidewalk/shared use path on the outside of the roadway.
- I-95 to Williamson Boulevard:
 - The widening of S.R. 40 between I-95 and Williamson Road is primarily to the outside, with some minor adjustments to the median geometry.
 - In the westbound direction, the outside widening can be completed first by temporarily narrowing the travel lanes and shifting traffic to the inside to maintain separation between traffic and construction activities. Once the outside widening is constructed, the median can be rebuilt to the newly proposed geometry.
 - In the eastbound direction, the outside widening can be achieved without affecting through traffic. Right-turning traffic at Williamson Boulevard will be impacted by the widening to add an additional right-turn lane.

Traffic Signal Replacement

The traffic signals at Breakaway Trail, Tymber Creek Road, Booth Road, and Williamson Boulevard are proposed to be replaced with new standard mast arm poles. Additionally, the signal mast arm pole on the

northeast corner of the intersection of S.R. 40 with the I-95 northbound on-ramp will be impacted by the proposed widening and will be relocated. The existing traffic signals or temporary traffic signals should be kept operational for the duration of the construction activities, with minimal down-time between the switch-over from the existing signals to the new signals.

Bridge Construction

The construction of the widening of the Tomoka River bridge will require staging construction activities on the existing structure to avoid in-water work as well as to work within the space constraints of the existing bridge spans. Complete closures of the bridge during construction should be avoided, but the staging of construction activities on the existing bridge structures may require the narrowing of traffic to one lane in one or both directions at times. A more detailed construction sequence and traffic management plan for the bridge construction will be prepared during final design.

3.7.14 VALUE ENGINEERING SUMMARY

A Value Engineering (VE) Study was conducted for this project the week of July 16 through July 20, 2012. The VE Team developed 16 ideas, of which it recommended seven (7) VE alternatives for the project. A summary of each recommendation followed by the project team responses is listed below. A Value Engineering Resolution meeting took place on September 19, 2012 to discuss and make a formal decision on whether to accept or reject each recommendation. The conclusions of the meeting are presented below for each VE alternative.

VE Recommendation No. 1

Construct the 12-foot wide shared-use path on the north side of S.R. 40 with a 2.5-inch thick asphalt Superpave layer instead of the standard 1.25-inch thick Superpave layer. The proposed 2.5-inch asphalt layer is more durable to accommodate utility vehicles accessing the adjacent overhead power lines, and will require less maintenance. The proposal increases the construction cost by approximately \$98,000.

Response: The PD&E project team agreed with increasing the thickness of asphalt layer to 2.5-inches. Overhead and underground utilities located on the north side of S.R. 40 increase the likelihood and frequency of utility maintenance vehicles using the shared-use path to access facilities. The project team accepted the proposal and it was confirmed at the VE Resolution meeting. The recommendation was incorporated in the preferred alternative typical section package and LRE cost estimates.

VE Recommendation No. 4

From Station 1326+00 to 1339+00 use Asphalt Base Course (Black Base) instead of Optional Base Group 9 (limerock) in order to meet base clearance requirements. Through this proposal, at least six (6) inches of base clearance is gained and FDOT base clearance requirements will be satisfied without raising the roadway profile. This reduces the chance of base failure and reduces the construction time. The potential cost savings is \$256,000.

Response: The project team agreed with using asphalt base course (black base) instead of lime rock in order to meet base clearance requirements above seasonal high groundwater levels. An evaluation was performed to assess the expected base clearance and led to the conclusion that the roadway profile does not need to be raised through the superelevated curve, and asphalt base course may not even be required. However, a conservative approach would be to assume that the widening of the low side (north side) of the curve be constructed with asphalt base course to avoid any potential high groundwater issues. This may be revisited during final design with more detailed survey of ground elevations and groundwater conditions to determine if utilizing limerock is acceptable to meet the base clearance requirement. The project team accepted the VE recommendation to use asphalt base course for the widening of the westbound lanes of S.R. 40, and it was confirmed at the VE Resolution meeting. The recommendation was incorporated into the preferred alternative typical section package and LRE cost estimates.

VE Recommendation No. 8

Instead of a right turn lane and three left turn lanes, provide a through lane, a right turn lane, and two left turn lanes southbound on Tymber Creek Road. This proposal would result in increased queue length for southbound right turn movements and eliminates the need for potential split-phasing of the side street (Tymber Creek Road) movements. The potential cost savings is \$17,000.

Response: The PD&E project team reviewed this proposal for reducing the number of southbound left turn lanes at Tymber Creek Road from three to two. The DTTM shows that the expected increase in the southbound left turn volume is very small over the design period analyzed (year 2035). The factor that is driving the need for the additional southbound left turn capacity is the significant increase in volume for the S.R. 40 eastbound and westbound through movements, which will require increased green time, robbing time from other movements. The need for the three-lane left turn is to move more volume through in a reduced green time. The DTTM shows that the third left turn lane is definitely needed by 2035, but may not be needed until after 2025. Further analysis is needed to more accurately define the timing for the needed improvement. The PD&E project team suggested rejecting this recommendation and continuing to provide triple southbound left-turns. As a follow-up, an evaluation of the proposed timing and potential to complete this ultimate improvement in phases will be investigated further if this is determined to be cost-effective. This was confirmed in the VE Resolution meeting.

VE Recommendation No. 10

Keep the existing single westbound to northbound right turn lane at Tymber Creek Road and add the additional lane in the future when needed. This proposal is in lieu of the signalized dual westbound to northbound right turn lanes included with Preferred Alternative B. The compelling reason for this alternative is to address the issue of traffic exiting Twin River subdivision having to cross two right turn lanes and three through lanes in order to turn left or make a U-turn at Tymber Creek Road. This alternative would decrease the cost of asphalt pavement and signalization, but decrease the storage capacity for the westbound right turn. The potential cost savings is \$24,000.

Response: According to the DTTM, this is a high right turn volume today (657 veh/hr in the 2011 PM peak) and in the future (995 veh/hr in 2035 PM peak). While capacity and intersection operations is a key

consideration, creating a safe opportunity for users of the shared-use path on the north side of S.R. 40 to cross the right turn lane is the primary factor driving the two-lane right turn and associated signalization. This right turn movement currently has 11 vehicles/minute making the right turn in the PM peak hour, increasing to over 16 vehicles/minute (every 4 sec). With a walk speed of 3.5 ft/sec, a pedestrian will cross a distance of 14 feet if they depart immediately after the vehicle clears before the next vehicle arrives. Discussion with FDOT staff during a project meeting led to agreement that signalizing the dual right turn lane would create a safer opportunity for pedestrians using the shared use lane to cross this high volume right turn lane. The right turn lane was thus placed under signal control furthering the need to have two lanes to handle the high volume. The project team proposed that this VE recommendation not be accepted. This was confirmed during the VE Resolution meeting.

VE Recommendation No. 13

Instead of acquiring a strip of site frontage along S.R. 40, acquire the entire Kangaroo fuel site and use the site for a SIS enhancement or a transit transfer station, park-and-ride, or other public purpose. A partial acquisition would equate to \$1,250 per square foot paid versus \$297 per square foot for the whole taking. The proposal has potential for increased benefit to stakeholders, traveling public, and provides for future right-of-way needs if future modifications to the S.R. 40/Williamson Boulevard intersection are needed. The proposal also reduces the risk involved in the total right-of-way acquisition cost. The potential increased right-of-way cost for this VE alternative is approximately \$1.42 million.

Response: The PD&E project team coordinated with the District Five Planning Office to evaluate the potential of providing a park-and-ride lot at this location. The preliminary evaluation was favorable for further consideration as it ranked #3 of potential park-and-ride lot locations being evaluated in District 5. Some of the favorable criteria for this location included proximity to a major commuter corridor (I-95), proximity to an arterial (S.R. 40), availability of an existing transit route and pedestrian and bicycle access. This location was evaluated by the District 5 Planning Office to determine the number of potential parking spaces the site can handle and the access and egress to the site, and was presented at the VE Resolution meeting. Additional steps included coordination with the City of Ormond Beach and Voltran. The recommendation was not accepted due to a lack of viability of the site as a park-and-ride lot as well as the additional cost associated with the right-of-way acquisition.

VE Recommendation No. 15

Keep the dual left turn lanes northbound on Williamson Boulevard to westbound S.R. 40 instead of adding a third left turn lane. This proposal eliminates the need for potential split-phasing of the side street movements, maintains 12-foot left turn lanes, eliminates the skew on the through lane to the entrance to Wal-Mart, and eliminates the tight inside left turn lane radius. The proposal has a potential for decreased capacity as future traffic volumes increase. The potential cost savings is \$16,000.

Response: The forecasted northbound left turn volume at Williamson Boulevard is projected in the DTTM to be extremely high, at 1733 veh/hr in the 2035 PM peak hour. The intersection currently operates at LOS D with a two lane northbound left turn in 2011 PM peak conditions. The adopted LOS for the intersection is LOS D. By increasing to three northbound left turn lanes in 2025, the intersection will operate at LOS D in the

AM and PM peak hours. By 2035, the average delay per vehicle through the intersection will increase by 10 seconds in the AM peak and 13 seconds in the PM peak as the intersection remains at LOS D but approaches LOS E. The Department's Design Traffic consultant was asked to evaluate the S.R. 40 & Williamson Boulevard intersection using two left turn lanes, a shared through-left lane and one right turn lane for the northbound approach. With this configuration, the intersection was projected to operate at LOS E in 2035. Keeping the existing intersection geometry with two left turn lanes will likely result in even greater delays. The project team proposed that this VE recommendation not be accepted due to the operational constraints associated with the recommendation. This was accepted during the VE Resolution meeting.

VE Recommendation No. 16

Avoid the existing sign on the Pond 3B site. The VE alternative proposes the pond design be modified to exclude impacts to the Twin Rivers subdivision entrance sign by utilizing portions of the property currently designated as remainder land area to shift the pond away from the sign or notch around the sign. This proposal reduces potential right-of-way legal exposure and right-of-way cost, and potential time savings in right-of-way acquisition. The potential cost savings is \$50,000.

Response: The PD&E project team investigated the location of the existing Twin Rivers sign on the northeast corner of S.R. 40 and Bayberry Drive relative to the proposed Pond 3B site to determine the impacts of the VE recommendation. As currently proposed, Pond 3B will not impact the location of the sign, even when considering the slopes to tie to existing ground. The sign is at the existing corner of the parcel under consideration for the Pond 3B site. In order to avoid right-of-way acquisition issues associated with the sign, the project team recommended modifying the limits of the right-of-way acquisition for the parcel (Tax ID #25-14-31-00-00-0143) to exclude the portion of the parcel that the sign is located on. The area is approximately 635 square feet. The recommendation was accepted during the VE Resolution meeting.

3.8 Construction Phasing

The widening of S.R. 40 to six lanes between Breakaway Trail and Williamson Boulevard has, or is in the process of being incorporated into both the City of Ormond Beach Comprehensive Plan and Volusia County Comprehensive Plan. FDOT is currently coordinating with the Volusia County TPO about amending their TIP to include the design phase for the project. Developer funding was committed in the Hunters Ridge Development of Regional Impact (DRI) Transportation Proportionate Share Agreement, dated December 20, 2010, for the PD&E to partially cover the design and construction of the section of S.R. 40 from Tymber Creek Road to Williamson Boulevard. Because funding may be available for the eastern segment of S.R. 40 from Tymber Creek Road to Williamson Boulevard, the project can be split into phases to accomplish the widening as funding becomes available.

3.8.1 PROJECT IMPLEMENTATION PHASE 1

The segment of S.R. 40 between Tymber Creek Road and Williamson Boulevard was found to require capacity improvements to the segments and intersections earlier than the west segment from Breakaway Trail to Tymber Creek Road. Thus, the east segment can be built first to provide six travel lanes as well as the

intersection turn lane and signalization improvements identified in Section 3.4.3. As part of this first phase (Phase 1), the Tymber Creek Road intersection improvements could be constructed, and the transition back to the existing roadway cross-section could occur to the west of the intersection. The proposed stormwater Pond 3B, and likely Pond 2B-1, would need to be constructed with the eastern segment. Phase 1 would also include the widening of the S.R. 40 bridge over the Tomoka River. The approximate project costs for the Phase 1 implementation as outlined above would total approximately \$18.25 million, including the components outlined in Section 3.9.

3.8.2 PROJECT IMPLEMENTATION PHASE 2

Phase 2 implementation of the project would include the remaining west segment of S.R. 40 from Breakaway Trail to the six-lane section constructed with the Phase 1 widening, just west of Tymber Creek Road. The remaining stormwater ponds (Pond 1 expansion and Pond 2B-1) would be constructed with the Phase 2 of the project. The approximate project costs for Phase 2 as outlined above would total approximately \$12.20 million, including the components outlined in Section 3.9.

3.8.3 ADDITIONAL PROJECT PHASING OPTIONS

The need for a three-lane southbound left-turn at the S.R. 40 and Tymber Creek Road intersection was presented in the DTTM for the PD&E project, and further investigated in the VE Review. The DTTM shows that the third southbound left-turn lane is needed by 2035, but may not be needed until after 2025. Further analysis is needed to more accurately define the timing for the needed improvement. The PD&E project team proposes that the timing of the need for the additional lane be evaluated further in order to help FDOT in staging the improvements. The widening of the north leg of Tymber Creek Road could then be delayed to such a point when the third southbound left-turn lane is needed.

3.9 Project Costs

The total project costs for the preferred build alternative total \$30.42 million in 2014 dollars. A breakdown of the project cost components is provided in Table 3-10 and further discussion of each component is described in Section 3.9.1 through Section 3.9.5.

Table 3-10 Project Costs

| Project Cost Component | Cost (2013/2014 \$ in Millions) |
|---------------------------------------|---------------------------------|
| Construction | \$17.72 |
| Design | \$2.13 |
| Construction Engineering & Inspection | \$3.01 |
| Environment Mitigation | \$0.13 |
| Right-of-Way | \$7.43 |
| Total Project Costs | \$30.42 |

3.9.1 CONSTRUCTION COSTS

The FDOT LRE system has been used to estimate the construction costs for this project. The estimate of construction costs for the preferred build alternative is \$17.72 million in 2014 dollars. A copy of the LRE estimate is provided in Appendix D.

3.9.2 DESIGN COSTS

Project design and engineering costs have been estimated as 12% of the estimated construction costs. For this project, this estimate is \$2.13 million in 2014 dollars.

3.9.3 CONSTRUCTION ENGINEERING & INSPECTION COSTS

Project construction engineering and inspection (C.E.I.) costs have been estimated as 17% of the estimated construction costs. For this project, this estimate is \$3.01 million in 2014 dollars.

3.9.4 ENVIRONMENTAL MITIGATION COSTS

Approximately 1.18 acres of wetland mitigation was identified as part of the Natural Environment Report for the PD&E project. Wetland impacts which result from the construction of the proposed project can be offset with either Senate Bill mitigation fee or wetland mitigation credits from the Farmton Mitigation Bank. Senate Bill mitigation is currently set at \$111,426 per acre of impact for 2014/2015. Based on the findings of the Natural Environment Report, costs associated with wetland mitigation using Senate Bill would total approximately \$131,483 in 2014 dollars. At the time of this report, forested wetland credits at Farmton Mitigation Bank were priced at \$50,000 per credit. Based on the findings of this study, costs associated with wetland mitigation using Farmton Mitigation Bank would total approximately \$122,000.

A conservative estimate of wetland mitigation was assumed by using the Senate Bill mitigation fee for the project cost estimate. Thus, the wetland mitigation was assumed to be \$131,483 in 2014 dollars.

3.9.5 RIGHT-OF-WAY COSTS

As previously noted, several parcels along the study segment of S.R. 40 are anticipated to be impacted by the roadway widening and stormwater ponds associated with the project. A right-of-way estimate was prepared by FDOT for the anticipated right-of-way needed for the project, and are estimated at \$7.43 million in 2013 dollars.

Section 4
Summary of
Environmental Impacts

4. SUMMARY OF ENVIRONMENTAL IMPACTS

The initial degree of effect was identified for each environmental characteristic during the Efficient Transportation Decision Making (ETDM) Programming Screening in 2010. The degree of effect published in the *ETDM Summary Report (February 2011)* are shown in Table 4-1. This *Project Development Summary Report (PDSR)* document summarizes the additional information and analysis performed for the Recommended Preferred Alternative and shows the resulting modifications to the degree of effect. To be consistent with the *State Environmental Impact Report (SEIR)*, the impact rating system was modified to be consistent with the Impact Checklist (significant, minimal, none, no involvement) shown at the beginning of this report.

| Legend | Evaluation of Direct Effects | | | | | | | | | | | | | | | | | | | | |
|---|----------------------------------|--------------------|--------------------|-----------|-------------|----------------|------------|----------------------|----------------------------|----------|----------------------|-----------------------------------|------------------|------------------------|------------|----------|----------|----------|------------|--------|----------------------------------|
| | Natural | | | | | | | | | | Cultural | | | Community | | | | | | | |
| | Air Quality | Coastal and Marine | Contaminated Sites | Farmlands | Floodplains | Infrastructure | Navigation | Special Designations | Water Quality and Quantity | Wetlands | Wildlife and Habitat | Historic and Archaeological Sites | Recreation Areas | Section 4(f) Potential | Aesthetics | Economic | Land Use | Mobility | Relocation | Social | Secondary and Cumulative Effects |
| Legend | | | | | | | | | | | | | | | | | | | | | |
| N/A | N/A / No Involvement | | | | | | | | | | | | | | | | | | | | |
| 0 | None (after 12/5/2005) | | | | | | | | | | | | | | | | | | | | |
| 1 | Enhanced | | | | | | | | | | | | | | | | | | | | |
| 2 | Minimal (after 12/5/2005) | | | | | | | | | | | | | | | | | | | | |
| 3 | Moderate | | | | | | | | | | | | | | | | | | | | |
| 4 | Substantial | | | | | | | | | | | | | | | | | | | | |
| 5 | Dispute Resolution (Programming) | | | | | | | | | | | | | | | | | | | | |
| ETAT Review Period: 11/17/2010 - 01/01/2011. Re-Published: 02/03/2011 | | | | | | | | | | | | | | | | | | | | | |
| Alternative #1 - SR40 From Breakaway Trail to Williamson | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 3 | 2 | 0 | 3 | 2 | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |

Table 4-1 Programming Screening Summary

As summarized in Section 3 of this report, the Recommended Preferred Alternative involves the widening of S.R. 40 from a four-lane divided roadway to a six-lane divided roadway from Breakaway Trail to Williamson Boulevard. The western segment of the project from Breakaway Trail to Tymber Creek Road is proposed to remain a rural typical section, with a third travel lane added on the outside of the roadway in each direction. The eastern segment from Tymber Creek Road to I-95 is proposed to be an urban typical section with a raised median and the third travel lane added on the inside of the roadway in each direction. The proposed project is in response to the future capacity needs of the corridor, to maintain its function as an emerging SIS facility.

In this section, the avoidance/minimization measures, the natural and physical features, cultural resources, community issues, and secondary and cumulative effects are discussed.

4.1 Avoidance/Minimization measures

Avoidance and minimization of wetland impacts has been integral to this study and will continue to be evaluated during the design and permitting phase of the project. During the course of this study, specific measures have been taken with the intent of minimizing impacts to wetlands. These steps include restricting

the build alternatives to the existing FDOT ROW and the selection of pond site alternatives that do not involve wetlands. The FDOT *Quality Enhancement Strategies* for wetland impact avoidance and minimization will be further refined and addressed during the design and permitting phase.

4.2 Natural and Physical

The 11 natural features categories were screened in 2011. A summary of the degree of effects for air quality, coastal, and marine (with Essential Fish Habitat), contaminated sites, farmlands, floodplain, infrastructure, navigation, special designations, water quality and quantity, wetlands, wildlife and habitat are found below. In addition, noise effects are discussed as required for an Environmental Assessment; however, there are no discussions for aquatic preserves, Wild and Scenic Rivers, coastal zone consistency, or coastal barrier island resources as these are not resources associated with this project.

4.2.1 AIR QUALITY

Programming Screening Degree of Effect

2 – Minimal

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *2-Minimal* to air quality because Brevard County is in attainment for the following Clean Air Act National Ambient Air Quality Standards (NAAQS): ozone, nitrogen dioxide, particulate matter, sulfur dioxide, carbon monoxide (CO), and lead.

Because Volusia County is in attainment, the Clean Air Act conformity requirements do not apply to the project. In accordance with Part 2, Chapter 16 of the FDOT *Project Development & Environmental (PD&E) Manual*, both the No-Build and the Build Alternative (Recommended Preferred Alternative) were analyzed for potential air quality impacts using FDOT's air quality screening model, CO Florida 2004, version 2.0.5. Both alternatives were analyzed for the opening year (2015) and the design year (2035). Results from the screening test indicate that the highest CO one-hour and CO eight-hour levels are not predicted to meet or exceed the NAAQS. As such, the project passes the screening model for both the No-Build and Build Alternatives and no further air quality impact analysis is required. While there are nominal differences in CO levels between the build and no build, the anticipated impacts to air quality are assigned a rating of *Minimal*.

Further detail of this analysis is found in the *Air Quality Technical Memorandum* (November 2012).

4.2.2 COASTAL AND MARINE (WITH ESSENTIAL FISH HABITAT)

Programming Screening Degree of Effect

3 – Moderate

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *3-Moderate* to Coastal and Marine to indicate the need for further coordination with the National Marine Fisheries Service (NMFS) and other agencies.

The project's impacts have been evaluated using Part 2, Chapter 11 of the FDOT *PD&E Manual*. In accordance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976, amended in

1996 (CFR 600.920), as administered by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), Essential Fish Habitat (EFH) consultation is required for this project. This document represents FDOT's initiation of EFH consultation with the NMFS.

EFH is defined in the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". The word "fish" includes finfish, mollusks, crustaceans, and all other forms of marine animal and plant life with the exception of marine mammals and birds. During the ETAT review process in 2010, the NMFS identified high quality forested Palustrine wetlands and sand bottom as EFH for juvenile white shrimp. Potential impacts to these wetland types are anticipated with the project. However, it is anticipated that impacts to wetlands in the project corridor would be minimal and would not adversely affect EFH.

Degradation of water quality results from the construction of the roadway and bridge improvements or excess pollutant loading of stormwater runoff from the project has the potential to adversely affect wetlands and EFH in the Tomoka River and downstream in the Halifax River. Best Management Practices (BMP's) will be implemented in order to avoid, where practicable, or otherwise minimize impacts to water quality associated with construction activities. Types of BMP's utilized generally include phased construction, turbidity screens, silt fences, and other construction techniques approved by the St. Johns River Water Management (SJRWMD) and the Florida Department of Environmental Protection (FDEP). Stormwater treatment will be provided for the bridges in accordance with current SJRWMD and FDEP regulations and Rules 40D-4, 40D-40, and 40D-41 of the Florida Administrative Code.

The proposed project is expected to have minimal impacts to the EFH in the Tomoka River. No direct impacts to open-water habitat of the Tomoka River are expected. Direct impacts to wetlands abutting the Tomoka River are estimated at 0.25 acres. Mitigation measures have been identified in the Natural Environment Report and will be developed during the design and permitting phase of the project with further consultation with the NMFS and the US Army Corps of Engineers. Therefore, as a result of avoidance and minimization techniques incorporated into the Recommended Preferred Alternative, the anticipated impacts to Coastal and Marine are assigned a rating of *Minimal*.

Further detail is provided in the *Natural Environment Report (November 2012)* prepared for this PD&E study.

4.2.3 CONTAMINATED SITES

| Programming Screening Degree of Effect | Anticipated SEIR Impact Rating |
|---|---------------------------------------|
|---|---------------------------------------|

| | |
|-------------|---------|
| 2 – Minimal | Minimal |
|-------------|---------|

The ETDM screening assigned a degree of effect of *2-Minimal* to contamination for the project, but identified that a *Contamination Screening Evaluation Report (CSER) (January 2012)* would be required. To meet this requirement, the potential risk for encountering petroleum or hazardous substances contamination of soil, groundwater, surface water, or sediment was evaluated that could adversely affect property acquisition, permitting, and construction. This evaluation was based on a review of publicly available regulatory files, a review of historical data sources, and site reconnaissance.

The CSER was prepared to document the Level 1 investigation conducted in compliance with Part 2, Chapter 22 (Contamination Impacts) of the FDOT PD&E Manual. Each potential site was given a “risk” rating expressing the degree for potential contamination problems. Known problems may not necessarily present a high cause for concern if regulatory agencies are aware of the situation and actions, where necessary, are either complete or under way, and these actions will not have an adverse impact on the proposed project.

Potential sources of contamination and contamination risk were identified at 26 commercial facilities within the project study area. The facilities identified appear to present no or low risk of contaminant impacts except for the following:

Medium Risk Facilities:

- NE Cleaners – 1634/1640 West Granada Boulevard (Facility 15 in Figure 4-1)
- Texaco Station – 1629 West Granada Boulevard (Facility 18 in Figure 4-1)
- Ormond Beach Cleaners – 1482 West Granada Boulevard (Facility 23 in Figure 4-1)

High Risk Facilities:

- BP Station – 1628 West Granada Boulevard (Facility 16 in Figure 4-1)
 - Monitoring wells within the median and area of widening within the FDOT right-of-way will be impacted with the proposed improvements.
- Former Shell Station (Currently redeveloping as Sunoco Station) – 1546 West Granada Boulevard (Facility 20 in Figure 4-1)
 - Monitoring wells and proposed remedial equipment within the median and area of widening within the FDOT right-of-way will be impacted with the proposed improvements.
- Chevron/Kangaroo Express Station – 1520 West Granada Boulevard (Facility 21 in Figure 4-1)
 - Monitoring wells and remediation equipment within the median and area of widening within the FDOT right-of-way will be impacted with the proposed improvements.



Figure 4-1 Potential Contaminated Sites within the Study Area

Source: CSER Figure 3C

None of the medium risk sites are anticipated to be impacted by the proposed project. For the three high risk facilities outlined above that are anticipated to be impacted, the CSER recommends a Level II assessment including soil sampling and analysis in advance of widening to determine the potential presence of petroleum contamination in the soil. There will not be any right-of-way acquisition of the BP Station (Facility 16). S.R. 40 in front of this gas station will have median reconstruction and roadway widening impacting the existing monitoring wells and new locations will need to be identified during design. The former Shell Station site (Facility 20 in Figure 4-1) is currently being redeveloped. As part of the redevelopment process, the locations of monitoring wells and remedial equipment should be coordinated with the future construction of the S.R. 40 widening. The Chevron/Kangaroo Express Station (Facility 21 in Figure 4-1) will have right-of-way impacts due to the widening on S.R. 40 which will impact monitoring wells and remediation equipment on the site and potentially in the S.R. 40 median. These impacts will need to be mitigated with the construction of the S.R. 40 improvements.

Potential impacts to high risk facilities are anticipated with the projects. Level II assessments are recommended for the facilities, and mitigation activities will be identified for each impact during design. Thus, the anticipated project impact rating for contamination is *Minimal*.

Further information is available in the Level 1 CSER prepared as part of this PD&E Study.

4.2.4 FARMLANDS

Programming Screening Degree of Effect

0 – None

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of *0-None* for farmlands. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) reviewed the GIS analysis of Prime Farmland and Important Farmland Analysis and determined that there are approximately 2.8 acres of Unique Farmland at the 5,280-foot buffer width, but the scope of this project will not impact these areas. FDOT concurs with these findings and assigns an anticipated impact rating of *None* for farmlands.

4.2.5 FLOODPLAINS

Programming Screening Degree of Effect

3 - Moderate

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *3-Moderate* to floodplains due to the extent of 100-year floodplain mapping and potential impact. Special Flood Hazard Areas (SFHA) are those that fall within the FEMA 100-year floodplain (base flood).

The project's impacts have been evaluated using Part 2, Chapter 24 of the FDOT PD&E Manual. In accordance with Executive Order 11988 "Floodplain Management" as amended by Executive Order 12148, USDOT Order 5650.2, and Title 23, Code of Federal Regulations (23 CFR) Part 635A, the project corridor was evaluated for possible impacts to floodplains. Portions of the Recommended Preferred Alternative are within the FEMA-mapped 100-year floodplain, as shown in Figure 4-2. Reviews and comments during the Programming Screening resulted in a moderate degree of effect due to the extent of the SFHA (100-year floodplain). In addition, the floodplain associated with the Tomoka River is considered a federally designated floodway. Based on the floodplain evaluation performed, the potential for floodplain impact is minimal. The Recommended Preferred Alternative will have minimal impact to the floodplain, if any, as follows:

- Roadway cross-drains and compensation areas have been identified for floodplain impacts so that hydraulic conditions will perform in a manner equal to or greater than the existing condition. Further refinements and sizing will occur during the next project phase, final design and permitting.
- Significant effort was made to avoid and minimize impacts to floodplain resources and functions during the corridor and alternative analyses. This effort consisted of minimizing proposed fill within the floodplain by utilizing the maximum allowable roadway embankment slope.
- Floodplain is among the issues included in the regulatory permitting requirements for the next project phase, final design and permitting.
- Changes would cause minimal increases in flood heights and flood limits. These minimal increases would not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage.

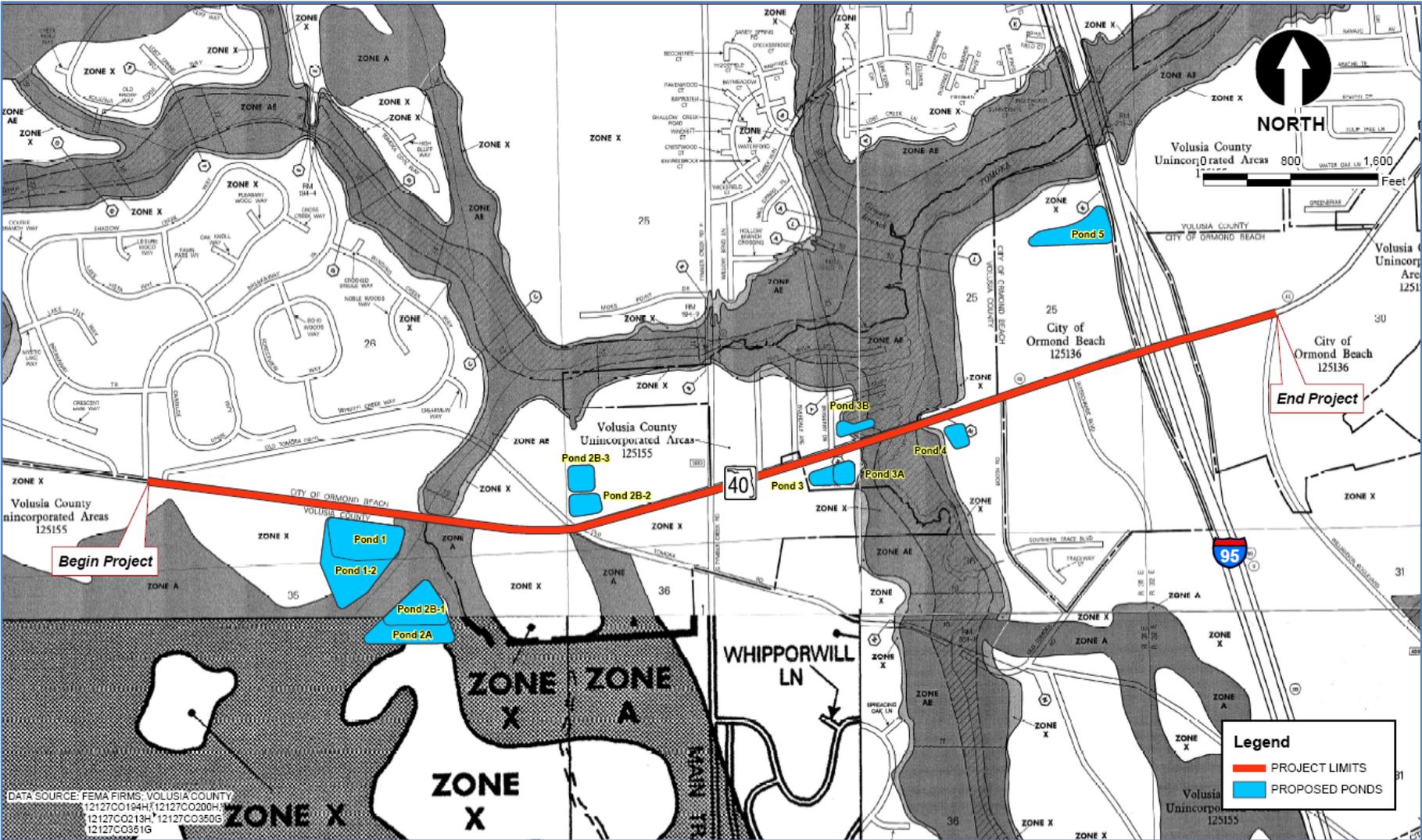


Figure 4-2 FEMA FIRM Map

(See Figure 7 of Location Hydraulics Report)

As compensation locations are available to offset fill within the 100-year floodplain as required by SJRWMD and nominal increases in floodplain stage would occur for any fill within the 100-year floodplain, the anticipated impact rating assigned for floodplain impacts is *Minimal*.

Further detail is provided in the *Location Hydraulics Report (November 2012)* prepared for this PD&E Study.

4.2.6 INFRASTRUCTURE

Programming Screening Degree of Effect

2 – Minimal

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *2-Minimal* for infrastructure. Results of the GIS analysis determined that there are two Florida Department of Health (FDOH) Limited Use Drinking Water Wells located within the 100-foot project buffer area. Additionally, the Calvary Assembly of God School was identified within the 200-foot buffer area. Because the proposed improvements will generally remain within the existing public right-of-way, no impacts to either of these uses are anticipated. There are no railroads in the vicinity of the study area.

Consideration of utilities and other infrastructure have occurred for the corridor and alternatives analysis. Several impacts to utilities were identified in the *Utility Assessment Package (October 2012)* prepared for this PD&E Study. The major utilities that were noted for this project when determining the preferred alternative were the City of Ormond Beach's 24-inch raw water main and FP&L Distribution overhead electric pole line (which is also utilized by multiple utility providers). Impacts to existing utilities were outlined in Section 3.7.10 (page 3-40).

Because of the avoidance/minimization measures taken in project development with regard to impacts to utilities and infrastructure in the study area, the project was assigned an anticipated impact rating of *Minimal* for infrastructure.

4.2.7 NAVIGATION

Programming Screening Degree of Effect

0 - None

Anticipated SEIR Impact Rating

None

The ETDM assigned a degree of effect of *0-None* for navigation. Two agencies reviewed this issue. The US Coast Guard (USCG) assigned the project a degree of effect of 0-None, indicating that no resources were identified. The US Army Corps of Engineers (USACE) indicated that the Tomoka River is navigable water subject to jurisdiction under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. The USACE indicated that the USCG will be the agency responsible for ensuring clearance requirements in accordance with Section 9 of the Rivers and Harbors Act. The existing clearance over the Tomoka River is anticipated to be maintained with the widening of the S.R. 40 bridge. Because of this, the anticipated impact rating for navigation is *None*.

4.2.8 SPECIAL DESIGNATIONS

Programming Screening Degree of Effect

3 – Moderate

Anticipated SEIR Impact Rating

N/A

The ETDM screening assigned a degree of effect of *3-Moderate* for special designations due to the concerns identified for the following specially designated resources:

- Florida Black Bear Scenic Byway;
- Outstanding Florida Water for the Tomoka River;
- Volusia-Floridian Sole Source Aquifer; and
- Special Flood Hazard Area.

Florida Black Bear Scenic Byway

The Florida Black Bear Scenic Byway (FBBSB) was identified as a specially designated resource potentially impacted by the project. Discussion of the FBBSB impacts are discussed in Section 4.2.11 (page 4-14) and the *Natural Environment Report (November 2012)* prepared for this PD&E study.

Outstanding Florida Waters and Volusia-Floridian Sole Source Aquifer

FDEP classifies existing surface waters according to a targeted designated use and then defines impaired water bodies on observed water quality conditions. *Chapter 62-302. F.A.C.*, defines Class I water, Class II waters, and Outstanding Florida Waters (OFW), which may include aquatic preserves, state reserves/preserves, and National Wild and Scenic River Systems, among other general categories. Further information regarding the project's special designation for Outstanding Florida Waters and Volusia-Floridian Sole Source Aquifer are discussed under Water Quality and Quantity in Section 4.2.9 (page 4-9) below.

Special Flood Hazard Area

See Section 4.2.5 (page 4-6) above and Pages 14 and 15 of the *Location Hydraulics Report (November 2012)* prepared for this PD&E Study for discussion on floodplain impacts related to the Special Flood Hazard Area (SFHA) designation. Based on the anticipated impacts to the SFHA (100-year floodplain), an impact rating of *Minimal* was given.

4.2.9 WATER QUALITY AND QUANTITY

Programming Screening Degree of Effect

3 – Moderate

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *3-Moderate* for water quality and quantity to facilitate future agency coordination and to encourage that best practices in maintaining water quality and quantity are employed in the development of the project so that any indirect impacts are minimized. Agency comments included the identification of impaired waters and associated requirements.

The project's impacts have been evaluated using Part 2, Chapter 20 of the FDOT *PD&E Manual*. Water quality relates to both surface waters and sole source aquifers. Surface water issues are addressed in the Pond Siting Report prepared for this PD&E Study. The proposed stormwater facility design will include, at a minimum, the water quality and quantity requirements as mandated by the SJRWMD. A Water Quality Impact Evaluation (WQIE) checklist was prepared for the PD&E study and is included in Appendix E.

No significant impacts are anticipated to water quality as a result of project activities. Relevant information includes:

- **Surface Water Quality.** *Chapter 62-303, F.A.C.*, defines the verified impaired water bodies within Florida. The Tomoka River is considered an Outstanding Florida Water (OFW). Both the Little Tomoka River and the Tomoka River are identified as impaired water bodies for dissolved oxygen, although a causative pollutant was not identified at this time. The proposed stormwater management facilities have been designed in consideration of the OFW and impaired water requirements.
- **Sole Source Aquifers.** The *Safe Drinking Water Act (Public Law 93-523, as amended)* requires protection of sole-source aquifers. The project is within the Volusia-Floridan Sole Source Aquifer. The proposed stormwater management facilities have been designed to accommodate the appropriate recharge criteria, therefore; adverse impacts to the sole source aquifer is not anticipated.

Environmental Resource Permit (ERP) requirements protect the discharge water quality, which avoids impact for overall surface water quality as well. Direct and indirect impact to receiving waters are avoided and minimized through the use of best management practices and following permitting requirements. The future permitting will allow continued agency coordination, as well. Other impact minimization considerations include limiting the roadway cross-section width, limiting impacts outside the existing right-of-way and minimizing drainage impacts. The result is an anticipated impact rating of *Minimal* for water quality and quantity.

4.2.10 WETLANDS

Programming Screening Degree of Effect

3 – Moderate

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *3-Moderate* for wetlands due to the proximity of high quality wetland systems associated with the Tomoka River, an OFW.

The project's impacts have been evaluated using Part 2, Chapter 18 of the FDOT *PD&E Manual*. *Executive Order 11990, Protection of Wetlands*, as amended, is to avoid adverse impacts to wetlands resulting from destruction and/or modification. The Order further directs avoidance of new construction in wetlands wherever a practicable alternative exists. The approximate jurisdictional extents of wetlands and surface waters within the project corridor were identified using a combination of data obtained from the USFWS National Wetlands Inventory (NWI), GIS data obtained from the SJRWMD, recent and historic aerial photography, and field reconnaissance conducted by qualified ecologists.

Every practicable opportunity to avoid impacts to wetlands and surface waters will be explored as the project moves into the next phase, final design and permitting. Some impacts to wetlands and surface waters will be unavoidable. When this is the case, minimization of these impacts will be required to be included as part of the design. Based on the findings of this study, a preliminary estimate of direct wetland impacts anticipated to be associated with the Recommended Preferred Alternative is approximately 1.18 acres.

Avoidance measures aimed at reducing the overall amount of wetland impacts including spanning the Tomoka River, located stormwater ponds outside of wetlands, and restricting right-of-way acquisition wherever possible. Functional analyses have been completed using both the Uniform Mitigation Assessment Method (UMAM) and Wetland Rapid Assessment Procedure (WRAP) to assist in outlining the mitigation required. Further refinements to the jurisdictional extent of wetlands and surface waters will occur during the next phase of the project, final design, and permitting.

Wetland mitigation will be provided to support the issuance of state and federal permits allowing for work within wetlands and surface waters. Due to the impact minimization considerations included in this study, the result is an anticipated impact rating of *Minimal* for wetlands.

The Wetlands Maps for the study area are shown in Figure 4-3 and Figure 4-4. Further detail is provided in the *Natural Environment Report (November 2012)*.



Figure 4-3 Wetlands Map

(See Natural Environment Report Figure 4A)



Figure 4-4 Wetlands Map

(See Natural Environment Report Figure 4B)

4.2.11 WILDLIFE AND HABITAT

Programming Screening Degree of Effect

3 – Moderate

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *3-Moderate* for wildlife and habitat due to project's location within species consultation areas as well as the bridge across the Tomoka River and the proximity of the project corridor to undeveloped habitat located to the west.

The project's impacts have been evaluated using Part 2, Chapter 27 of the FDOT *PD&E Manual*. The potential occurrence of listed species within each land use/land cover within the project corridor was given as low, moderate, or high. A determination of low was given for areas that are developed and, based on Florida Natural Areas Inventory (FNAI) element reports coupled with field reviews, exhibited minimal to no available habitat for listed species. A determination of moderate was given for areas where suitable habitat was identified within one mile. A determination of high was given for directly observed listed species or areas of greater than one mile of contiguous suitable habitat.

The project corridor is located within the USFWS Consultation Area for the Florida scrub jay. Field reconnaissance conducted during the course of the study did not identify any suitable habitat for the Florida scrub jay either within or adjacent to the proposed project limits. Due to the lack of suitable xeric oak/scrub habitat within the project corridor, has been determined that the project will have **"no effect"** on the Florida scrub jay.

Suitable habitat for the eastern indigo snake was observed within the project corridor. The eastern indigo snake is a habitat generalist that is known to use a variety of habitats from mangrove swamps to xeric uplands. These animals are cold-sensitive and require gopher tortoise, other animal burrows or stumps for protection during the winter months. These snakes require large tracts of natural, undisturbed habitat, and prefer to forage in and around wetlands for their preferred prey – other snakes.

As a precaution, the FDOT will implement the *Standard Protection Measures for the Eastern Indigo Snake* during construction (included in Appendix J of the *Natural Environment Report*). If an eastern indigo snake is observed during construction, the contractor will be required to cease any operation that might cause harm to the snake. Wildlife crossing structures are proposed within the project corridor to allow this species to safely move between habitat areas that are otherwise bisected by the roadway. Therefore, it has been determined that the project **"may affect but is not likely to adversely affect"**, the eastern indigo snake.

Three additional federally-listed faunal and one federally-listed floral species were identified as having potential to occur within the project limits; the wood stork, the bald eagle, the American alligator, and the Rugel's pawpaw. The following outlines the details related to the effect determination anticipated for each remaining federally-listed species.

Wood Stork – anticipated determination of “no effect”

- The project corridor is located outside of the Core Foraging Area for any documented wood stork rookery.

Bald Eagle – anticipated determination of “no effect”

- Research revealed that no bald eagle nests are located within the proposed project area, and the nearest active nest (Nest ID VO115) is approximately 1.25 miles northeast of the project limits. Bald eagles may utilize ponds or creeks adjacent to the project, or within the project limits for foraging, however, with the lack of documented nests in proximity to the project; it is likely that bald eagles would utilize other surface waters, closer to their nest sites, for foraging opportunities.

American Alligator – anticipated determination of “may affect, not likely to adversely affect”

- Alligators have been observed in the Tomoka River. However, the bridge widening is unlikely to have an adverse effect on alligators or their habitat.

Rugel’s Pawpaw – anticipated determination of “no effect”

- A protected plant field survey covering the area of proposed ROW widening and pond sites was conducted in conjunction with the wildlife survey by the project biologist. No federally listed plant species were identified within the proposed widening impact area or pond sites during the field investigations.

A total of fourteen state-listed species were identified as having potential to occur within the project corridor: Florida black bear, Florida mouse, Sherman’s fox squirrel, Florida pine snake, gopher tortoise, gopher frog, Florida sandhill crane, limpkin, little blue heron, roseate spoonbill, white ibis, reddish egret, tri-colored heron, and snowy egret. Each species was given a determination of “**may affect, not likely to adversely affect**”.

Florida Black Bear Scenic Byway

The Florida Black Bear Scenic Byway (FBBSB) includes 123 miles of paved roads within the Ocala National Forest. The proposed project limits occur on the extreme eastern limits of FBBSB along a portion of the S.R. 40 corridor that is much more densely developed than that majority of the area that the FBBSB crosses. As such, impacts to the black bear and other protected species are anticipated to be lower due to a reduction in suitable habitat within the corridor when compared to publicly-owned tracts further west of the project limits. Wildlife movement within the corridor will remain as the FDOT will maintain the elevations within an existing wetland mitigation area that is located underneath the existing bridges over the Tomoka River. Further detail is provided in the *Natural Environment Report (November 2012)* prepared for this PD&E study.

Due to the impact minimization considerations included in this study, the result is an anticipated impact rating of *Minimal* for wildlife and habitat.

Further detail is provided in the *Natural Environment Report (November 2012)* prepared for this PD&E study.

4.2.12 NOISE

Programming Screening Degree of Effect

Not Screened

Anticipated SEIR Impact Rating

Minimal

Noise impacts were not screened as part of the ETDM process, but were evaluated for the PD&E project in the *Noise Study Report (February 2013)*. Noise impacts were evaluated according to *Title 23, Code of Federal Regulations (C.F.R.), Part 772: Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2010)*, Part 2, Chapter 17 of the Florida Department of Transportation (FDOT) *PD&E Manual and Chapter 335.17, Florida Statutes*. This assessment also adheres to current Federal Highway Administration (FHWA) traffic noise analysis guidelines contained in *Report FHWA-HEP-10-025, Highway Traffic Noise: Analysis and Abatement Guidance*, revised January 2011.

With the proposed S.R. 40 widening in place, predicted noise levels west of Tymber Creek Road increase an average of 7.1 dBA. While noticeable, the increased noise levels do not constitute an impact to any of the adjacent subdivisions (Breakaway Trail, Il Villaggio, Indian Springs), nor to the Little Blessings Preschool or the Riverbend Church and Academy.

The average predicted noise levels east of Tymber Creek Road increase 2.9 dBA over existing conditions. Despite this negligible increase, four locations are predicted to have noise levels that either approach or exceed the FHWA Noise Abatement Criterion (NAC). Each of these impacted receptors, representing four Category B residences, two Category C sites, and one Category E business was considered for abatement measures. Noise barriers were evaluated for each of the four impacted locations; a summary of which is provided below in Table 4-2. The Dunkin Donuts barrier is not considered feasible due to its inability to meet the FHWA 5.0 dBA required minimum noise reduction. The barrier analyzed for the Calvary Christian Academy, while feasible, cannot achieve the FDOT 7.0 dBA noise reduction design goal and is therefore, not considered reasonable. The remaining two barriers are not considered reasonable due to exceeding the FDOT \$42,000 per benefited receptor cost reasonable requirement at the Twin Rivers neighborhood and the cost criteria assigned to special use locations such as the Children's House Academy.

Table 4-2 Noise Impacts and Barrier Summary

| Impacted Location | Number of Impacted Sites | Number of Benefited Noise Sites | Avg. Noise Reduction (dBA) | Wall Length | Optimum Wall Height | Estimated Barrier Cost | Cost Per Benefited Receptor | Barrier Reasonable? |
|---------------------------|--------------------------|---------------------------------|----------------------------|-------------|---------------------|------------------------|-----------------------------|---------------------|
| Children's House Academy | Playground | N/A – Special Use Site | 7.2 | 547' | 14' | \$229,740 | Exceeded Special Use Cost | No. |
| Twin Rivers Receptor TW2 | 4 sf residences | 4 | 6.5 | 570' | 14' | \$239,400 | \$59,850 | No |
| Dunkin Donuts | Outdoor eating area | N/A – Special Use Site | Not Feasible | | | | | No |
| Calvary Christian Academy | Portion of soccer field | N/A – Special Use Site | Not Reasonable | | | | | No |

Based on the noise analyses performed to-date, there appears to be no apparent solutions available to mitigate the noise impacts at the four impacted Activity Category B sites represented in this report by receptor TR2; two Category C sites (Children's House Academy playground and Calvary Christian Academy soccer fields); nor to the outdoor eating area affiliated with the Dunkin Donuts, a Category E land use. Project noise impacts will be re-evaluated during the subsequent final design phase, and noise barriers would be deemed warranted contingent upon the following conditions:

- Further analysis conducted during the project's final design phase supports the need, feasibility and reasonableness of providing noise abatement;
- Viewpoints of the impacted property owners/renters are in favor of noise barrier construction, where applicable; and
- Safety and engineering aspects, as related to the roadway user and adjacent property owners, have been reviewed and any conflict or issues resolved.

Due to the results of the *Noise Study Report*, the anticipated impact rating for noise is *Minimal*. Further details on the noise impacts can be found in the *Noise Study Report*.

4.3 Cultural

The review categories for cultural effects include historic and archaeological sites and recreation, particularly for resources with Section 4(f) protection.

4.3.1 HISTORIC AND ARCHAEOLOGICAL SITES

Programming Screening Degree of Effect

3 – Moderate

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of *3-Moderate* for historic and archaeological sites to reflect the need for a *Cultural Resource Assessment Survey (CRAS) (September 2012)*.

The project's impacts have been evaluated using Part 2, Chapter 12 of the FDOT *PD&E Manual*. In compliance with Section 106 of the *National Historic Preservation Act* (as amended) and its implementing regulation *36 CFR Part 800 (Protection of Historic Properties)*, as well as the provisions of revised *Chapter 267, Florida Statutes*, a CRAS was conducted for the project. The goal of the CRAS was to locate and document evidence of historic or prehistoric occupation or use within the project Area of Potential Effect (APE) (archaeological or historic sites, historic structures, or archaeological occurrences [isolated artifact finds]), and to evaluate these for their potential eligibility for listing in the National Register of Historic Places (NRHP).

The archaeological survey included the excavation of 67 shovel tests within the S.R. 40 right-of-way and associated ponds. None of the shovel tests recovered any artifacts or cultural material, and no archaeological sites or occurrences were identified within the S.R. 40 APE. The architectural survey resulted in the identification and evaluation of three newly recorded historic resources (8VO09384–8VO09386). All three resources lack the architectural distinction or significant historical associations necessary to be considered for listing in the NRHP and are recommended ineligible. Furthermore, no potential NRHP districts were identified due to the lack of concentration of historical structures.

As no archaeological or historical resources listed or eligible for listing on the NRHP were identified within the project APE, the project will have no effect on significant cultural resources and no further work is recommended. Concurrence of the CRAS findings by the State Historic Preservation Office (SHPO) was received on October 11, 2012. Due to the results of the CRAS, the anticipated impact rating for the project is *None*.

Further details on the Historic and Archeological Sites can be found in the *Cultural Resource Assessment Survey*.

4.3.2 RECREATION SITES

Programming Screening Degree of Effect

0 – None

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of 0-None for recreation sites. The project crosses the Tomoka River Paddling Trail. The southern end of this paddling trail crosses under S.R. 40, but no impacts to the trail are anticipated. The anticipated impact rating for recreation sites is *None*.

4.3.3 SECTION 4(f)

Programming Screening Degree of Effect

0 – None

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of *0-None* for Section 4(f) potential. Section 4(f) only applies if federal funds are sought, and the project is being developed using state funds only. Further, no acquisition of any Section 4(f) properties are anticipated with this project. Therefore, the anticipated impact rating for Section 4(f) is *None*.

4.4 Community

Overall enhancement of the community facilities, aesthetics, economic, land use, mobility, relocations, and social issues, are expected as discussed below. Title VI considerations were not addressed with this project, since no federal funding is involved. However; no Title VI impacts are anticipated.

4.4.1 AESTHETICS

| Programming Screening Degree of Effect | Anticipated SEIR Impact Rating |
|---|---------------------------------------|
|---|---------------------------------------|

2 – Minimal

Minimal

The ETDM screening assigned a degree of effect of *2-Minimal* for aesthetics. No ETAT comments on aesthetic issues were provided. A review of the GIS analysis found that portions of the project lie within the city limits of Ormond Beach. Residents of the City of Ormond Beach have requested landscaping in the median of S.R. 40 throughout the PD&E process for the project, and the City of Ormond Beach staff has been instructed by the City Commission in September 2012 to submit a landscaping median grant to FDOT for S.R. 40 west of I-95 to the City of Ormond Beach city limits. The grass median of the Recommended Preferred Alternative will allow landscaping to be planted in accordance with FDOT standards.

The dominant land uses within the 100-ft. buffer area are classified as Roads and Highways (41.9%), Pine Flatwoods (17.79%), Shrub and Brush land (9.27%) and Residential Low and Medium (7.94%), based on the 2004 SJRWMD Florida Land Use and Land Cover data. Future land use data in the 100-ft. buffer area indicates greater than 50% residential and 42% commercial land use.

A program for public involvement and outreach will be developed during the design phase to solicit input regarding project aesthetic impacts. Because the proposed project does not significantly alter the character of the surrounding land uses, will incorporate improved pedestrian, bicycle, and drainage facilities, and will generally stay within the existing FDOT right-of-way, the project has been assigned an anticipated impact rating of *Minimal* for aesthetics.

4.4.2 ECONOMIC

| Programming Screening Degree of Effect | Anticipated SEIR Impact Rating |
|---|---------------------------------------|
|---|---------------------------------------|

2 – Minimal

None

The ETDM screening assigned a degree of effect of *2-Minimal* for economic issues related to the project. No ETAT comments regarding economic issues were provided. The need for the project is primarily driven by residential development associated with two Developments of Regional Impact (DRI): Hunters Ridge and Ormond Crossings. Additional residential development will be created by LPGA, another major development in the area. A primary purpose of the project is to reduce congestion on S.R. 40. State Road 40, west of I-95, is designated as an emerging Strategic Intermodal System (SIS) facility. Public involvement opportunities were provided throughout the PD&E process, and should continue into the design phase to solicit public input and to ensure that transportation needs are addressed, while minimizing adverse impacts.

Access from S.R. 40 to adjacent land uses is being maintained to the same level as existing throughout the study area. The project was developed with a focus on avoiding or minimizing private property impacts. Several partial property acquisitions will be required due to the proposed widening and drainage ponds, as outlined in Section 3.7.9 above. As the improved roadway capacity will enhance opportunities for nearby development and maintain the level of service standard for the emerging SIS facility, *None* was assigned for the anticipated impact rating for economic issues.

4.4.3 LAND USE

Programming Screening Degree of Effect

2 – Minimal

Anticipated SEIR Impact rating

Minimal

The ETDM screening assigned a degree of effect of *2-Minimal* for land use issues related to the project. No ETAT comments were provided regarding Land Use issues. Based on the GIS analysis of the 100-foot buffer area performed for the ETDM, the dominant land uses are classified as Roads and Highways (41.9%), Pine Flatwoods (17.79%), Shrub and Brush land (9.27%) and Residential Low and Medium (7.94%), according to the 2004 SJRWMD Florida Land Use and Land Cover data. In the 200-foot buffer current land use is identified as Retail/Office (10.17%), Residential (9.29%), Institutional (7.93%) and Vacant Non Residential (5.44%), in the FDOT District 5 Generalized Land Use Data. Future land use data for the 100-ft. buffer area shows the area as greater than 50% residential and 42% commercial land use. No specific issues and concerns regarding the project's effects on land use were discovered through the PD&E public involvement process. The widening of the project is based on the need for greater capacity on S.R. 40 to serve planned development to the west, thus it is in response to planned changes in land use and is not anticipated to shift existing land uses. Thus, an anticipated impact rating of *Minimal* was assigned for land use issues.

The SJRWMD Florida Land Use and Land Cover map is shown in Figure 4-5 and Figure 4-6. The future land use map based on Volusia County Generalized Future Land Use data is provided in Figure 2-4 in Section 2.3 (page 2-4) of this report.

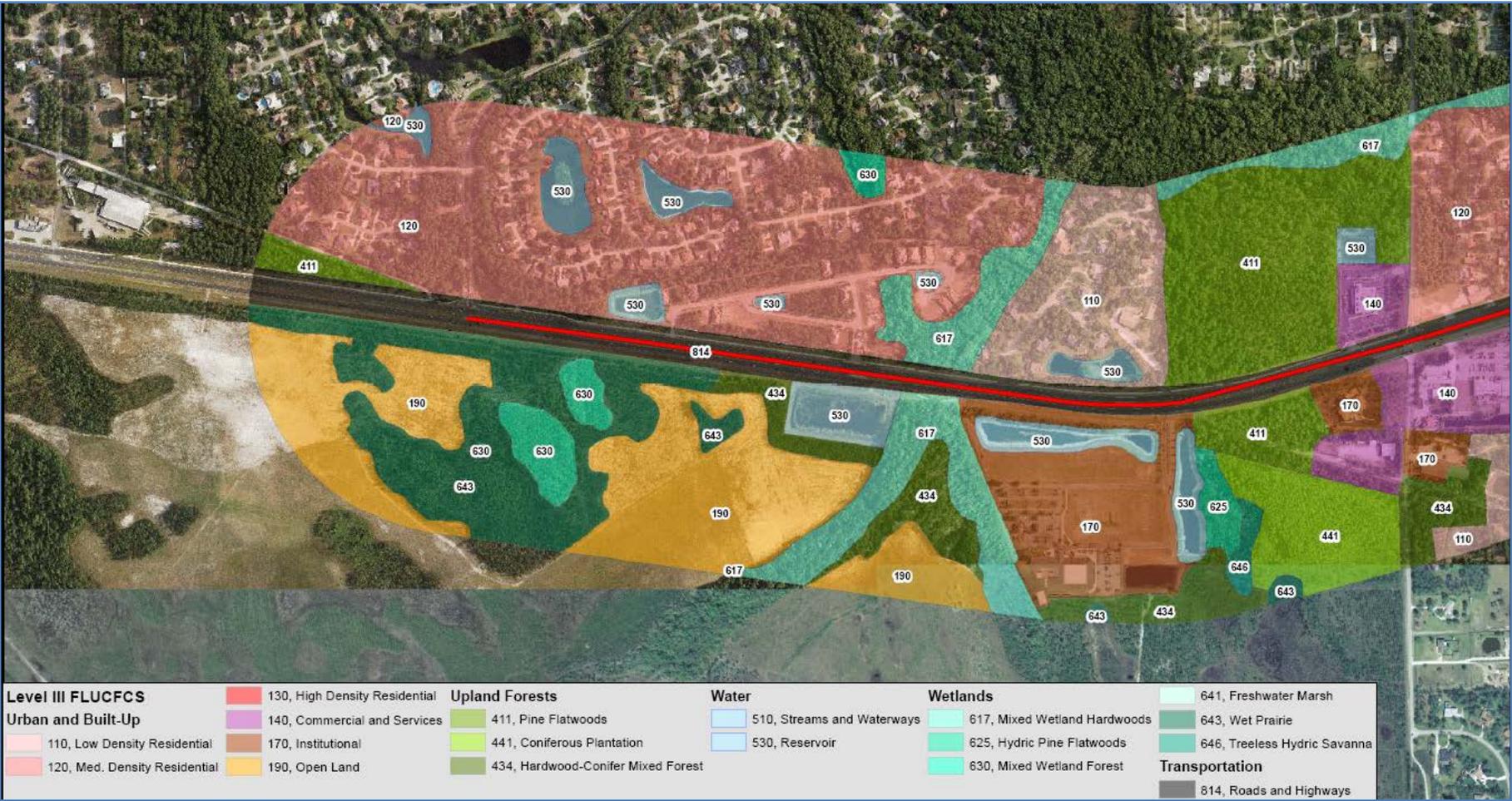


Figure 4-5 FLUCFCS Map (Western Project Area)

(See Natural Environment Report Figure 3A)

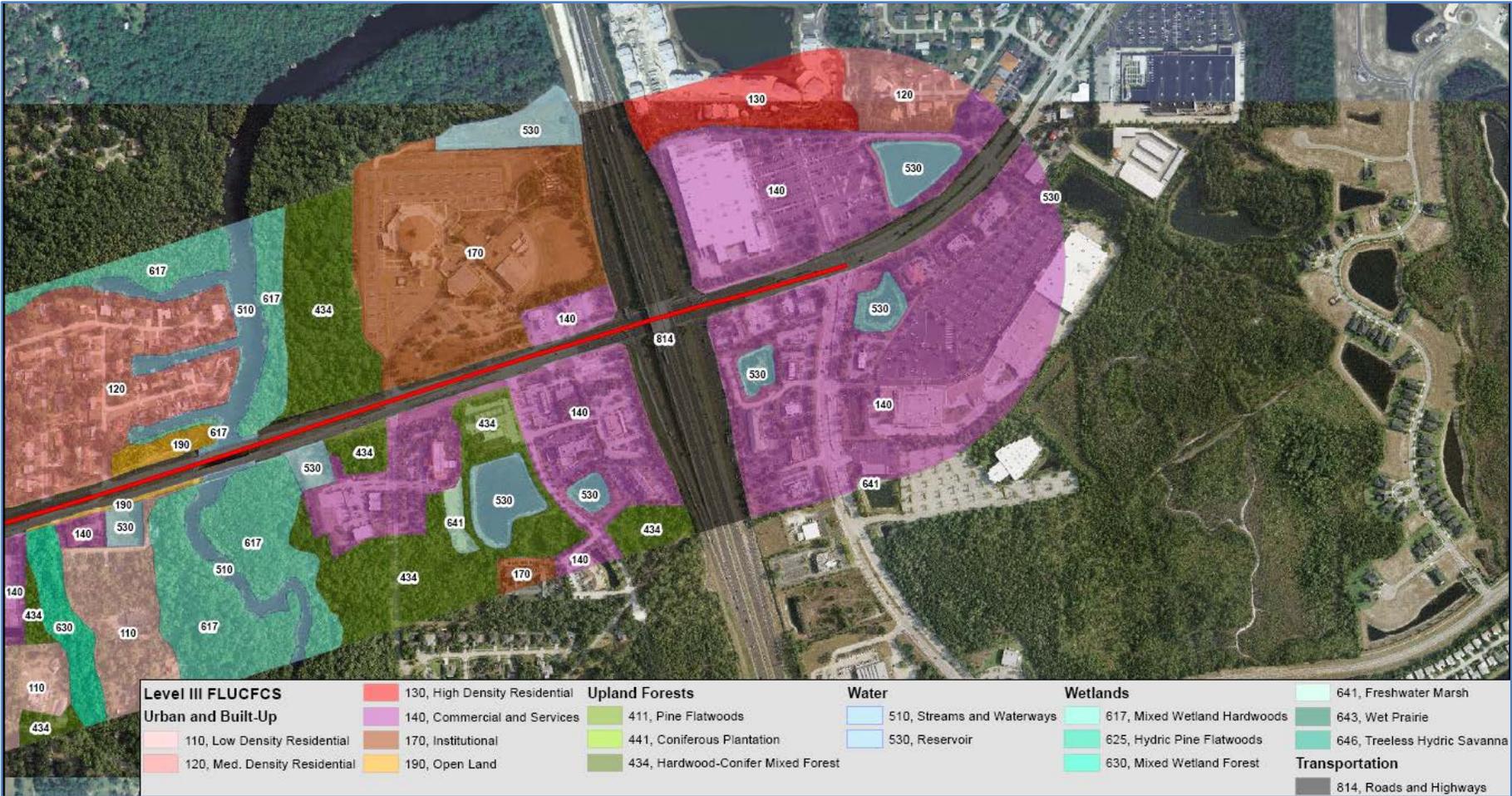


Figure 4-6 FLUCFCS Map (Eastern Project Area)

(See Natural Environment Report Figure 3B)

4.4.4 MOBILITY

Programming Screening Degree of Effect

1 – Enhanced

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of *1-Enhanced* for mobility. The purpose of the project is to relieve existing and future traffic congestion on S.R. 40. Within the project limits, S.R. 40 is designated as an emerging Strategic Intermodal System (SIS) Facility. It provides valuable intraregional and interregional freight connectivity by linking Florida's East Coast to the Gainesville/Ocala regions. S.R. 40 is also a designated Emergency Evacuation Route. Because of the increased mobility for all users associated with adding vehicle lanes and improving bicycle lanes and pedestrian facilities, the anticipated impact rating for mobility is *None*.

4.4.5 RELOCATION

Programming Screening Degree of Effect

2 – Minimal

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of *2-Minimal* for relocation issues. The PD&E process gave consideration to avoidance/minimization of residential or business relocations, and none are anticipated with the preferred alternative. Because no residential or business relocations are anticipated due to the recommended preferred alternative, the impact rating for relocation potential is *None*.

4.4.6 SOCIAL

Programming Screening Degree of Effect

2 – Minimal

Anticipated SEIR Impact Rating

None

The ETDM screening assigned a degree of effect of *2-Minimal* for social issues. The United States EPA assigned a minimal degree of effect for social issues. They indicated that congestion relief would provide benefit to residents of the area.

The project's impacts were evaluated using Part 2, Chapter 9 of the FDOT *PD&E Manual*. There are social issues to be considered such as a disruption in traffic patterns (lane reductions, detours, etc) during the project construction, an increase in noise to surrounding businesses and residents, and increase in traffic volumes. There are several social service centers listed within the 100-ft. buffer area, which would benefit from the improved mobility along the corridor.

The proposed typical section includes multi-modal considerations through the use of bicycle lanes along both sides of S.R. 40 and the Tomoka River bridge; a shared-use path along the north side of S.R. 40; and sidewalk along the south side of S.R. 40. This emphasis on multi-modal opportunities enhances mobility and livability for all users.

Impacts to community cohesion are not anticipated on this project., as it will not be dividing any established or cohesive communities. No potential impacts were identified in the ETDM screening. As stated above, the

S.R. 40 – Breakaway Trail to Williamson Boulevard project will improve multimodal movement along the corridor.

No potential impacts to community services were identified in the ETDM screening. Several churches with schools and medical facilities are located along the study corridor. The majority of the project will be constructed within the existing right-of-way, with no impacts identified to existing community services.

The anticipated impact rating for social issues is *None*.

4.5 SECONDARY AND CUMULATIVE EFFECTS

Programming Screening Degree of Effect

2 – Minimal

Anticipated SEIR Impact Rating

Minimal

The ETDM screening assigned a degree of effect of *2-Minimal* for secondary and cumulative impacts but did not include agency comments.

It is anticipated that secondary wetland impacts will occur as a result of the construction of the proposed project. Anticipated secondary impacts include a variety of adverse effects typically referred to as “edge effects”. Edge effects occur as previously undisturbed habitat is cleared, exposing previously buffered ecosystems to the edge of the road right-of-way. Many deleterious impacts occur along a roadway edge; including facilitation of weeds, pest and pathogens (many of which are exotic), changes in microclimate and a change in wildlife species due to loss of habitat. As this is a roadway widening project within already cleared right-of-way, an increase to the already incurred impacts is anticipated to be minimal.

Cumulative impacts are not anticipated, as mitigation will be provided in accordance with §373.413, F.S. and within the same mitigation basin as the impacts.

Due to the impact minimization considerations included in this study, the result is an anticipated impact rating of *Minimal*.

Section 5
Summary of Permits and
Mitigations

5. SUMMARY OF PERMITS AND MITIGATION

Agency permits will be required during the next project phase, final design, and permitting. Mitigation for wetland and wildlife impacts is anticipated as part of this effort. Further information is available in the Natural Environment Report.

5.1 Agency Permits Required

Permits required for this project will include a federal *National Pollutant Discharge Elimination System* (NPDES) permit, a federal *CWA Section 404 Dredge and Fill* permit, and a state *Environmental Resource Permit* (ERP). Additional permits that may be required include a gopher tortoise relocation permit and a construction dewatering permit. The Tomoka River will be considered Waters of the State and, therefore, a Sovereign Submerged Lands Easement will be required.

5.2 Mitigation

Mitigation will be required to off-set unavoidable impacts to jurisdictional wetlands regulated by the SJRWMD and the USACOE.

5.2.1 WETLAND MITIGATION

Mitigation policies have been established by the ACOE, FDEP, and the SJRWMD. Options for mitigating the loss of wetlands include *Senate Bill (§373.4137, F.S)* or purchasing credits from a permitted mitigation bank whose service area includes the proposed project corridor.

Senate Bill

Wetland impacts which result from the construction of the proposed project can be off-set pursuant to *§373.4137, F.S.* to satisfy all mitigation requirements of *Part IV, Chapter 373, F.S.*, and *33 U.S.C.s 1344*. Under *§373.4137, F.S.*, mitigation for FDOT wetland impacts will be implemented by the appropriate water management district where the impacts occur. Each water management district will develop a regional wetland mitigation plan on an annual basis to be approved by the Florida State Legislature, which addresses the estimated mitigation needs of the FDOT. The water management district will then provide wetland mitigation for specific FDOT project impacts through a corresponding mitigation project within the overall approved regional mitigation plan. The FDOT will provide funding to the water management district for the implementation of such mitigation projects.

The 2012/2013 Senate Bill funding for mitigation is \$111,426 per acre of impact. If Senate Bill is utilized to off-set wetland impacts resulting from the construction of the proposed project, the final mitigation cost through Senate Bill will be determined once the final wetland impacts are determined. Based on the findings of this study, costs associated with wetland mitigation using Senate Bill would total approximately \$131,483.

Mitigation Bank

The use of a mitigation bank to off-set wetland impacts associated with a project requires the purchase of credits from a permitted mitigation bank. The bank's Mitigation Service Area (MSA) must cover the area in which the anticipated impacts will occur. At the time of this report, there are two mitigation banks that cover all or part of the project corridor: Lake Swamp Mitigation Bank, and Farmton Mitigation Bank. Lake Swamp Mitigation Bank did not have forested credits available for purchase at the time of this report. Therefore, it was not considered a viable mitigation option for this project due to the fact that forested credits are not available from this bank.

Farmton Mitigation Bank was permitting using ratios under the SJRWMD and WRAP under the ACOE. Typically, the SJRWMD requires mitigation for impacts to forested systems at a ratio of 2:1. At the time of this report, forested wetland credits at Farmton Mitigation Bank were priced at \$50,000 per credit. Based on the findings of this study, costs associated with wetland mitigation using Farmton Mitigation Bank would total approximately \$122,000.

5.2.2 PROTECTED SPECIES AND HABITAT

The Recommended Preferred Alternative has potential to impact gopher tortoise habitat. Further evaluation will be required during the next project phase, final design and permitting, to determine if potentially-occupied gopher tortoise burrows are located within 25 feet of any construction area. If so, potentially-occupied gopher tortoise burrows within 25 feet of the limits of construction will need to be excavated and the occupying tortoise relocated off-site to a permitted relocation site. .

5.2.3 FLOODPLAIN

Replacement storage volume to offset fill within the 100-year floodplain will be required during the next project phase, which is final design and permitting. This mitigation is regulated by the SJRWMD and reviewed as part of the ERP program.

Section 6
Summary of Public
Involvement

6. SUMMARY OF PUBLIC INVOLVEMENT

A Public Involvement Program (PIP) was developed and carried out as part of the S.R. 40 PD&E Study. The PIP is in compliance with Part 1, Chapter 11 of the “*Project Development and Environment Manual*,” Section 339.155, *Florida Statutes*, Executive Orders 11990 and 11988 *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, and 23 *Code of Federal Regulations (CFR) 771*. The purpose of the PIP was to document the tools and techniques used to establish and maintain communication with the public at-large, local, state, and federal agencies and other project stakeholders. As a result of extensive public involvement, the project team was able to effectively build consensus among the public and affected stakeholders.

In an effort to identify and address project-related issues that were raised by the public and agency stakeholders, the Department conducted an extensive interagency coordination and consultation effort in conjunction with an inclusive public participation process. This section of the document outlines the Department’s efforts to engage the public and agency partners during the PD&E process, and provide continuous opportunities for discussion of project-related issues throughout the study.

6.1 Advance Notification (AN)

Advance Notification (AN) was not done because this project is being conducted as a State Environmental Impact Report (SEIR) as no federal funding will be sought for this section of the corridor.

6.2 Efficient Transportation Decision Making (ETDM)

This project was screened through the Efficient Transportation Decision Making (ETDM) process (ETDM No. 9491). The ETDM programming screen was available for review by members of the Environmental Technical Advisory Team (ETAT) from February 3, 2011 to March 16, 2011. The ETAT is comprised of individuals from local, state, and federal agencies who review the project purpose and need and seek to identify potential issues at the beginning of the study process. The *ETDM Programming Screen Summary Report*, published on February 3, 2011, is provided in *Appendix F*.

6.3 Public Outreach

Public outreach was a key component of this study. Public outreach activities generally entailed providing information to and obtaining input from the public at-large, various stakeholders, private groups, and governmental agencies. The ability to build consensus among affected stakeholders and the public at large was vital to the successful outcome of this study. The overall goal of public outreach was to ensure that the results of the study reflected the values and needs of the community at-large.

6.4 Outreach Techniques

The project team employed several outreach techniques geared towards reaching the affected public and the community at-large. Public outreach techniques included a project website (www.stateroad40.com), three project newsletters, small group and agency meetings, mailings to local, invitational and informational letters, state and federal agencies and property owners/tenants in the study area, display advertisements in the *Daytona Beach News Journal*, and press releases to local media outlets.

The following individuals were contacted throughout the project development process:

- Those whose property lies, at minimum, within 300 feet from the proposed centerline, as well as others who were impacted by the project. This list was generated using the County's GIS or Property Appraiser's Data. Additionally, the project team conducted additional outreach with individuals, homeowner's associations, and neighborhood groups from multi-family residential or other communities, as necessary.
- Local elected and appointed public officials and individuals who have been identified or have requested to be placed on the mailing list for this project.
- Public and private groups, organizations, agencies and businesses that have been identified or have requested to be placed on the mailing list for this project.
- Local businesses/property owners that were affected by changes to access management.

6.5 Stakeholder Coordination

Stakeholder coordination was a critical component of the PD&E Study process. Throughout the project, the project team met with agency staff and various stakeholders. This included regular project coordination meetings and scheduled updates to various agencies that promoted an open dialogue on key project issues. Key stakeholders identified prior to and throughout the study included:

- Governmental Entities:
 - Volusia Transportation Planning Organization (TPO)
 - City of Ormond Beach
 - City of Daytona Beach
 - Volusia County
- Neighborhoods / Residential Communities:
 - Community of Twin Rivers
 - Bermuda Estates
 - Riverbend Acres
 - Southern Trace
 - Breakaway Trails

- Indian Springs
- Moss Point
- Tymber Creek
- Non-governmental Organizations:
 - Volusia-Flagler Sierra Club
 - Audubon Society
 - Environmental Council of Volusia/Flagler
 - 1000 Friends of Florida
 - Defenders of Wildlife
- Other Parties:
 - Local business owners / operators
 - Multiple religious institutions

6.6 Small Group / Agency Meetings

The following section provides a summary of small group and agency meetings held to inform the public and interested parties of project milestones.

- Agency Meeting / June 21, 2011 – As part of the agency kick-off meetings, the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Citizens Advisory Committee (CAC). The presentation provided an overview of the study and study process, opportunities for public involvement and contact information. A few questions were raised during the question and answer period concerning when the project would be constructed. Mr. Freeman answered all questions and the CAC Committee was pleased to hear of the project starting.
- Agency Meeting / June 21, 2011 – As part of the agency kick-off meetings, the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Technical Coordinating Committee (TCC). The presentation provided an overview of the study and study process, opportunities for public involvement and contact information. No questions were raised at this meeting and the TCC Committee was supportive of the project getting started.
- Agency Meeting / June 28, 2011 - As part of the agency kick-off meetings, the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Board. The presentation provided an overview of the study and study process, opportunities for public involvement and contact information. Mr. Ed Kelley, Mayor of Ormond Beach, mentioned that he was glad the project was moving forward and he noted that it would help improve the flow of traffic and provide economic benefits to the surrounding community.
- Agency Meeting / July 19, 2011 – As part of the agency kick-off meetings, the project team met with Jon Cheney, Volusia County Traffic Engineering to discuss an overview of the study, inclusion of the project in the Volusia County Comprehensive Plan, purpose and need, future traffic volumes, design

considerations, and future funding for design and construction. During the meeting, Mr. Cheney brought up several items for consideration, such as checking the LOS standard for SR 40 for being a SIS and FIHS facility, coordination with Army Corps of Engineers regarding the Hand Avenue project, a somewhat high percentage of crashes at night, etc.

- Agency Meeting / July 20, 2011 (8:30 a.m.) – As part of the agency kick-off meetings, the project team met with City of Ormond Beach staff to discuss an overview of the study, inclusion of the project in the Volusia County Comprehensive Plan, purpose and need, future traffic volumes, design considerations, and future funding for design and construction. Ormond Beach staff brought up several items for consideration, such as indicating that they can go through the process to update their Comprehensive Plan, discussion of the 2035 socio-economic model data being updated from Volusia TPO data to reflect new development in area, etc.
- Agency Meeting / July 20, 2011 (11:00 a.m.) - As part of the agency kick-off meetings, the project team met with City of Daytona Beach staff to discuss an overview of the study, inclusion of the project in the Volusia County Comprehensive Plan, purpose and need, future traffic volumes, design considerations, and future funding for design and construction. Daytona Beach staff brought up several items for consideration, such as Consolidated Tomoka waiting for the economy to return before development, SR 40 being a SIS and it is also on the FIHS, SR 40 currently having a LOS “C” standard that may be tripped by 2025, the City indicated that Rossmeyer would donate the needed land for the Hand Avenue extension, etc.
- Agency Meeting / August 12, 2011 – As part of the agency kick-off meetings, the project team conducted an overview presentation for the Black Bear Scenic Byways Committee. The presentation provided an overview of the study and study process, opportunities for public involvement and contact information. The Study Team continued to coordinate with the CME as the study moved forward.
- Agency Meeting / May 9, 2012 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Bicycle/Pedestrian Advisory Committee (BPAC). The presentation was conducted to provide an update of the study, explain the study process, present and explain project alternatives, and to announce the Alternatives Public Meeting being held at Riverbend Community Church. There was a request to design the bike lanes at 5 feet instead of the usual 4 foot wide lanes. Overall, the committee was excited that the project was moving forward.
- Agency Meeting / May 15, 2012 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Citizens’ Advisory Committee (CAC). The presentation was conducted to provide an update of the study, explain the study process, present and explain project alternatives, and to announce the Alternatives Public Meeting being held at Riverbend Community Church.
- Agency Meeting / May 15, 2012 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Technical Coordinating Committee (TCC). The presentation was conducted to provide an update of the study, explain the study process, present and explain project alternatives, and to announce the Alternatives Public Meeting being held at Riverbend Community Church.

- Agency Meeting / May 22, 2012 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Board. The presentation was conducted to provide an update of the study, explain the study process, present and explain project alternatives, and to announce the Alternatives Public Meeting being held at Riverbend Community Church.
- Agency Meeting / September 26, 2012 – This meeting between FDOT, City of Ormond Beach, and Votran was held to discuss potential uses for the Chevron/Kangaroo Express Station which will be partially impacted due to the S.R. 40 widening. The VE Review suggested purchasing the entire parcel for use as a potential park-and-ride lot. The participants of the meeting agreed at the conclusion of the meeting that a park-and-ride lot should not be further considered for the site due to poor access and potential safety issues.
- Agency Meeting / May 21, 2013 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Citizens Advisory Committee (CAC). The presentation was conducted to provide an overview of the study and PD&E process that has included public involvement / stakeholders outreach, engineering analysis, and environmental evaluations.
- Agency Meeting / May 21, 2013 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Technical Coordinating Committee (TCC). The presentation was conducted to provide an overview of the study and PD&E process that has included public involvement / stakeholders outreach, engineering analysis, and environmental evaluations.
- Agency Meeting / May 28, 2013 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Board. The presentation was conducted to provide an overview of the study and PD&E process that has included public involvement / stakeholders outreach, engineering analysis, and environmental evaluations.
- Agency Meeting / June 12, 2013 – As part of the agency Project update meetings; the project team conducted an overview presentation for the Volusia Transportation Planning Organization (TPO) Bicycle/Pedestrian Advisory Committee (BPAC). The presentation was conducted to provide an overview of the study and PD&E process that has included public involvement / stakeholders outreach, engineering analysis, and environmental evaluations.
- Small Group Meeting / July 8, 2013 – As part of the Public Hearing follow up; the project team conducted an overview presentation for the Conklin Centers for the Blind. The presentation was conducted to provide an overview of the study and PD&E process that has included public involvement / stakeholders outreach, engineering analysis, and environmental evaluations. Comments received at this meeting were incorporated into the public hearing record.

Meeting notes for these meetings are provided in the Comments and Coordination Package available for review at the FDOT District 5 Office in DeLand, Florida.

6.7 Public Kick-Off Meeting

The Public Kick-off Meeting was held on July 21, 2011 at the Faith Lutheran Church, Ormond Beach, Florida – from 5:30 pm to 7:30 pm. The meeting was conducted to introduce and explain the purpose of the study and to obtain input from elected and appointed officials, property owners/tenants, business owners/operators, and other interested parties.

The meeting was advertised through several methods, including:

- Advertisement in the July 1st edition of the Florida Administrative Weekly;
- Direct mail notifications to approximately 1,000 property owners / tenants;
- Notification Letters and emails to approximately 100 state and local elected and appointed public officials and other agencies;
- Display advertisement in the Sunday, July 10th edition of the Daytona Beach News-Journal;
- Press release to local media outlets;
- Announcement on the Florida Department of Transportation (FDOT) website;
- Announcement on the project website – www.stateroad40.com; and
- Coordination with local homeowner’s associations and communities along S.R. 40.

The meeting began at 5:30 pm and was conducted in an open house format. Throughout the meeting, FDOT staff and members of the project team were on hand to discuss the project and answer questions. Aerial display boards and other project-specific information were also on display for review. In general, the meeting highlighted several elements, including: project purpose and need, an overview of the study process including data collection, engineering analysis, environmental evaluations, opportunities for public involvement, and contact information.

In attendance were approximately ninety-one (91) members of the public, seven (7) FDOT staff and five (5) members of the project team. Representatives from local and state agencies including staff from the offices of Congressman John Mica, and Paul MacDonald, City of Ormond Beach Engineer were also in attendance.

A comment form was developed to record written comments and questions. A total of fifteen (15) comment forms were received during the public comment period, which was open until July 31, 2011. The following sections provide an overview of the public input received during the 10-day comment period.

Traffic / Project Concepts

- Concerns were expressed about the bottleneck at S.R. 40 and Williamson Boulevard.
- Many members of the public noted there are access problems in and out of Twin Rivers and wanted a traffic light installed in front of the neighborhood when the widening occurs.

Social, Physical & Natural Environment

- Residents in the area noted that noise is going to be a big issue and suggested the need for noise walls to benefit the neighborhoods of Breakaway Trail, Twin Rivers, and Il Villagio.

Funding

- Residents expressed concern regarding the funding of future phases. The majority of these comments involved the concern that this project was only being done for developers.

Other

- Several attendees mentioned they felt the project was being implemented to support local developers.
- There was concern that this project is a waste of State money because there has never been a traffic problem.
- A large number of attendees inquired about the date of construction and could not understand why we are doing it if design is not funded.

6.8 Alternatives Public Meeting

The Alternatives Public Meeting was held on June 7, 2012 at the Riverbend Community Church, Ormond Beach, Florida – from 5:00 pm to 7:00 pm. The meeting was conducted to present and explain project alternatives, explain the study process and schedule, seek public and agencies input, and provide interested persons an opportunity to get involved in the study.

The meeting was advertised through several methods, including:

- May 25th edition of the Florida Administrative Weekly;
- Direct mail notifications to approximately 1,000 property owners / tenants;
- Notification Letters and emails to approximately 100 state and local elected and appointed public officials and other agencies;
- Display advertisement in the Sunday, May 27th edition of the Daytona Beach News-Journal;
- Press release to local media outlets;
- Announcement on the Florida Department of Transportation (FDOT) website;
- Announcement on the project website – www.stateroad40.com; and
- Coordination with local homeowner's associations and communities along S.R. 40.

The meeting began at 5:00 pm and was conducted in an open house format. Throughout the meeting, FDOT staff and members of the project team were on hand to discuss the project and answer questions. Several display boards were on display for review including aerial displays depicting the different project

alternatives, an existing/future traffic board, an evaluation matrix board, and the typical section alternatives board.

An overview presentation was given at approximately 6:00 pm, and included content related to the topics listed below.

- The PD&E Study Process;
- An overview of the project including an explanation of the limits and why this project is needed;
- Engineering Analysis with an explanation the proposed alternatives;
- A review of the schedule and certain milestones; and
- Contact information.

Following the meeting, the presentation slides were posted to the project website to provide the public with access to this content.

In attendance were approximately thirty-five (35) members of the public attended the meeting, along with two (2) elected officials that included Fred Costello, State Representative, and Bill Partington, Ormond Beach City Commissioner, Zone Four. Also in attendance was staff from local municipalities that included Richard Goss, Community Development Director, City of Ormond Beach, as well as five (5) FDOT staff and eight (8) members of the project team.

A comment form was developed to record written comments and questions. A total of 14 comment forms were received during the public comment period, which was open until June 18, 2012. The following sections provide an overview of the public input received during the meeting and over the 10-day comment period that followed.

Traffic / Project Concepts

- Members of the public were concerned about the entrance to Twin Rivers Subdivision and wanted a traffic light installed.
- Also of concern was the inability to make a U-turn at Tymber Creek Road and the need for a gap in traffic in order to go east on S.R. 40. The resident requested that the project team follow up with Volusia County Traffic Engineering to see if the signal can be modified to reserve the westbound left turn more often.
- One member of the public expressed a preference for either Alternative B or D and wants the speed limit reduced to 45 mph.

Social, Physical & Natural Environment

- Generally, residents that attended the Alternatives Public Meeting were concerned about potential noise issues and expressed a desire that noise walls be included as part of the recommended improvements.

Funding

- Residents expressed concern regarding the funding of future phases. The majority of these comments involved the concern that this project was only being done for developers.

Other

- There were eight members of the public from the elder law offices of Randal L. Schecter, P.A., who wrote letters regarding the location of stormwater retention pond alternative 3 located just west of an existing FDOT stormwater pond and the Tomoka River basin. The letters requested that the project team reevaluate the location of this pond so as to not impact the building that houses the law office, which was recently refurbished.
- There was a question as to which alternative was best suited for landscaping in the median; a piped drainage system or a swale system.

6.9 Public Hearing

The Public Hearing was held on June 25, 2013 at the Riverbend Community Church, Ormond Beach, Florida – from 5:00 pm to 7:00 pm. The meeting was conducted to present the proposed improvements, to present the results of the environmental studies for the proposed improvements, to allow interested citizens and public officials the opportunity to present information or comment on the proposed improvements, and to develop a record of public views and participation.

The meeting was advertised through several methods, including:

- June 11th edition of the Florida Administrative Weekly;
- Direct mail notifications to approximately 840 property owners / tenants;
- Notification Letters and emails to approximately 150 state and local elected and appointed public officials and other agencies;
- Newspaper advertisement in the Thursday, June 6th and Sunday, June 16th edition of the Daytona Beach News-Journal;
- Press release to local media outlets;
- Announcement on the Florida Department of Transportation (FDOT) website;
- Announcement on the project website – <http://www.stateroad40.com>; and
- Coordination with local homeowner's associations and communities along SR 40.

An open house session began at 5:00 pm during which project team members were available to interact with the public and answer questions. There was a newsletter for every attendee that included project information, a project overview map, and a comparative evaluation matrix. There were several display boards including two sets of aerial displays depicting the preferred alternative accompanied by a preferred alternative typical sections board, an existing/future traffic board, an evaluation matrix board, a typical sections alternatives board, and an aerial project overview board.

The open house session was followed by a formal hearing presentation beginning at approximately 6:00 pm, and included content related to the topics listed below:

- Compliance details;
- Public comment period;
- The PD&E Study Process;
- An overview of the project including an explanation of the limits and why this project is needed;
- Engineering Analysis with an explanation the preferred alternatives;
- Right of Way needs proposed for the preferred alternative;
- Details of environmental evaluations concerning the preferred alternative;
- The next steps in the State Road 40 project; and
- Contact Information.

Following the formal hearing presentation, at approximately 6:30 pm, there was a fifteen (15) minute intermission. During the intermission, members of the study team were on hand to discuss the project and answer additional questions. The intermission also gave attendees the chance to fill out speaker cards, comment forms, and speak individually with the Court Reporter. A total of five (5) people spoke individually with the Court Reporter, which was documented for the public hearing record.

The public testimony at the microphone began at approximately 6:45 pm. A total of three (3) speakers gave their public testimony at the microphone. The speakers were called up in the order that the speaker cards were received. The Court Reporter documented all testimonies for the public record.

In attendance were approximately forty-two (42) members of the public attended the meeting, along with one (1) elected official, Rick Boehm, Ormond Beach Commissioner, Zone Three. Also in attendance were nine (9) FDOT staff and six (6) members of the study team.

A comment form was developed to record written comments and questions. A total of ten (10) comment forms were received during the public comment period, which was open until July 9th, 2013. The following sections provide an overview of the public input received during the meeting and over the 10 day comment period that followed.

Traffic / Project Concepts

- One member of the public expressed concern for residents exiting the Twin Rivers Subdivision trying to go east.
- Ten members of the public spoke out about controlling the right turn movements and the addition of accessible pedestrian signals (APS) at the project intersections.
- There were also comments concerning the median opening at Interchange Boulevard and order of construction details.

- Concerns were brought up on the delays that could be caused by having controlled right turns, and if the bridge will need widening to support these delays.
- One resident showed concern for ambulance traffic getting through some of the tighter areas in the project design.

Social, Physical & Natural Environment

- One attendee mentioned a pod of manatees living in the Twin Rivers area that may be impacted by the widening.
- One resident believes the Consolidated – Tomoka is using this project for their personal gain.

Funding

- One member of the public expressed concern for the project being a cost the County cannot afford.

Other

- From the Elder Law offices of Randal L. Schecter, P.A., support for the PD&E process and the final proposed alternative.
- A property owner shared a letter from Richard Wiskeman concerning the access management of his property.

A summary and transcript of the Public Hearing is provided in *Appendix I*.

6.10 Comments and Coordination Report

A *Comments and Coordination Report* was assembled under separate cover to document the public involvement activities accomplished throughout the study. This report includes all comments and responses received from coordination with the public at-large, local, state and federal agencies, etc. The *Comments and Coordination Report* also include copies of notification materials, project newsletters, presentation handouts, sign-in sheets, comment forms, as well as additional supplementary materials developed as part of the public outreach process.

Section 7
Commitments and
Recommendations

7. COMMITMENTS AND RECOMMENDATIONS

Summarized in this section of the PDSR are FDOT's recommendations and commitments associated with the proposed construction of the S.R. 40 widening between Breakaway Trail and Williamson Boulevard. As stated in Section 2 of the report, the purpose of this project is to provide the roadway and intersection capacity improvements needed to address future traffic demand through 2035, provide continuity on this regionally significant roadway, and maintain important freight and emergency mobility.

7.1 Recommendations

The Recommended Preferred Alternative is Build Alternative B, which includes constructing a rural six-lane typical section from Breakaway Trail to Tymber Creek Road, and an urban typical section from Tymber Creek Road to Williamson Boulevard. Section 3.7 (page 3-29) of this report details the recommended preferred alternative. Geometric design features of the roadway widening, intersections, and bridges should be reconsidered during the design phase to adhere to the latest FDOT or other constructing and administrative jurisdiction's standards.

7.2 Commitments

The recommended preferred alternative consists primarily of widening the existing roadway facility within the existing right-of-way. Project commitments include:

- Replace the existing 8-foot wide sidewalk on the north side of S.R. 40 between Breakaway Trail and Tymber Creek Road with a 12-foot wide asphalt shared use path. The path is proposed to run the length of the project on the north side of S.R. 40.
- A Level II assessment for contamination at the two "high risk" gas station sites on the south side of S.R. 40 between I-95 and Williamson Boulevard. This assessment should include soil sampling to determine potential presence of petroleum contamination and be conducted during the design and permitting phase of the project.
- The following General Note will be added: Eastern indigo snake habitat has been identified within the project limits. Utilize the US Fish and Wildlife Service Standard Protection Measures for the Eastern Indigo Snake, at the US Fish and Wildlife Service Link:
http://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm
- During permitting, all potential gopher tortoise habitat that could be impacted by the project will be systematically surveyed according to the current guidelines published by the Florida Fish and Wildlife Conservation Commission (FWC). If gopher tortoise burrows are found, all practicable design measures will be employed to avoid impacts to the burrows. For burrows which cannot be avoided, a permit will be obtained from FWC for relocation of gopher tortoises and commensals, and relocation will be performed at a time as close as practicable to the start of construction activities at the site of the burrows.

- As part of the traffic signal upgrade at the S.R. 40 and Williamson Boulevard intersection, accessible pedestrian signals (APS) will be installed at signalized pedestrian crosswalks.

Appendix A
Typical Section Analysis
Technical Memorandum



KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

225 E Robinson Street, Suite 450, Orlando, FL 32801 P 407.540.0555 F 407.540.0550

TECHNICAL MEMORANDUM

SR 40 PD&E Study (Financial Project No. 428947-1-22-01)

Breakaway Trail to Williamson Blvd

Typical Section Analysis

Date: February 15, 2012 **Project #:** 11508

To: Mary McGehee – FDOT District 5

From: Jack Freeman, P.E. & Joey Bansen

cc: Chris Rizzolo – FDOT District 5

Several typical roadway sections have been developed for the 4-lane to 6-lane widening of State Road 40 (SR 40) from Breakaway Trail to Williamson Boulevard in Volusia County. The typical sections were developed in coordination with the Florida Department of Transportation (FDOT) to fit within the physical and environmental constraints of the project context, as well as to meet the applicable design standards outlined in the FDOT Plans Preparation Manual.

This memorandum provides an assessment of how each roadway typical section meets the project objectives, as well as a comparison of the typical sections to each other considering several criteria. The roadway typical sections will be assessed separately for the segments of SR 40 from Breakaway Trail to Tymber Creek Road and from Tymber Creek Road to I-95 (Interchange Boulevard) because of the differing character and context of the roadway in the two segments as it changes from rural to urban. Three roadway typical sections were assessed for each segment, two of them being the same for both segments. No typical sections were compared in this memo for the section of SR 40 between Interchange Boulevard and Williamson Boulevard because the segment is already three lanes in the eastbound direction and any improvements identified for this segment will be “non-typical” and will address the capacity needs of the I-95 interchange and Williamson Boulevard intersection.

In addition to roadway typical sections, several typical sections were developed for widening the Tomoka River Bridge. This assessment provides discussion of the bridge typical sections and how they fit with the roadway typical sections.

The purpose of this assessment is to eliminate one typical section from consideration for each segment of SR 40, in order to carry forward two typical sections for further evaluation.

Overview of Roadway Typical Sections

The four roadway typical sections outlined below were developed to accommodate the widening of SR 40 from Breakaway Trail to Interchange Boulevard. The Design Traffic Technical Memorandum, prepared by GMB Engineers & Planners, Inc, identified the need for additional lane capacity over the design life of the roadway to accommodate significant future traffic growth in the area. Table 1 below summarizes the average annual daily traffic volumes (AADT) for SR 40 for the various design years.

Table 1 Design Year Traffic Volumes

| Segment | AADT (veh/day) | | | |
|-------------------------------------|----------------|--------------------------------|-----------------------------------|-------------------------------|
| | 2011 Existing | 2015 Opening Year ¹ | 2025 Mid Design Year ¹ | 2035 Design Year ¹ |
| Breakaway Trail to Tymber Creek Rd | 11,800 | 18,300 | 34,600 | 50,800 |
| Tymber Creek Rd to Interchange Blvd | 23,400 | 29,700 | 45,600 | 61,400 |

1. AADT based on Build Alternative 5 from DTTM.

The following typical sections are being considered separately for the two segments of SR 40, as outlined below:

- Breakaway Trail to Tymber Creek Road: #1, #2 and #3.
- Tymber Creek Road to Interchange Boulevard: #2, #3, and #4.

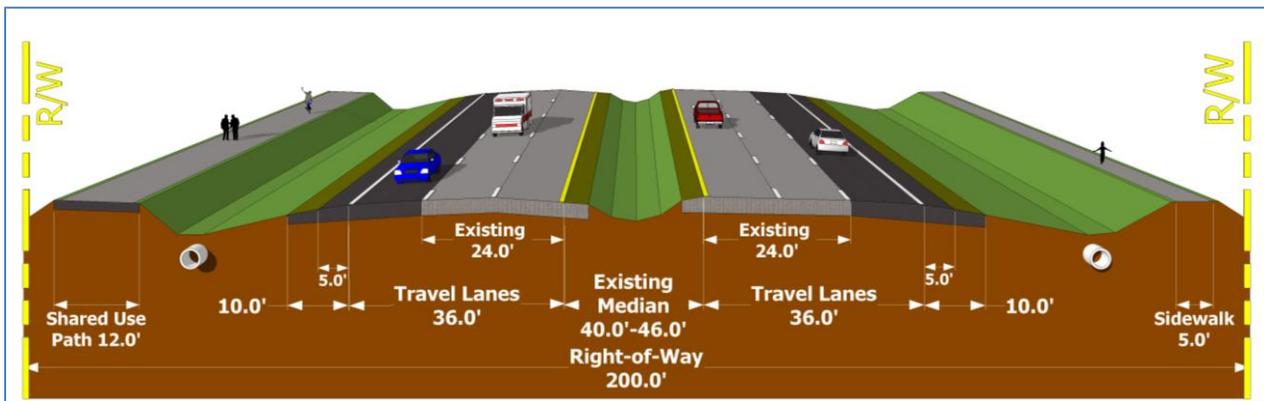
ROADWAY TYPICAL SECTION #1 – RURAL TYPICAL SECTION WITH WIDE MEDIAN

The typical section shown in Figure 1 below utilizes the existing 40-foot wide swale median and maintains the rural character of the roadway, with uncurbed median and flush outside shoulder. The widening for this typical section would all occur to the outside of the roadway. The existing center crown of the westbound direction will remain, and will be at the outside edge of the inside westbound travel lane. By widening to the outside only, maintenance of traffic during construction can be easily achieved, and construction impacts to the existing travel lanes will be limited. A 5-foot wide pedestrian sidewalk is provided on the south side and a 12-foot wide shared use path is provided on the north side of SR 40. Both pedestrian facilities are located outside the clear zone. The 5-foot paved shoulders in both directions also serve as bicycle lanes. The 40-foot border width

specified for arterials with flush shoulder in the FDOT Plans Preparation Manual cannot be achieved for typical section #1. Because the roadway is offset from center in the existing right-of-way, the border width on the north side of SR 40 will generally be 37-foot, and the border width on the south side will generally be 31-foot from Breakaway Trail to Tymber Creek Road.

The widening for typical section #1 matches the existing roadway, which was constructed with a 65 mph design speed for the segment between Breakaway Trail and Tymber Creek Road. The segment is currently posted at 50 mph, and the turn lane and other geometric features will accommodate a 50 mph design speed.

Figure 1
Rural Typical Section with Wide Median

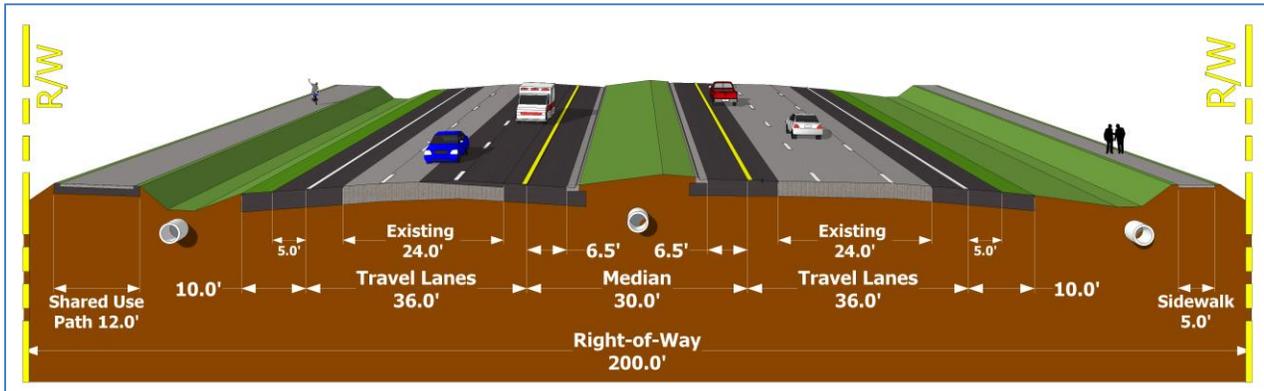


ROADWAY TYPICAL SECTION #2 – SUBURBAN TYPICAL SECTION

The widening for this typical section, shown in Figure 2 below, occurs both on the inside and outside of the existing travel lanes, reducing the median to the 30-foot minimum specified in the FDOT Plans Preparation Manual for suburban highways. Median curb and gutter are used, and the outside shoulders remain uncurbed. Because of the existing center crown of the westbound direction, a portion of the roadway will need to be milled and overbuilt to achieve a new crown for that direction of travel, which would be at the outside edge of the inside travel lane. A 5-foot wide pedestrian sidewalk is provided on the south side and a 12-foot wide multi-use path is provided on the north side of SR 40. Both pedestrian facilities are located outside the clear zone. The 5-foot paved shoulders in both directions also serve as bicycle lanes. Typical section #2 utilizes a 50 mph design speed.

The 40-foot border width specified for arterials with flush shoulder in the FDOT Plans Preparation Manual cannot be achieved for typical section #2 for the majority of the corridor.

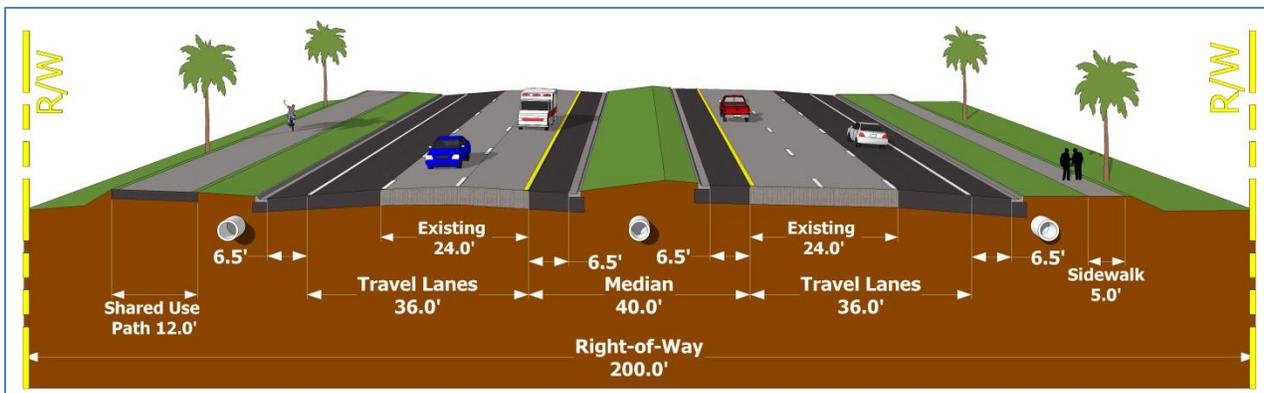
Figure 2
 Suburban Typical Section (50 mph Design Speed)



ROADWAY TYPICAL SECTION #3 – HIGH SPEED URBAN TYPICAL SECTION

The widening for this typical section, shown in Figure 3 below, occurs both on the inside and outside of the existing travel lanes, but maintains a 40-foot wide median, including inside shoulders. Curb and gutter are used for the outside shoulder and the median, and the sidewalk and multi-use path are brought in closer to the roadway. By maintaining the wide median and the two existing lanes as the inside travel lanes, the overbuild of the westbound lanes needed for typical section #2 is avoided and an easier maintenance of traffic during construction will be possible. Similar to typical sections #1 and #2, the crown for the westbound direction will be at the outside edge of the inside travel lane. Though an urban cross-section, this typical section still utilizes wide shoulders because of the 50 mph design speed, and thus maintains a wide footprint similar to the suburban typical sections. The wider 6.5-foot outside shoulders also serve as bicycle lanes.

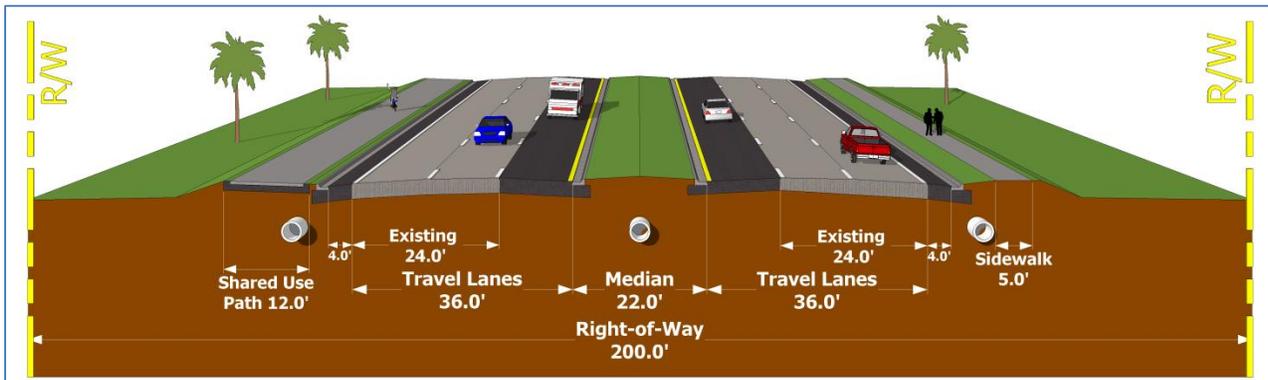
Figure 3
 High Speed Urban Typical Section (50 mph Design Speed)



ROADWAY TYPICAL SECTION #4 – URBAN TYPICAL SECTION

The widening for this typical section, shown in Figure 4 below, occurs primarily on the inside of the roadway, creating a narrower 22-foot median. Additionally, 4-foot paved shoulders are added on the outside of the roadway to serve as bicycle lanes. Curb and gutter are provided both for the outside shoulder and the median, and a sidewalk and multi-use path are provided much closer to the travelled-way than in the suburban and urban high-speed typical sections. Because of the lower 45 mph design speed, the shoulders are narrower for this typical section, allowing for a smaller overall roadway footprint.

Figure 4
Urban Typical Section (45 mph Design Speed)



Overview of Bridge Typical Sections

Several typical sections for the Tomoka River Bridge were developed to account for the widening of SR 40. The typical sections for the bridge were coordinated with the roadway typical sections to provide preliminary compatibility. Of the five bridge typical sections that were developed, two (#2 and #5) were thrown out early in the PD&E process due to impracticality or cost of construction. The three typical sections outlined below were brought forward to be compatible with the roadway typical sections outlined above. See Attachment A for the bridge typical section sheets.

BRIDGE ALTERNATIVE #1 – URBAN TYPICAL SECTION

This typical section for the bridge was developed to be compatible with Roadway Typical Section #4, and provides the lane widening to the inside of the bridge. Width to accommodate a 5-foot wide pedestrian sidewalk is added to the outside of the eastbound span, and a separate 12-foot wide structure would be constructed on the outside of the westbound span.

BRIDGE ALTERNATIVE #3 – SUBURBAN TYPICAL SECTION WITH 30' MEDIAN

This typical section for the bridge was developed to be compatible with the suburban Roadway Typical Section #2, and provides the lane widening to both the inside and the outside of the bridge spans. The widening accommodates the additional lane widths as well as a 5-foot wide pedestrian sidewalk on the south side and a 12-foot wide multi-use path on the north side of the bridge spans.

BRIDGE ALTERNATIVE #4 – SUBURBAN TYPICAL SECTION WITH 40' MEDIAN

This typical section for the bridge was developed to be compatible with the high speed urban Roadway Typical Section #3, and provides the lane widening to both the inside and the outside of the bridge spans. The widening accommodates the additional lane widths as well as a 5-foot wide pedestrian sidewalk on the south side and a 12-foot wide multi-use path on the north side of the bridge spans.

Assessment Criteria

The assessment criteria outlined below were used to compare the four roadway typical sections and the bridge typical sections associated with them. The comparative assessments for each criterion are primarily qualitative in nature, and assess how each typical section satisfies the project intent or context for that criterion.

- Design Speed
- Surrounding Character/Future Land Use Patterns
- Cost
- Construction Impacts
- Safety Impacts

DESIGN SPEED

The current posted speed limit on SR 40 is 50 mph from Breakaway Trail to just west of Interstate Boulevard. The exiting roadway for the segment from Breakaway Trail to Tymber Creek Road was constructed with a 65 mph design speed, and has since been posted at 50 mph due to community request. The speed is posted 45 mph from Interstate Boulevard to Williamson Boulevard. A design speed equal to the posted speed was used in developing the roadway and bridge typical sections, with the exception of roadway typical section #4, which utilizes an urban design with a design speed of 45 mph. In order for roadway typical section #4 to be brought forward as a preferred alternative, the

posted speed would need to be reduced to 45 mph from Tymber Creek Road to Interstate Boulevard. Since SR 40 is a controlled-access facility and part of the Florida Intrastate Highway System (FIHS), the minimum design speed is 50 mph and a design variance would be needed to lower the design speed and posted speed to 45 mph.

A spot speed study was performed by Kittelson & Associates, Inc. (KAI) on SR 40 between Tymber Creek Road and Booth Road in June 2011 in accordance with FDOT procedures. The speeds recorded along SR 40 are provided in Table 1 below. Attachment B includes the speed study performed by KAI.

Table 2 Speed Study Summary

| Study Location | 85 th Percentile Speed (mph) | | 10 MPH Pace | | Posted Speed Limit (mph) | |
|-----------------------------------|---|------|-------------|----------|--------------------------|----|
| | EB | WB | EB | WB | EB | WB |
| SR 40 (1,200 ft west of Booth Rd) | 52.0 | 54.3 | 43 to 52 | 46 to 55 | 50 | 50 |

According to the speed study, the current 85th percentile speeds on SR 40 are slightly above the current posted speed of 50 mph in the study area.

The information above supports the use of typical sections for roadways with design speeds of 50 mph or greater, including typical sections #1, #2, and #3. Typical section #4 is based on a 45 mph design speed and thus does not currently meet the intended FIHS classification, and is below the current speeds recorded on SR 40.

SURROUNDING CHARACTER/FUTURE LAND USE PATTERNS

Roadway Character

The character of SR 40 in its current form fits the adjacent land uses and development intensities, transitioning from a rural cross-section on the west end at Breakaway Trail to a more urban cross-section near I-95 and to the east. There is currently very little development abutting SR 40 between Breakaway Trail and Tymber Creek Road, and access points to the roadway are limited to major side streets. Access densities increase between Tymber Creek Road and I-95 with the presence of increasing development, though access is limited primarily to major side streets and right-in/right-out for individual uses. As the land use patterns and development intensities change over the design life of the roadway (2035), the road will need to fit within this changing context and respond to the additional demands for access and a more compact urban form.

The FDOT Plans Preparation Manual provides special guidance in Section 2.16 for the development of roadway typical sections in high-speed urban or suburban contexts where operating speeds are still expected to be high (50 mph or greater). The Plans Preparation Manual specifies that a raised median with curb and gutter should be provided, and a flush outside shoulder is optional instead of a curbed shoulder as long as clear zone and other geometric criteria can be maintained. Though the median width for typical section #1 provides adequate clear zone, it utilizes a flush shoulder on both the median and outside edge, which is inconsistent with the FDOT guidance for suburban arterials. Typical sections #2, #3 and #4 meet all FDOT criteria for the development of high-speed urban and suburban and low-speed urban arterial typical sections.

Land Use Patterns

The Future Land Use Maps for Volusia County, City of Daytona Beach, and City of Ormond Beach were consulted to understand the future context of the roadway. The land adjacent to SR 40 west of Tymber Creek Road is generally split between City of Daytona Beach on the south side, and City of Ormond Beach on the north side. East of Tymber Creek Road, the land abutting SR 40 generally falls within the City of Ormond Beach.

The City of Daytona Beach adopted an amendment to their comprehensive plan in October 2010 to modify the future land use map as follows:

- Change the Future Land Use designation of 4,318+/- acres located south of State Route 40, west of Tymber Creek Road, and west of LPGA Boulevard from Volusia County “Forestry Resource,” “Low Impact Urban,” and “Environmental System Corridor,” and City of Daytona Beach “Urban Transition” to City of Daytona Beach “Low Intensity Urban,” Mixed Uses,” and “Potential Environmentally Significant” land uses.

The above Comprehensive Plan amendment suggests that higher density land uses will be moving closer to SR 40 east of Breakaway Trail in the future. The land to the west of the City of Daytona Beach limits on the south side of SR 40 is zoned as Conservation land use, suggesting it will maintain a rural character well into the future.

The City of Ormond Beach Future Land Use Map shows future development along the north side of SR 40 between Breakaway Trail and Tymber Creek Road to be primarily Low Density Residential and Suburban Low Density Residential, with some General Commercial, Activity Center, and Tourist Commercial. The future land uses surrounding the I-95 and SR 40 interchange are primarily Tourist Commercial and General Commercial.

The future land use patterns expected for the areas around SR 40 between Breakaway Trail and Williamson Road suggest that a suburban/low density urban context will develop over time, with lesser development intensities in the area between Breakaway Trail and Tymber Creek Road, and higher development intensities in the segment closer to the SR 40 interchange with I-95.

Based on the discussion above, the high speed urban typical section #3 would best fit the low intensity urban/mixed use land use context between Breakaway Trail and Tymber Creek Road in the future. Typical section #2 more so fits the current roadway and land use character, but may not meet the future needs of the area as well. Typical section #1 maintains more of a rural character due to the absence of a raised median and lack of curb and gutter, and is somewhat inconsistent with the design guidance provided for suburban arterials in the FDOT Plans Preparation Manual.

The future land uses planned for the area suggest that an urban roadway typical section with a more compact form (i.e. pedestrian/bike facilities set closer to roadway) and better access control characteristics (i.e. curb and gutter) would best fit the context of the roadway between Tymber Creek Road and I-95 in the future. Typical sections #3 and #4 best serve that function. Typical section #4 provides a more compact form with narrower pavement widths (shorter pedestrian crossing distances) and lower design speed that would fit the future urban context.

The Future Land Use Maps for Volusia County, Daytona Beach, and Ormond Beach are included in Attachment C of this memo.

COST

The comparative costs of constructing each of the typical sections were compiled using the FDOT Long Range Estimating (LRE) software. For the roadway typical sections, a representative half-mile length of roadway was estimated for each typical section and translated into a per-mile cost as well as a total cost over the segment length for means of comparison. For the bridge typical sections, a preliminary cost estimate was provided by DRMP for widening along the entire length of the bridge. The costs of the roadway widening and bridge widening are shown in Table 2 below. The LRE outputs and cost information provided by DRMP are included in Attachment D.

Table 3 Typical Section Cost Comparison

| Segment | Typical Section | Length (miles) | Roadway \$/mile ¹ | Roadway Cost | Bridge Cost | Total |
|------------------------------------|-----------------------|----------------|------------------------------|--------------|-------------|--------------------|
| Breakaway Trail to Tymber Creek Rd | #1 (Rural) | 1.00 | \$2.496 mil | \$2.496 mil | N/A | \$2.496 mil |
| | #2 (Suburban) | 1.00 | \$3.339 mil | \$3.339 mil | N/A | \$3.339 mil |
| | #3 (High Speed Urban) | 1.00 | \$4.056 mil | \$4.056 mil | N/A | \$4.056 mil |
| Tymber Creek Rd to I-95 | #2 (Suburban) | 0.66 | \$3.339 mil | \$2.204 mil | \$2.950 mil | \$5.154 mil |
| | #3 (High Speed Urban) | 0.66 | \$4.056 mil | \$2.677 mil | \$2.950 mil | \$5.627 mil |
| | #4 (Urban) | 0.66 | \$3.556 mil | \$2.347 mil | \$1.840 mil | \$4.187 mil |

1. A 10% maintenance of traffic and 10% mobilization cost were added to each roadway typical section cost.

As shown in Table 2, the lowest cost cross-section from Breakaway Trail to Tymber Creek Road is #1, which has a rural character and utilizes the existing wide swale median and widens the roadway to the outside. Typical section #3 has the highest per-mile cost for the segment of SR 40 from Breakaway Trail to Tymber Creek Road.

For the segment of SR 40 between Tymber Creek Road and Interchange Boulevard, the lowest cost typical section is the 45 mph urban typical section #4, considering the combined costs of the roadway and bridge. Typical section #2 actually has a slightly lower per-mile cost for the roadway portion, but the bridge cost for #4 is significantly lower. Typical section #4 (bridge alternative #1) requires a much narrower widening of the bridge structure compared with the other bridge alternatives, even considering the separate shared use path structure needed for bridge alternative #1. Typical section #3 is expected to have the highest combined cost for the section of SR 40 from Tymber Creek Road to Interchange Boulevard.

The cost comparison provided above suggests that the High Speed Urban (50 mph) typical section #3 is the most costly alternative for both segments of SR 40 under consideration.

CONSTRUCTION IMPACTS

The roadway typical sections were evaluated on their relative ease of construction and any other associated impacts. The sections below summarize the construction impacts.

Maintenance of Traffic

Typical section #1 presents the most straight-forward option for maintaining traffic during construction, as all widening occurs to the outside and the existing two lanes in each direction are maintained for vehicle travel. Typical sections #3 and #4 also provide for maintaining traffic on the existing lanes, though widening will occur on both the inside and outside shoulders. Because typical section #2 requires an overbuild of half of the existing westbound pavement section, maintenance of traffic in the westbound direction will require more complex staging.

For the segment of SR 40 between Breakaway Trail and Tymber Creek Road, typical sections #1 and #3 provide for the easiest construction traffic control and maintenance of traffic. Typical sections #3 and #4 provide for the easiest traffic control and maintenance of traffic during construction for the segment of SR 40 between Tymber Creek Road and Interchange Boulevard.

Right-of-Way Impacts

The four typical sections were considered in relation to the 200-foot roadway right of way that exists, and how the various dimensions fit within the right-of-way. It was found that all four typical sections are expected to be accommodated within the existing right-of-way, though typical section #1 has the greatest limitation due to all of the widening occurring to the outside of the roadway and keeping the existing median width. By accommodating the shared use path outside of the clear zone on the south side of SR 40, only approximately 5 feet is left for buffer and slope tie-in inside the existing right-of-way. This has the potential to create additional right-of-way needs in widening SR 40, specifically in the outside of the horizontal curve just west of Tymber Creek Road where roadway superelevation is utilized. Additionally, typical sections #1 and #2 do not meet the minimum border width criteria of 40 feet, as specified in the FDOT Plans Preparation Manual.

SAFETY IMPACTS

A qualitative comparison of the relative safety of the four typical sections was performed using Part D of the Highway Safety Manual (HSM), published in 2010. Because the HSM does not specifically address 6-lane roadways, a qualitative analysis of the predicted crashes for each typical section was not possible. Chapter 13 (Tables 13-1, 13-17, and 13-54) of the HSM identifies several treatments related to elements of roadway segments that have an effect on the safety characteristics of those roadway segments. All of these factors were considered in relation to the scope of the SR 40 project, and those that do not apply were screened out. The factors that do have a comparative effect on the safety of the various typical sections are as follows, and are discussed further in the sections below:

- Add or widen paved shoulder
- Provide a raised median
- Provide a Raised Median or Refuge Island at Marked or Unmarked Crosswalks

Add or Widen Paved Shoulder

Table 13-8 of the HSM describes the potential crash effects of paved right shoulder width on divided highway segments. The base case for this Crash Modification Factor (CMF) is an 8-foot paved shoulder. The four typical sections propose the following right (outside) shoulder widths:

- Typical Section #1: 5 foot paved shoulder
- Typical Section #2: 5-foot paved shoulder
- Typical Section #3: 6.5-foot paved shoulder
- Typical Section #4: 4-foot paved shoulder

The trend in the CMF provided in Table 13-8 generally indicates that as the paved shoulder width decreases, the crash rate increases. Using this trend, typical section #3 would have the best safety benefit for both segments of SR 40 under consideration. Typical sections #1 and #2 would be equal for the section of SR 40 between Breakaway Trail and Tymber Creek Road, and typical section #4 would have the worst safety performance for the section of SR 40 between Tymber Creek Road and I-95.

Provide a raised median

Table 13-11 of the HSM describes the potential crash effects of providing a raised median on an urban multi-lane arterial. The base condition is “absence of raised median.” The CMF for providing a raised median is 0.78 for injury crashes of all types, and 1.09 for non-injury crashes of all types, with a standard error of 0.02. By applying the CMF with a confidence interval of plus or minus two times the standard error, there is an expected reduction of 18-26% for injury crashes, and expected increase of 5-13% for non-injury crashes. For rural multi-lane arterials, the CMF is 0.88 for injury crashes and 0.82 for non-injury crashes, with a standard error of 0.03 for both. This equates to a reduction of 6-18% in injury crashes and reduction of 12-24% in non-injury crashes. Because the roadway is more suburban in nature, the safety benefit of providing a median may be somewhere between the urban and rural factors provided.

Because of the variability of the effects of the CMF between rural and urban arterials as outlined above, it is difficult to truly compare the relative safety of the typical sections in relation to providing

a raised median. In comparison, typical sections #2, #3 and #4 will have the same relative safety since they all provide raised medians. It may also be fairly concluded that because typical section #1 does not provide a raised median, it will have a greater injury crash rate than the other three, and either a small decrease or small increase in non-injury crashes, giving it an overall lower relative safety.

Provide a Raised Median or Refuge Island at Marked or Unmarked Crosswalks

The presence of a raised median or refuge island at pedestrian crossings has been identified to have a trend in safety benefit in the HSM, though no CMF is available at this time. Section 13A.9.1.11 of the HSM gives the following guidance:

On urban or suburban multi-lane roads with marked crosswalks, 4 to 8 lanes wide with an AADT of 15,000 or more, the pedestrian crash rate is lower with a raised median than without a raised median. However, the magnitude of the crash effect is not certain at this time. For similar sites at unmarked crosswalk locations, the pedestrian crash rate is lower with a raised median than without a raised median. However, the magnitude of the crash effect is not certain at this time.

Based on the guidance in the HSM, a fair conclusion would be that typical section #1 without a raised median would be expected to have a higher pedestrian crash rate than the other three typical sections, though the magnitude of the difference cannot be quantified.

Summary of Safety Factors

Considering the three factors used for evaluating the relative safety of the typical sections in conjunction, the typical section with the best relative safety was found to be #3 for the segment of SR 40 between Breakaway Trail and Tymber Creek Road. Typical sections #2 and #3 both provided a raised median, which benefits all crashes as well as pedestrian crashes, but typical section #3 provides wider shoulders, giving a safety advantage. For the segment of SR 40 between Tymber Creek Road and I-95, typical section #3 was found to have the best relative safety. Typical section #3 provides the widest shoulders, which was the only distinguishing safety factor between the three typical sections.

Recommendations

The evaluation of the roadway typical sections against each other for each criterion was summarized in the matrix in Table 4 below. A point system, from 1 to 3, was used for ranking each typical section against the others for each roadway segment. A value of 1 was assigned to the typical section that

best met the objectives of the criteria being considered (for example – the lowest cost alternative receives a score of 1), and a value of 3 was assigned for the typical section that least met those objectives. If there were no distinguishing factors between typical sections for a given criteria, the same point value was assigned to both or all of them. All criteria were weighted equally in the matrix, and values were totaled to compare how each typical section meets the needs of the project.

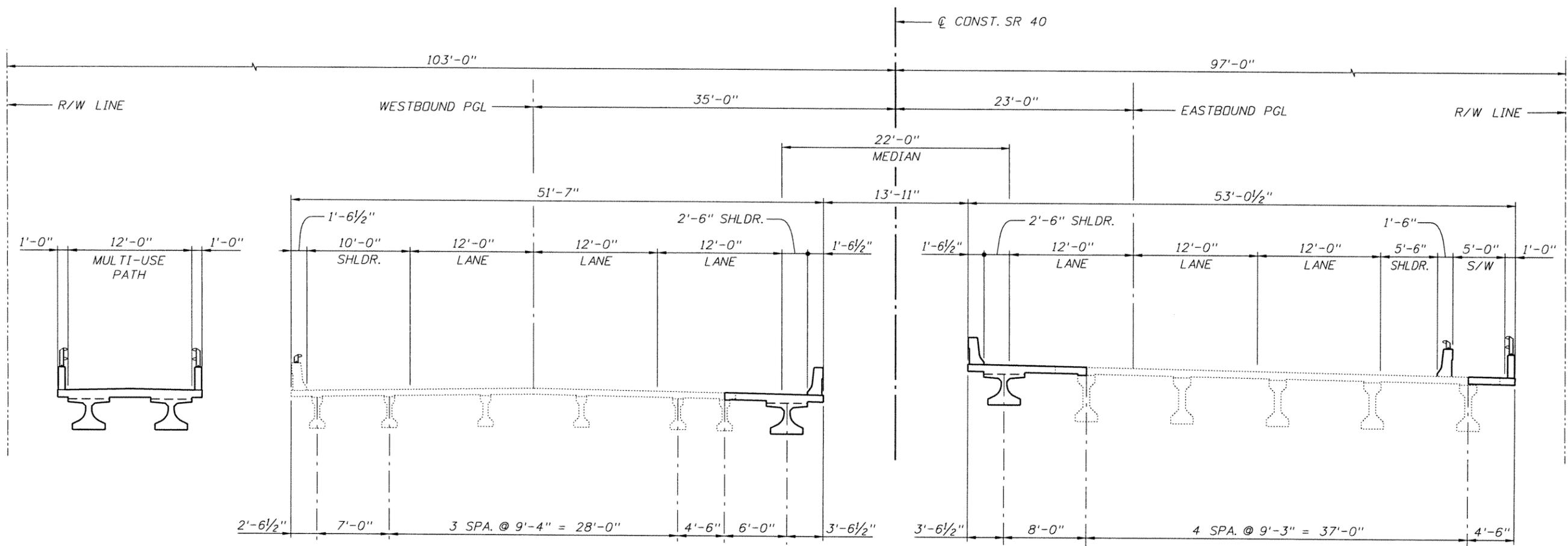
Table 4 Typical Section Evaluation Matrix

| Category | Typ. Section - Breakaway Trail to Tymber Creek Rd | | | Typ. Section – Tymber Creek Rd to I-95 | | |
|--------------------|---|-----------|----------|--|----------|----------|
| | #1 | #2 | #3 | #2 | #3 | #4 |
| Design Speed | 1 | 1 | 1 | 1 | 1 | 3 |
| Character/Land Use | 3 | 2 | 1 | 3 | 2 | 1 |
| Cost | 1 | 2 | 3 | 2 | 3 | 1 |
| Constr. Impacts | 1 | 3 | 1 | 3 | 1 | 1 |
| Safety | 3 | 2 | 1 | 2 | 1 | 3 |
| Total | 9 | 10 | 8 | 11 | 8 | 9 |

As shown in Table 4, typical section #3 received the lowest overall score, and #2 received the highest overall score for both segments of SR 40.

Based on the evaluation provided above, it is recommended to remove the Suburban typical section #2 from further consideration in the PD&E process for both segments of SR 40.

**Attachment A –
Bridge Typical Sections**



URBAN TYPICAL SECTION
(LOOKING EAST)

BRIDGE NO. 790027 & 790163

| REVISIONS | | | | | |  DRMP <small>ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS</small> DYER, RIDDLE, MILLS & PRECOURT, INC. 941 LAKE BALDWIN LANE ORLANDO, FL. 32814 OFFICE (407) 896-0594 FAX (407) 896-4836 CERTIFICATION OF AUTHORIZATION NO. 2648 AMANDA E. WOODS LICENSE #58816 <th colspan="3">STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION</th> <th colspan="2">SHEET TITLE:</th> <th>REF. DWG. NO.</th> | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET TITLE: | | REF. DWG. NO. |
|-----------|----|-------------|------|----|---|---|--|----------------|---------------------------------------|---------------|-----------|---------------|
| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | PROJECT NAME: | SHEET NO. | |
| | | | | | PRELIMINARY PLANS NOT FOR CONSTRUCTION | 40 | VOLUSIA | 428947-1-22-01 | ALTERNATIVE 1 - URBAN TYPICAL SECTION | | | |
| | | | | | | | | | SR 40 PD&E STUDY | | | |

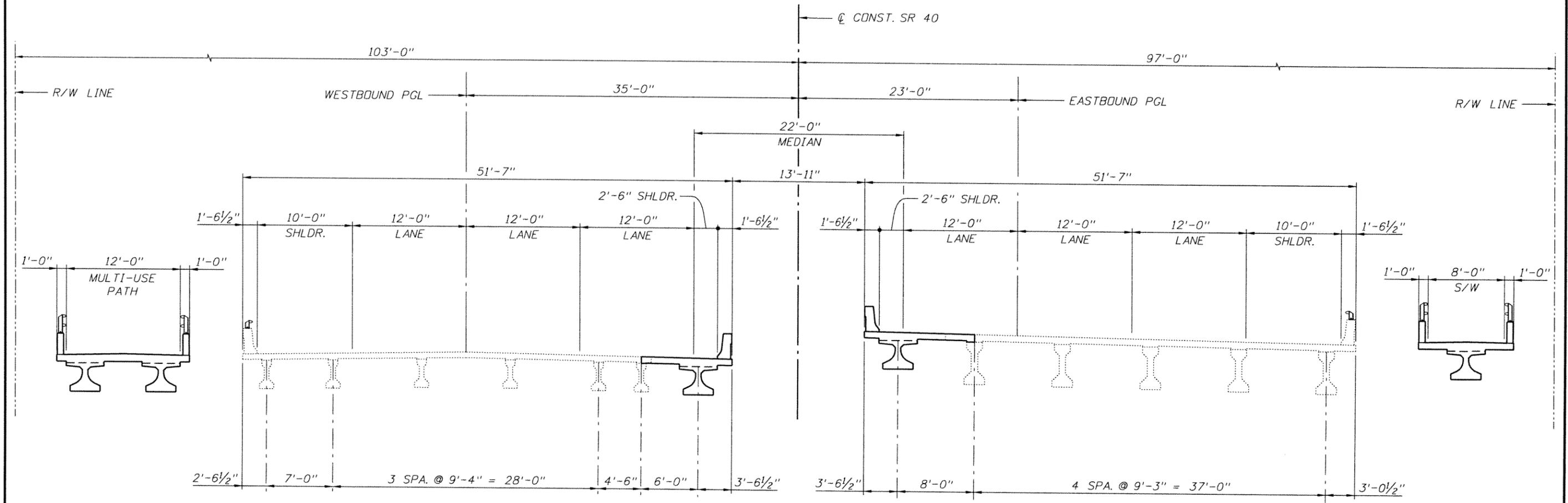
09-0075.000

Plotted By: Jarnemann

8/10/2011

11:07:41 AM

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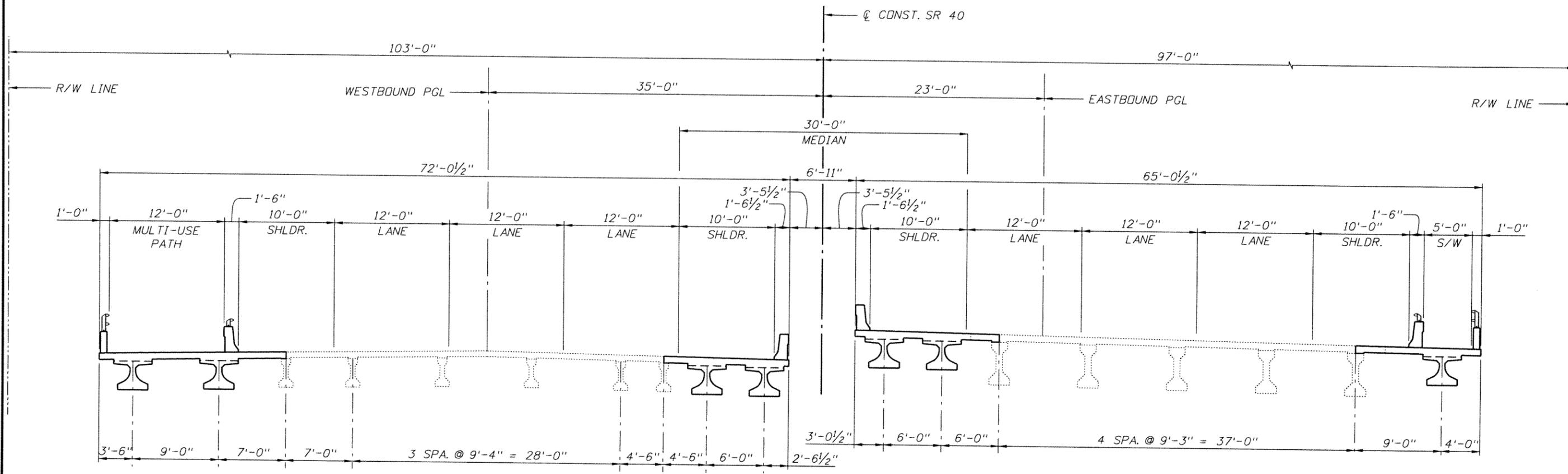


URBAN TYPICAL SECTION
(LOOKING EAST)

BRIDGE NO. 790027 & 790163

| REVISIONS | | | | | |  DRMP <small>ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS</small> DYER, RIDDLE, MILLS & PRECOURT, INC. 941 LAKE BALDWIN LANE ORLANDO, FL. 32814 OFFICE (407) 896-0594 FAX (407) 896-4836 CERTIFICATION OF AUTHORIZATION NO. 2648 AMANDA E. WOODS LICENSE #58816 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET TITLE: | | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|---|--|----------------|---------------------------------------|---------------|-----------|---------------|
| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | PROJECT NAME: | SHEET NO. | |
| | | | | | | 40 | VOLUSIA | 428947-1-22-01 | ALTERNATIVE 2 - URBAN TYPICAL SECTION | | | |
| | | | | | | | | | SR 40 PD&E STUDY | | | |

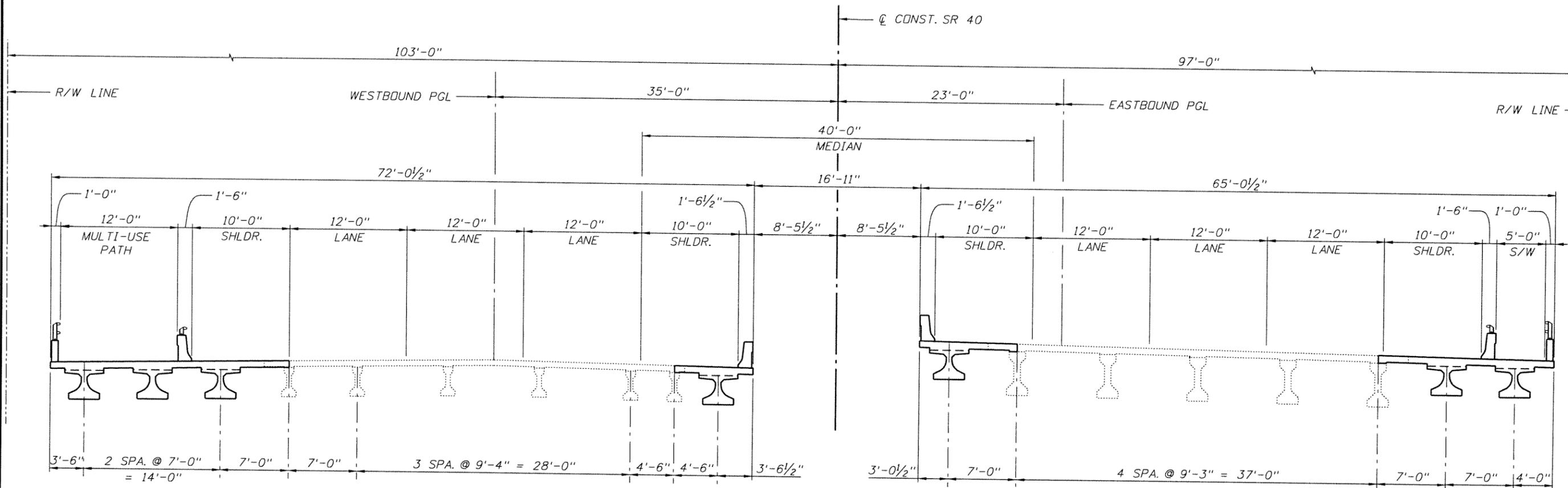
PRELIMINARY PLANS
NOT FOR CONSTRUCTION



SUBURBAN TYPICAL SECTION
(LOOKING EAST)

BRIDGE NO. 790027 & 790163

| REVISIONS | | | |  DRMP <small>ENGINEERS - SURVEYORS - PLANNERS - SCIENTISTS</small> DYER, RIDDLE, MILLS & PRECOURT, INC. 941 LAKE BALDWIN LANE ORLANDO, FL 32814 OFFICE (407) 896-0594 FAX (407) 896-4836 CERTIFICATION OF AUTHORIZATION NO. 2648 AMANDA E. WOODS LICENSE #58816 <th colspan="3"> STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION </th> <th colspan="2">SHEET TITLE</th> <th>REF. DWG. NO.</th> | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET TITLE | | REF. DWG. NO. |
|------------------|----|-------------|------|--|---|-------------|----------|----------------|---|---------------|
| DATE | BY | DESCRIPTION | DATE | | BY | DESCRIPTION | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | PROJECT NAME |
| | | | | | PRELIMINARY PLANS NOT FOR CONSTRUCTION | 40 | VOLUSIA | 428947-1-22-01 | ALTERNATIVE 3 - SUBURBAN TYPICAL SECTION 30'-0" MEDIAN | |
| SR 40 PD&E STUDY | | | | | | | | | | |

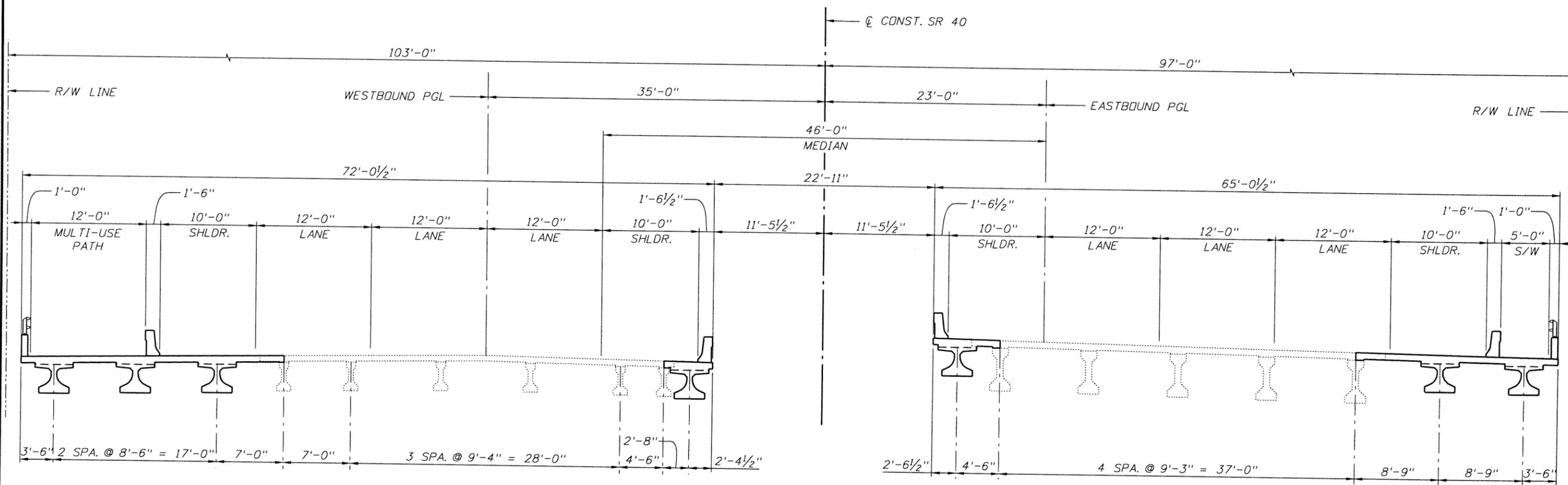


SUBURBAN TYPICAL SECTION
(LOOKING EAST)

BRIDGE NO. 790027 & 790163

| REVISIONS | | | | | | DRMP <small>ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS</small> DYER, RIDDLE, MILLS & PRECOURT, INC. 941 LAKE BALDWIN LANE ORLANDO, FL. 32814 OFFICE (407) 896-0594 FAX (407) 896-4836 CERTIFICATION OF AUTHORIZATION NO. 2648 AMANDA E. WOODS LICENSE #58816 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET TITLE: ALTERNATIVE 4 - SUBURBAN TYPICAL SECTION 40'-0" MEDIAN | | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|--|--|----------------|----------------------|---|-----------|---------------|
| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | PROJECT NAME: | SHEET NO. | |
| | | | | | | 40 | VOLUSIA | 428947-1-22-01 | SR 40 PD&E STUDY | | | |

**PRELIMINARY PLANS
NOT FOR CONSTRUCTION**



SUBURBAN TYPICAL SECTION
(LOOKING EAST)

BRIDGE NO. 790027 & 790163

| REVISIONS | | | | | |
|---|----|-------------|------|----|-------------|
| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
| PRELIMINARY PLANS NOT FOR CONSTRUCTION | | | | | |

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DYER, RIDDLE, MILLS & PRECOURT, INC.
941 LAKE BALDWIN LANE ORLANDO, FL. 32814
OFFICE (407) 896-0594 FAX (407) 896-4836
CERTIFICATION OF AUTHORIZATION NO. 2648
AMANDA E. WOODS LICENSE #58816

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

| | | |
|----------|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

SHEET TITLE: **ALTERNATIVE 5 - SUBURBAN TYPICAL SECTION
46'-0" MEDIAN**

PROJECT NAME: **SR 40 PD&E STUDY**

| | |
|---------------|-----------|
| REF. DWG. NO. | SHEET NO. |
| | |

**Attachment B –
Spot Speed Study**

Spot Speed Study

SR 40 (Granada Blvd)
West of Booth Road (MP 26.137)

Volusia County
Section 79100000

Prepared By:



225 E. Robinson St, Suite 450
Orlando, FL 32801

Engineer of Record:
Cade Braud, P.E., PTOE (FL 64488)

June 2011



INTRODUCTION

Kittelison & Associates, Inc. performed a spot speed study in early June 2011 on State Road 40 (Granada Blvd) in Ormond Beach, FL. Consideration is being given towards widening State Road 40 to six lanes between Tymber Creek Road and I-95, which is part of the Florida Intrastate Highway System (FIHS). The minimum design speed for an FIHS controlled-access facility is 50 miles per hour (mph). However, accommodating a 50 mph design speed means providing a 40-foot median which translates to significant costs related to widening the existing bridge over the Tomoka River. Thus, a design variance is being considered to reduce the design speed to 45 mph which would enable a reduction in median width down to 22 feet dramatically reducing bridge costs.

PROJECT LOCATION

The spot speed study was conducted along a section of SR 40 located between Tymber Creek Road and Booth Road. The speed samples of vehicles were collected at a point 1,200 feet west of Booth Road beginning at 1:10 pm on June 9, 2011. This section of SR 40 includes a 4-lane divided cross-section with a posted speed limit of 50 mph in both the eastbound and westbound directions. The location is illustrated graphically in the vicinity map on the following page (Figure 1).

The land uses in the surrounding area include residential within the immediate vicinity of the project location and commercial to the west and to the east.

STUDY FINDINGS

The spot speed study included the calculation of both 85th percentile speeds and 10 mph pace speeds in the eastbound and westbound directions. Table 1 provides a summary of the study findings. In addition, the detailed breakdown of spot speeds as measured at the site is provided in the FDOT Spot Speed Study form (Form # 750-010-03) on page 3 of this memorandum.

Figure 1 – Vicinity Map



Table 1 – Speed Study Summary

| Project Location | 85 th Percentile Speed (mph) | | 10 MPH Pace | | Posted Speed Limit (mph) | |
|-----------------------------------|---|------|-------------|----------|--------------------------|----|
| | EB | WB | EB | WB | EB | WB |
| SR 40 (1,200 ft west of Booth Rd) | 52.0 | 54.3 | 43 to 52 | 46 to 55 | 50 | 50 |

**Attachment C –
Comprehensive Plan Information**

Figure 1-11 (North)



FUTURE LAND USE

PREPARED BY: VOLUSIA COUNTY GROWTH & RESOURCE MANAGEMENT DEPARTMENT

Updated 24-Jan-11



1 in = 4.5 miles

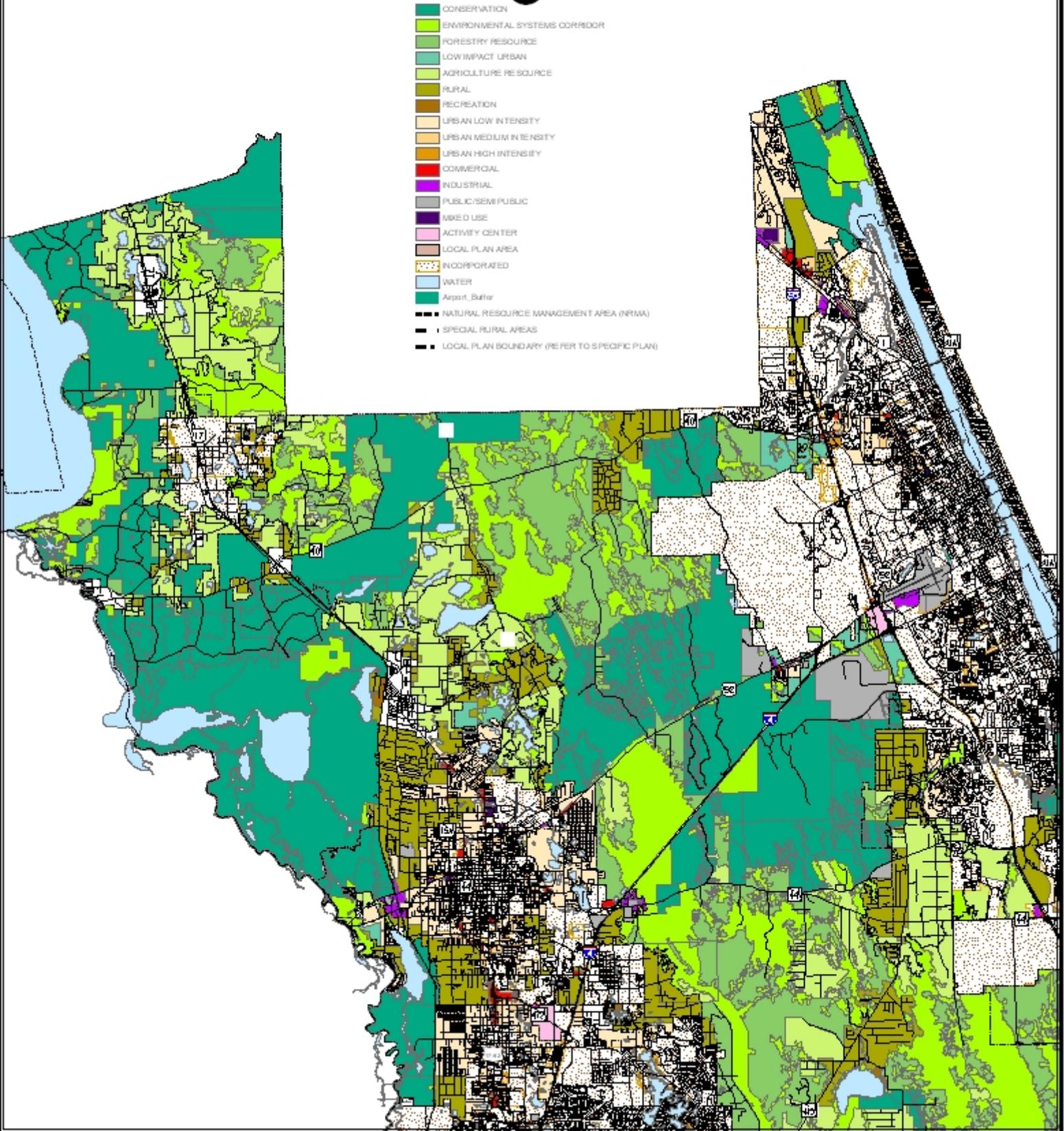




FIGURE 1 City of Ormond Beach Future Land Use Map (January 2010)

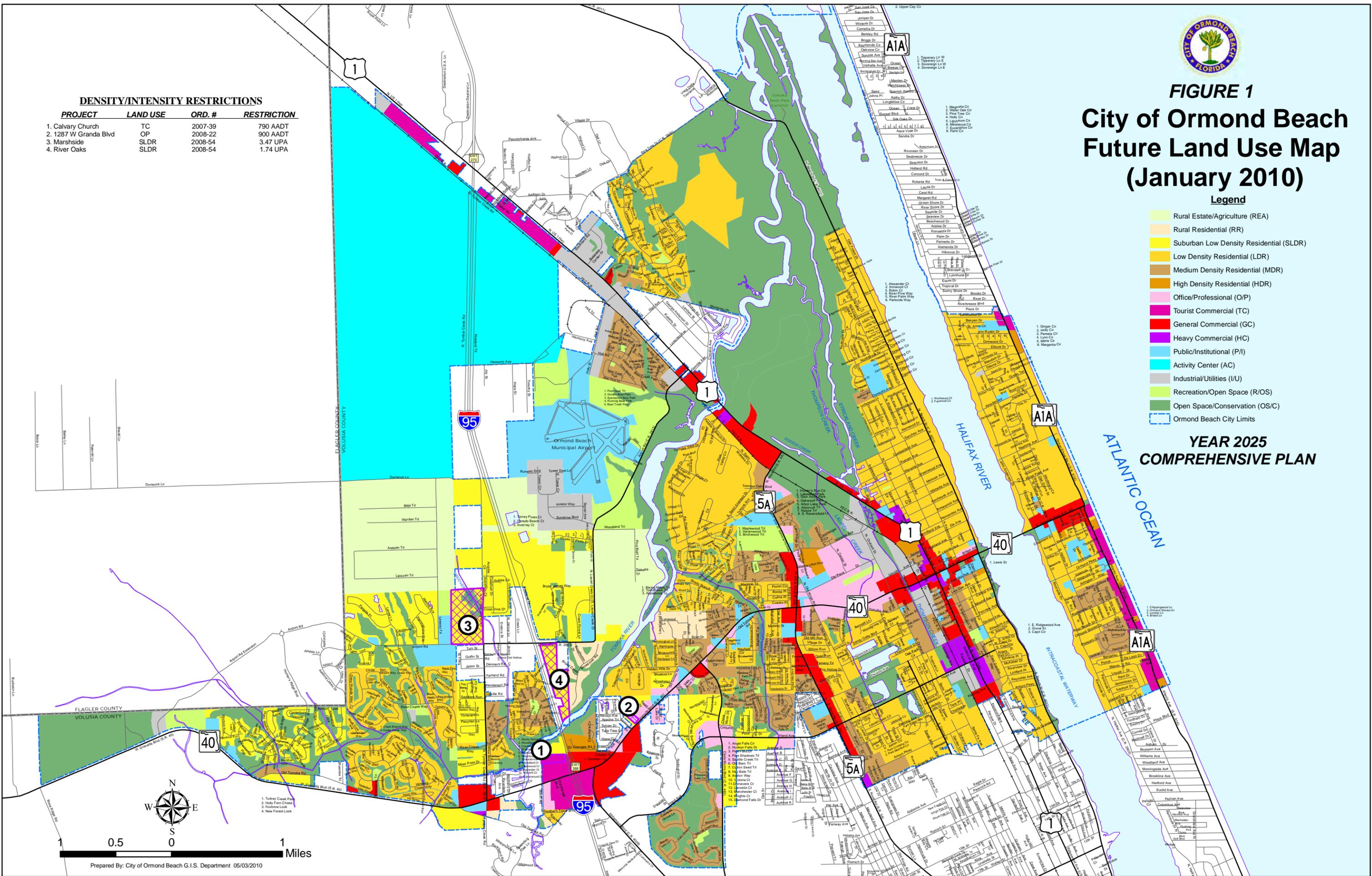
Legend

- Rural Estate/Agriculture (REA)
- Rural Residential (RR)
- Suburban Low Density Residential (SLDR)
- Low Density Residential (LDR)
- Medium Density Residential (MDR)
- High Density Residential (HDR)
- Office/Professional (O/P)
- Tourist Commercial (TC)
- General Commercial (GC)
- Heavy Commercial (HC)
- Public/Institutional (P/I)
- Activity Center (AC)
- Industrial/Utilities (I/U)
- Recreation/Open Space (R/OS)
- Open Space/Conservation (OS/C)
- Ormond Beach City Limits

YEAR 2025 COMPREHENSIVE PLAN

DENSITY/INTENSITY RESTRICTIONS

| PROJECT | LAND USE | ORD. # | RESTRICTION |
|-----------------------|----------|---------|-------------|
| 1. Calvary Church | TC | 2007-39 | 790 AADT |
| 2. 1287 W Granda Blvd | OP | 2008-22 | 900 AADT |
| 3. Marshside | SLDR | 2008-54 | 3.47 UPA |
| 4. River Oaks | SLDR | 2008-54 | 1.74 UPA |



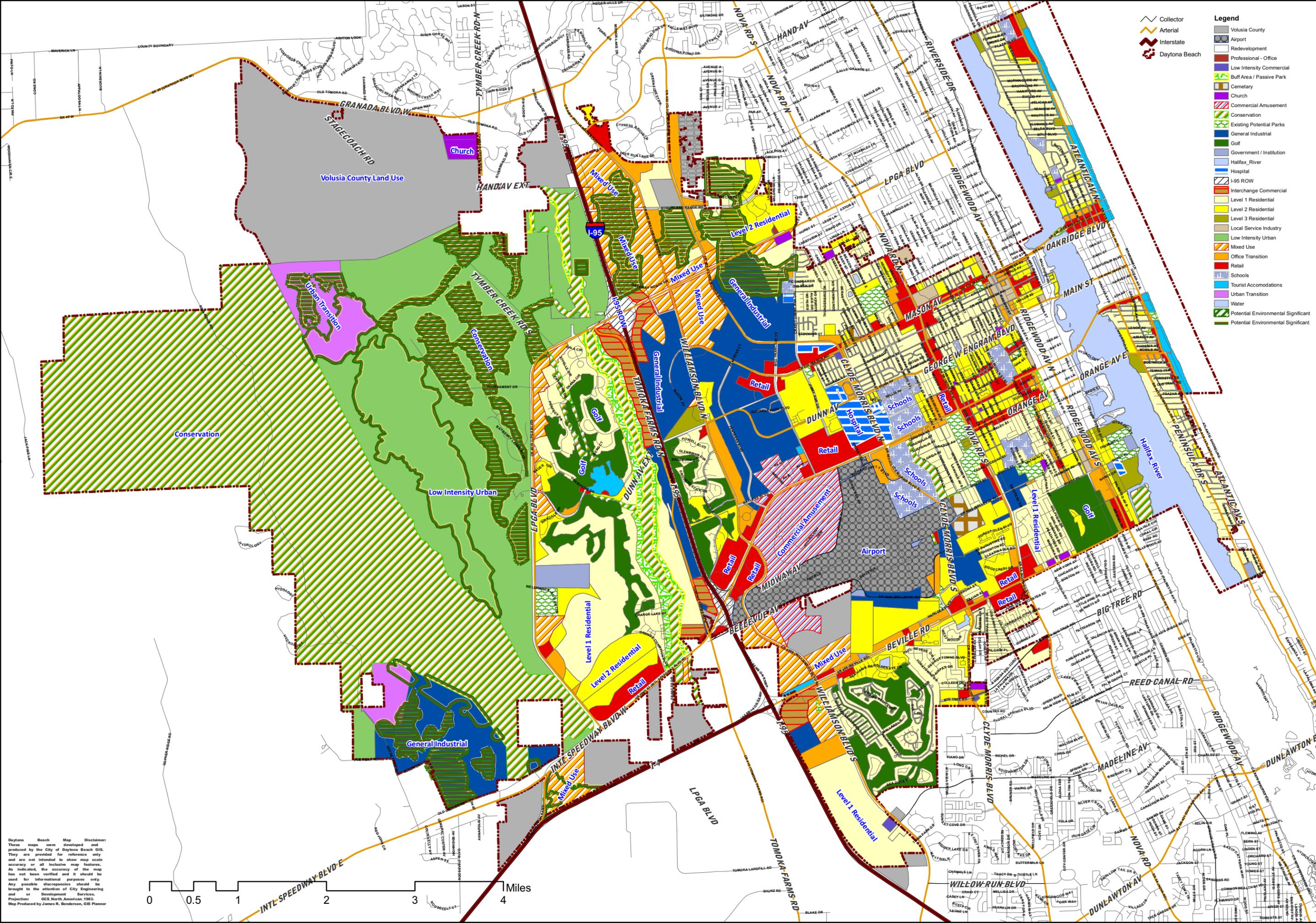
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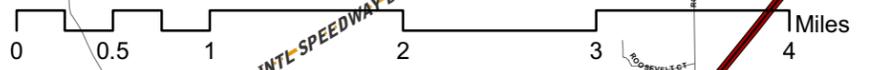
The City of Daytona Beach Generalized Future Land Use Map



FLU 1



- Legend**
- Collector
 - Arterial
 - Interstate
 - Daytona Beach
 - Volusia County
 - Airport
 - Redevelopment
 - Professional - Office
 - Low Intensity Commercial
 - Buff Area / Passive Park
 - Cemetery
 - Church
 - Commercial Amusement
 - Conservation
 - Existing Potential Parks
 - General Industrial
 - Golf
 - Government / Institution
 - Halifax_River
 - Hospital
 - I-95 ROW
 - Interchange Commercial
 - Level 1 Residential
 - Level 2 Residential
 - Level 3 Residential
 - Local Service Industry
 - Low Intensity Urban
 - Mixed Use
 - Office Transition
 - Retail
 - Schools
 - Tourist Accommodations
 - Urban Transition
 - Water
 - Potential Environmental Significant
 - Potential Environmental Significant



Daytona Beach Map Disclaimer:
 These maps were developed and produced by the City of Daytona Beach GIS. They are provided for reference only and are not intended to show map scale accuracy or all inclusive map features. As indicated, the accuracy of the map has not been verified and it should be used for informational purposes only. Any possible discrepancies should be brought to the attention of City Engineering and Development Services.
 Projection: GCS North American 1983.
 Map Produced by James R. Benderson, GIS Planner

REISSUED

ORDINANCE NO. 10-281

AN ORDINANCE ADOPTING COMPREHENSIVE PLAN AMENDMENTS PREVIOUSLY TRANSMITTED TO THE STATE LAND PLANNING AGENCY, WITH CHANGES, IN ACCORDANCE WITH CH. 163, PART II, FLORIDA STATUTES; AMENDING THE FUTURE LAND USE ELEMENT AND FUTURE LAND USE MAP; CHANGING THE FUTURE LAND USE DESIGNATION OF 4,318± ACRES LOCATED SOUTH OF STATE ROUTE 40, WEST OF TYMBER CREEK ROAD, AND WEST OF LPGA BOULEVARD FROM VOLUSIA COUNTY "FORESTRY RESOURCE," "LOW IMPACT URBAN," "ENVIRONMENTAL SYSTEM CORRIDOR," AND CITY "URBAN TRANSITION" TO CITY "LOW INTENSITY URBAN," "MIXED USES," AND "POTENTIAL ENVIRONMENTALLY SIGNIFICANT," AND AMENDING NEIGHBORHOOD POLICY "V"; CHANGING THE FUTURE LAND USE DESIGNATION OF 164± ACRES LOCATED SOUTH OF WEST INTERNATIONAL SPEEDWAY BOULEVARD, NORTH OF INTERSTATE 4, APPROXIMATELY 900 FEET EAST OF THE INTERSTATE 4 RAMP FROM VOLUSIA COUNTY "LOW IMPACT URBAN" AND "ENVIRONMENTAL SYSTEM CORRIDOR" TO CITY "MIXED USES" AND "POTENTIAL ENVIRONMENTALLY SIGNIFICANT," AND AMENDING NEIGHBORHOOD POLICY "V"; CHANGING THE FUTURE LAND USE DESIGNATION OF 13± ACRES LOCATED WEST OF NORTH TOMOKA FARMS ROAD, EAST OF THE TOMOKA RIVER, AND NORTH OF A FLORIDA POWER & LIGHT EASEMENT FROM "LEVEL 1 RESIDENTIAL" TO "GENERAL INDUSTRY"; CHANGING THE FUTURE LAND USE DESIGNATION OF 138± ACRES LOCATED SOUTH OF WEST INTERNATIONAL SPEEDWAY BOULEVARD, NORTH OF INTERSTATE 4, SOUTH AND EAST OF FRANCES ROAD, AND ON BOTH SIDES OF THE TOMOKA RIVER FROM VOLUISA COUNTY "LOW IMPACT URBAN" AND "ENVIRONMENTAL SYSTEM CORRIDOR" TO CITY "GOVERNMENT/INSTITUTION (CHURCHES)" AND "POTENTIAL ENVIRONMENTALLY SIGNIFICANT," AND AMENDING NEIGHBORHOOD POLICY "U"; REPEALING ALL ORDINANCES AND PARTS OF ORDINANCES IN CONFLICT HERewith; AND PROVIDING AN EFFECTIVE DATE.

REISSUED

WHEREAS, Chapter 163, Part II, Florida Statutes (2009), provides for the amendment of a comprehensive plan; and

WHEREAS, the Planning Board and City Commission held public hearings on proposed amendments to The City of Daytona Beach Comprehensive Plan; and

WHEREAS, by Resolution No. 10-65, adopted March 17, 2010, the City Commission authorized transmittal of the proposed amendments to the Florida Department of Community Affairs (DCA) and other state agencies as required by Part II, Chapter 163, Florida Statutes; and

WHEREAS, DCA has provided a report of its objections, recommendations, and comments; and

WHEREAS, all comments or objections have been responded to, and changes have been made in the amendments transmitted in accordance with DCA recommendations; and

WHEREAS, the Deputy City Manager – Administrative Services recommends approval of the proposed amendments with changes.

NOW, THEREFORE, BE IT ENACTED BY THE PEOPLE OF THE CITY OF DAYTONA BEACH, FLORIDA:

SECTION 1. The City Commission hereby adopts the comprehensive plan amendments, with changes in response to the DCA Objections, Recommendations, and Comments Report. The amendments are attached hereto and incorporated by reference herein, generally described as follows:

- A. Changing the Future Land Use designation of 4,318± acres located south of State Route 40, west of Tymber Creek Road, and west of LPGA Boulevard from Volusia County “Forestry Resource,” “Low Impact Urban,” “Environmental System

REISSUED

Corridor,” and City “Urban Transition” to City “Low Intensity Urban,” “Mixed Uses,” and “Potential Environmentally Significant,” and amending Neighborhood Policy “V.” This amendment is more specifically described in Exhibit A, attached hereto and by reference incorporated herein.

- B. Changing the Future Land Use designation of 164± acres located south of West International Speedway Boulevard, north of Interstate 4, approximately 900 feet east of the Interstate 4 ramp from Volusia County “Low Impact Urban” and “Environmental System Corridor” to City “Mixed Uses” and “Potential Environmentally Significant,” and amending Neighborhood Policy “V.” This amendment is more specifically described in Exhibit B, attached hereto and by reference incorporated herein.
- C. Changing the Future Land Use designation of 13± acres located west of North Tomoka Farms Road, east of the Tomoka River, and north of a Florida Power & Light easement from “Level 1 Residential” to “General Industry.” This amendment is more specifically described in Exhibit C, attached hereto and by reference incorporated herein.
- D. Changing the Future Land Use designation of 138± acres located south of West International Speedway Boulevard, north of Interstate 4, south and east of Frances Road, and on both sides of the Tomoka River from Volusia County “Low Impact Urban” and “Environmental System Corridor” to City “Government/Institution (Churches)” and “Potential Environmentally Significant,” and amending Neighborhood Policy “U.” These amendments are more specifically described in Exhibit D, attached hereto and by reference incorporated herein.

SECTION 2. It is hereby found that the proposed amendments meet the requirements of ch. 163, part II, Florida Statutes.

SECTION 3. A Public Hearing at 6:00 p.m., Wednesday, October 20, 2010, in Commission Chambers, City Hall, 301 South Ridgewood Avenue, Daytona Beach, Florida, after notice published in accordance with §163.3184(15)(e), Florida Statutes, is deemed to comply with law.

REISSUED

SECTION 4. Within 10 working days after the adoption of this ordinance, the Deputy City Manager-Administrative Services shall submit a transmittal letter to DCA with information and attachments, including the exhibit referenced above, in accordance with Rule 9J-11.011(5), Florida Administrative Code.

SECTION 5. In accordance with §163.3189(2)(a), Florida Statutes, the effective date of these plan amendments shall be the date a final order is issued by the DCA or Administration Commission finding the amendments in compliance and Volusia Growth Management Commission has issued a Certificate of Consistency. No development orders, development permits, or land uses dependent on these amendments may be issued or commence before they have become effective. If the Administration Commission issues a final order of non-compliance, these amendments may be made effective by adoption of a resolution affirming their effective status in accordance with § 163.3189(2)(b), Florida Statutes.

REISSUED

SECTION 6. All ordinances or parts of ordinances in conflict herewith are hereby repealed.


GLENN S. RITCHEY
Mayor

ATTEST:


LETITIA LAMAGNA
Assistant City Clerk

Passed: October 6, 2010
Adopted: October 20, 2010
Reissued: November 19, 2010

**Attachment D –
Typical Section Cost Information**

SR 40 PDE Bridge Alternatives

AEW 8/12/11

| Alternative #1 | | | | | | | | | | |
|------------------|-----------------|------------------|-----------------|------------|-----------|---------------|----------|-----------------------|-------------------|----------------|
| EB Bridge Length | EB Bridge Width | WB Bridge Length | WB Bridge Width | Ped Length | Ped Width | Widening Cost | New Cost | Premium% (over water) | Premium% (phased) | Total Cost |
| 360 | 17.0417 | 359.87 | 9.5417 | 360 | 14 | \$110 | \$105 | 3 | 20 | \$1,839,732.42 |

| Alternative #3 | | | | | | | | | | |
|------------------|-----------------|------------------|-----------------|------------|-----------|---------------|----------|-----------------------|-------------------|----------------|
| EB Bridge Length | EB Bridge Width | WB Bridge Length | WB Bridge Width | Ped Length | Ped Width | Widening Cost | New Cost | Premium% (over water) | Premium% (phased) | Total Cost |
| 360 | 28.0417 | 359.87 | 32.5417 | 0 | 0 | \$110 | \$105 | 3 | 20 | \$2,950,323.87 |

| Alternative #4 | | | | | | | | | | |
|------------------|-----------------|------------------|-----------------|------------|-----------|---------------|----------|-----------------------|-------------------|----------------|
| EB Bridge Length | EB Bridge Width | WB Bridge Length | WB Bridge Width | Ped Length | Ped Width | Widening Cost | New Cost | Premium% (over water) | Premium% (phased) | Total Cost |
| 360 | 28.0417 | 359.87 | 32.5417 | 0 | 0 | \$110 | \$105 | 3 | 20 | \$2,950,323.87 |

Date: 12/7/2011 12:06:39 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 428947-1-22-01

Letting Date: 01/2099

Description: SR 40 FROM BREAKAWAY TRAIL TO WILLIAMSON BLVD

District: 05 County: 79 VOLUSIA Market Area: 06 Units: English

Contract Class: 1 Lump Sum Project: N Design/Build: N Project Length: 2.300 MI

Project Manager: MIM

Version 2 Project Grand Total

\$6,791,052.92

Description: Typical Sections Test

Sequence: 1 WDR - Widen/Resurface, Divided, Rural

Net Length: 0.500 MI
2,640 LF

Description: Suburban 50 MPH - Outside Widening (Wide Median) (A)

EARTHWORK COMPONENT

User Input Data

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 12.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.500 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|---------------|------------|--------------------|
| 110-1-1 | CLEARING & GRUBBING | 1.45 AC | \$6,000.00 | \$8,700.00 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 6,492.44 CY | \$8.00 | \$51,939.52 |
| Earthwork Component Total | | | | \$60,639.52 |

ROADWAY COMPONENT

User Input Data

| Description | Value |
|-------------|-------|
|-------------|-------|

| | |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 24.00 / 24.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 12.00 / 12.00 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 31,826.67 SY | \$2.50 | \$79,566.68 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 7,233.60 SY | \$16.00 | \$115,737.60 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 14,080.00 SY | \$2.00 | \$28,160.00 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 1,548.80 TN | \$85.00 | \$131,648.00 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 1,161.60 TN | \$85.00 | \$98,736.00 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 563.20 TN | \$95.00 | \$53,504.00 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 281.60 TN | \$95.00 | \$26,752.00 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 20.00 |
| Milling Code | N |
| Stabilization Code | N |
| Base Code | N |
| Friction Course Code | N |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 309.76 TN | \$85.00 | \$26,329.60 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | N |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 2 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 2 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 338.00 EA | \$4.77 | \$1,612.26 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 4.00 NM | \$806.73 | \$3,226.92 |
| 710-11-131 | PAINTED PAVT | 4.00 GM | \$411.74 | \$1,646.96 |

MARK,STD,WHITE,SKIP, 6"

Peripherals Subcomponent

| Description | Value |
|----------------------------------|-------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

Roadway Component Total

\$566,920.01

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|---------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 37.00 / 30.00 |
| Total Outside Shoulder Perf. Turf Width L/R | 20.00 / 20.00 |
| Existing Paved Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Outside Shoulder Width L/R | 5.00 / 5.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips No. of Sides | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 3,126.93 SY | \$11.00 | \$34,396.23 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 161.33 TN | \$85.00 | \$13,713.05 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 117.33 TN | \$95.00 | \$11,146.35 |
| 570-1-2 | PERFORMANCE TURF, SOD | 11,733.33 SY | \$1.63 | \$19,125.33 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 522-2 | SIDEWALK CONC, 6" THICK Comment: Accounts for sidewalk 5' (1470sy) and shared use path 12'(3520sy) | 4,990.00 SY | \$33.57 | \$167,514.30 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 104-10-3 | SEDIMENT BARRIER | 6,072.00 LF | \$0.63 | \$3,825.36 |
| 104-11 | FLOATING TURBIDITY BARRIER | 50.00 LF | \$8.29 | \$414.50 |
| 104-12 | STAKED TURBIDITY BARRIER- NYL REINF PVC | 50.00 LF | \$2.21 | \$110.50 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 EA | \$3,182.22 | \$3,182.22 |

| | | | | |
|---------------------------------|----------------|---------|---------|---------------------|
| 107-1 | LITTER REMOVAL | 1.70 AC | \$24.60 | \$41.82 |
| 107-2 | MOWING | 1.70 AC | \$34.55 | \$58.74 |
| Shoulder Component Total | | | | \$253,528.39 |

MEDIAN COMPONENT

User Input Data

| Description | Value |
|--|-------------|
| Total Median Width | 40.00 |
| Performance Turf Width | 22.50 |
| New Total Median Shoulder Width L/R | 8.75 / 8.75 |
| New Paved Median Shoulder Width L/R | 6.50 / 6.50 |
| Existing Total Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips No. of Sides | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------------------------|--|---------------|------------|--------------------|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 4,006.93 SY | \$11.00 | \$44,076.23 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 209.73 TN | \$85.00 | \$17,827.05 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 152.53 TN | \$95.00 | \$14,490.35 |
| 570-1-2 | PERFORMANCE TURF, SOD | 6,600.00 SY | \$1.63 | \$10,758.00 |
| Median Component Total | | | | \$87,151.63 |

DRAINAGE COMPONENT

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|--|---------------|------------|--------------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 9.00 CY | \$500.00 | \$4,500.00 |
| 430-174-124 | PIPE CULV, OPT MATL, ROUND,24"SD | 400.00 LF | \$46.10 | \$18,440.00 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 40.00 LF | \$75.14 | \$3,005.60 |
| 430-984-129 | MITERED END SECT, OPTIONAL RD, 24" SD | 20.00 EA | \$1,364.31 | \$27,286.20 |
| 570-1-1 | PERFORMANCE TURF | 352.00 SY | \$0.59 | \$207.68 |
| Drainage Component Total | | | | \$53,439.48 |

SIGNING COMPONENT

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------|-----------------------------|---------------|------------|-----------------|
| 700-20-11 | SINGLE POST SIGN, F&I, LESS | 1.00 AS | \$229.89 | \$229.89 |

| | | | | |
|-----------|---------------------------------|----------|------------|-----------------------|
| | THAN 12 SF | | | |
| 700-20-12 | SINGLE POST SIGN, F&I, 12-20 SF | 12.00 AS | \$478.85 | \$5,746.20 |
| 700-20-40 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$78.65 | \$78.65 |
| 700-20-60 | SINGLE POST SIGN, REMOVE | 12.00 AS | \$28.95 | \$347.40 |
| 700-21-11 | MULTI- POST SIGN, F&I, 50 OR < | 1.00 AS | \$3,061.42 | \$3,061.42 |
| 700-21-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$337.98 | \$337.98 |
| | Signing Component Total | | | \$9,801.54 |
| <hr/> | | | | |
| | Sequence 1 Total | | | \$1,031,480.57 |
| <hr/> | | | | |

Sequence: 2WDR - Widen/Resurface, Divided, Rural**Net Length:** 0.500 MI
2,640 LF**Description:** Suburban 50 MPH - Minimum Median (B)**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 12.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.500 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|----------------------|-------------------|------------------------|
| 110-1-1 | CLEARING & GRUBBING | 1.45 AC | \$6,000.00 | \$8,700.00 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 10,799.56 CY | \$8.00 | \$86,396.48 |
| Earthwork Component Total | | | | \$95,096.48 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 24.00 / 24.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 6.00 / 6.00 |
| Widened Inside Pavement Width L/R | 12.50 / 12.50 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|----------------------|-------------------|------------------------|
| 160-4 | TYPE B STABILIZATION | 35,640.00 SY | \$2.50 | \$89,100.00 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 11,240.53 SY | \$16.00 | \$179,848.48 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 14,080.00 SY | \$2.00 | \$28,160.00 |

| | | | | |
|----------|--|-------------|---------|--------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 1,548.80 TN | \$85.00 | \$131,648.00 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 1,790.80 TN | \$85.00 | \$152,218.00 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 563.20 TN | \$95.00 | \$53,504.00 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 434.13 TN | \$95.00 | \$41,242.35 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------|---|---------------|------------|-----------------|
| 327-70-21 | MILLING EXIST ASPH PAVT, 7" AVG DEPTH Comment: Cover the inside overpaving for cross slope. | 3,520.00 SY | \$7.50 | \$26,400.00 |
| 334-1-34 | SUPERPAVE ASPH CONC, TRAF D, PG82-22 Comment: Cover the inside overpaving for cross slope. Traffic D is for State and US Highways, based on an ESAL of 10 to 30 mil. The Tons are based on 105 lbs per cubic yard at 1in deep. 1.5in of depth assumed | 555.00 TN | \$109.57 | \$60,811.35 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 20.00 |
| Milling Code | N |
| Stabilization Code | N |
| Base Code | N |
| Friction Course Code | N |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 309.76 TN | \$85.00 | \$26,329.60 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | N |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 2 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 2 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 338.00 EA | \$4.77 | \$1,612.26 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 4.00 NM | \$806.73 | \$3,226.92 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 4.00 GM | \$411.74 | \$1,646.96 |

Peripherals Subcomponent

| Description | Value |
|----------------------------------|---------------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |
| Roadway Component Total | \$795,747.92 |

SHOULDER COMPONENT

User Input Data

| Description | Value |
|---|---------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 37.00 / 30.00 |
| Total Outside Shoulder Perf. Turf Width L/R | 20.00 / 20.00 |
| Existing Paved Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Outside Shoulder Width L/R | 5.00 / 5.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips No. of Sides | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 3,126.93 SY | \$11.00 | \$34,396.23 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 161.33 TN | \$85.00 | \$13,713.05 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 117.33 TN | \$95.00 | \$11,146.35 |
| 570-1-2 | PERFORMANCE TURF, SOD | 11,733.33 SY | \$1.63 | \$19,125.33 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 522-2 | SIDEWALK CONC, 6" THICK Comment: Accounts for sidewalk 5' (1470sy) and shared use path 12' (3520sy)/ | 4,990.00 SY | \$33.57 | \$167,514.30 |

Erosion Control

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 104-10-3 | SEDIMENT BARRIER | 6,072.00 LF | \$0.63 | \$3,825.36 |
| 104-11 | FLOATING TURBIDITY BARRIER | 50.00 LF | \$8.29 | \$414.50 |
| 104-12 | STAKED TURBIDITY BARRIER- NYL REINF PVC | 50.00 LF | \$2.21 | \$110.50 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 EA | \$3,182.22 | \$3,182.22 |
| 107-1 | LITTER REMOVAL | 1.70 AC | \$24.60 | \$41.82 |
| 107-2 | MOWING | 1.70 AC | \$34.55 | \$58.74 |

Shoulder Component Total

\$253,528.39

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|--|--------------|
| Total Median Width | 30.00 |
| Performance Turf Width | 12.50 |
| New Total Median Shoulder Width L/R | 8.75 / 8.75 |
| New Paved Median Shoulder Width L/R | 6.50 / 6.50 |
| Existing Total Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips No. of Sides | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------------|--|----------------------|-------------------|------------------------|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 4,006.93 SY | \$11.00 | \$44,076.23 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 209.73 TN | \$85.00 | \$17,827.05 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 152.53 TN | \$95.00 | \$14,490.35 |
| 570-1-2 | PERFORMANCE TURF, SOD | 3,666.67 SY | \$1.63 | \$5,976.67 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------------------------|--|----------------------|-------------------|------------------------|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E Comment: Median Curb and Gutter for Suburban Tight Median | 5,280.00 LF | \$17.01 | \$89,812.80 |
| Median Component Total | | | | \$172,183.10 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|--|----------------------|-------------------|------------------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 9.00 CY | \$500.00 | \$4,500.00 |
| 430-174-124 | PIPE CULV, OPT MATL, ROUND,24"SD | 400.00 LF | \$46.10 | \$18,440.00 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 40.00 LF | \$75.14 | \$3,005.60 |
| 430-984-129 | MITERED END SECT, OPTIONAL RD, 24" SD | 20.00 EA | \$1,364.31 | \$27,286.20 |
| 570-1-1 | PERFORMANCE TURF | 352.00 SY | \$0.59 | \$207.68 |
| Drainage Component Total | | | | \$53,439.48 |

SIGNING COMPONENT**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|--------------------------------|--|-----------------|-------------|-------------------|------------------------|
| 700-20-11 | SINGLE POST SIGN, F&I, LESS THAN 12 SF | 1.00 | AS | \$229.89 | \$229.89 |
| 700-20-12 | SINGLE POST SIGN, F&I, 12-20 SF | 12.00 | AS | \$478.85 | \$5,746.20 |
| 700-20-40 | SINGLE POST SIGN, RELOCATE | 1.00 | AS | \$78.65 | \$78.65 |
| 700-20-60 | SINGLE POST SIGN, REMOVE | 12.00 | AS | \$28.95 | \$347.40 |
| 700-21-11 | MULTI- POST SIGN, F&I, 50 OR < | 1.00 | AS | \$3,061.42 | \$3,061.42 |
| 700-21-60 | MULTI- POST SIGN, REMOVE | 1.00 | AS | \$337.98 | \$337.98 |
| Signing Component Total | | | | | \$9,801.54 |

Sequence 2 Total\$1,379,796.91

Sequence: 3 WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.500 MI
2,640 LF**Description:** High Speed Urban 50 MPH - Inside and Outside Widening (C)**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 25.00 / 25.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.500 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Existing Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|-----------------|-------------|-------------------|------------------------|
| 110-1-1 | CLEARING & GRUBBING | 3.03 | AC | \$6,000.00 | \$18,180.00 |
| 120-1 | REGULAR EXCAVATION | 4,548.62 | CY | \$3.00 | \$13,645.86 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 22,432.18 | CY | \$8.00 | \$179,457.44 |
| Earthwork Component Total | | | | | \$211,283.30 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 24.00 / 24.00 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 18.50 / 18.50 |
| Widened Inside Pavement Width L/R | 6.50 / 6.50 |
| Widened Structural Spread Rate | 275 |
| Widened Friction Course Spread Rate | 165 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|-----------------|-------------|-------------------|------------------------|
| 160-4 | TYPE B STABILIZATION | 17,693.87 | SY | \$2.50 | \$44,234.68 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 15,053.87 | SY | \$16.00 | \$240,861.92 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 14,080.00 | SY | \$2.00 | \$28,160.00 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, | 1,161.60 | TN | \$85.00 | \$98,736.00 |

| | | | | |
|----------|---|-------------|----------|--------------|
| 334-1-13 | TRAFFIC C SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 2,016.67 TN | \$85.00 | \$171,416.95 |
| 337-7-33 | ASPH CONC FC,TRAFFIC C,FC- 12.5,RUBBER | 1,161.60 TN | \$100.00 | \$116,160.00 |
| 337-7-33 | ASPH CONC FC,TRAFFIC C,FC- 12.5,RUBBER | 1,210.00 TN | \$100.00 | \$121,000.00 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 20.00 |
| Milling Code | N |
| Stabilization Code | N |
| Base Code | N |
| Friction Course Code | N |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 232.32 TN | \$85.00 | \$19,747.20 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | N |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 2 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 2 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 338.00 EA | \$4.77 | \$1,612.26 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 4.00 NM | \$806.73 | \$3,226.92 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 4.00 GM | \$411.74 | \$1,646.96 |

Peripherals Subcomponent

| Description | Value |
|----------------------------------|-------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

Roadway Component Total

\$846,802.88

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|---------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 15.50 / 22.50 |
| Total Outside Shoulder Perf. Turf Width L/R | 8.25 / 8.25 |
| Sidewalk Width L/R | 5.00 / 12.00 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--------------------------------|----------|------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 2,640.00 | LF | \$19.17 | \$50,608.80 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 2,640.00 | LF | \$19.17 | \$50,608.80 |
| 522-2 | SIDEWALK CONC, 6" THICK | 4,986.67 | SY | \$33.57 | \$167,402.51 |
| 570-1-2 | PERFORMANCE TURF, SOD | 4,840.00 | SY | \$1.63 | \$7,889.20 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---------------------------------|--|----------|------|------------|---------------------|
| 104-10-3 | SEDIMENT BARRIER | 5,280.00 | LF | \$0.63 | \$3,326.40 |
| 104-11 | FLOATING TURBIDITY BARRIER | 50.00 | LF | \$8.29 | \$414.50 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 50.00 | LF | \$2.21 | \$110.50 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 | EA | \$3,182.22 | \$3,182.22 |
| 104-18 | INLET PROTECTION SYSTEM | 23.00 | EA | \$49.34 | \$1,134.82 |
| 107-1 | LITTER REMOVAL | 0.95 | AC | \$24.60 | \$23.37 |
| 107-2 | MOWING | 0.95 | AC | \$34.55 | \$32.82 |
| Shoulder Component Total | | | | | \$284,733.94 |

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|------------------------|-------|
| Total Median Width | 40.00 |
| Performance Turf Width | 22.50 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-------------------------------|--------------------------------|----------|------|------------|---------------------|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 5,280.00 | LF | \$17.01 | \$89,812.80 |
| 570-1-2 | PERFORMANCE TURF, SOD | 6,600.00 | SY | \$1.63 | \$10,758.00 |
| Median Component Total | | | | | \$100,570.80 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|-------------------------|----------|------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 9.00 | CY | \$500.00 | \$4,500.00 |

| | | | | |
|---------------------------------|--|-----------|------------|---------------------|
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 18.00 EA | \$3,015.00 | \$54,270.00 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 5.00 EA | \$4,863.22 | \$24,316.10 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 276.00 LF | \$48.53 | \$13,394.28 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 80.00 LF | \$75.14 | \$6,011.20 |
| 570-1-1 | PERFORMANCE TURF | 152.00 SY | \$0.59 | \$89.68 |
| Drainage Component Total | | | | \$102,581.26 |

SIGNING COMPONENT

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|--------------------------------|---|---------------|------------|-------------------|
| 700-20-11 | SINGLE POST SIGN, F&I, LESS THAN 12 SF | 11.00 AS | \$229.89 | \$2,528.79 |
| 700-20-12 | SINGLE POST SIGN, F&I, 12-20 SF | 1.00 AS | \$478.85 | \$478.85 |
| 700-20-40 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$78.65 | \$78.65 |
| 700-20-60 | SINGLE POST SIGN, REMOVE | 11.00 AS | \$28.95 | \$318.45 |
| 700-21-11 | MULTI- POST SIGN, F&I, 50 OR < | 1.00 AS | \$3,061.42 | \$3,061.42 |
| 700-21-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$337.98 | \$337.98 |
| Signing Component Total | | | | \$6,804.14 |

LIGHTING COMPONENT

Conventional Lighting Subcomponent

| Description | Value | | | |
|---------------------------------|---|---------------|------------|---------------------|
| Spacing | MIN | | | |
| Pay Items | Extended Amount | | | |
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 715-1-13 | LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2 | 9,642.00 LF | \$1.75 | \$16,873.50 |
| 715-2-11 | LIGHTING-CONDUIT, F&I, UNDERGROUND | 2,640.00 LF | \$4.33 | \$11,431.20 |
| 715-2-12 | LIGHTING-CONDUIT, F&I, UNDER EXIST PVMT | 524.00 LF | \$8.42 | \$4,412.08 |
| 715-14-11 | LIGHTING - PULL BOX,F&I,ROADSIDE-MOULDED | 18.00 EA | \$453.82 | \$8,168.76 |
| 715-500-1 | POLE CABLE DIST SYS, CONVENTIONAL | 18.00 EA | \$575.93 | \$10,366.74 |
| 715-511-140 | LIGHT POLE COMP,F&I,SGL ARM SM, AL,40' | 18.00 EA | \$4,000.00 | \$72,000.00 |
| Subcomponent Total | | | | \$123,252.28 |
| Lighting Component Total | | | | \$123,252.28 |

Sequence 3 Total **\$1,676,028.60**

Sequence: 4 WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.500 MI
2,640 LF**Description:** Urban 45 MPH Inside Widening (D)**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 25.00 / 25.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.500 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Existing Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|-----------------|-------------|-------------------|------------------------|
| 110-1-1 | CLEARING & GRUBBING | 3.03 | AC | \$6,000.00 | \$18,180.00 |
| 120-1 | REGULAR EXCAVATION | 8,170.31 | CY | \$3.00 | \$24,510.93 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 18,497.60 | CY | \$8.00 | \$147,980.80 |
| Earthwork Component Total | | | | | \$190,671.73 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 24.00 / 24.00 |
| Structural Spread Rate | 165 |
| Friction Course Spread Rate | 165 |
| Widened Outside Pavement Width L/R | 5.00 / 5.00 |
| Widened Inside Pavement Width L/R | 12.00 / 12.00 |
| Widened Structural Spread Rate | 275 |
| Widened Friction Course Spread Rate | 165 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|-----------------|-------------|-------------------|------------------------|
| 160-4 | TYPE B STABILIZATION | 13,000.53 | SY | \$2.50 | \$32,501.32 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 10,360.53 | SY | \$16.00 | \$165,768.48 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 14,080.00 | SY | \$2.00 | \$28,160.00 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, | 1,161.60 | TN | \$85.00 | \$98,736.00 |

| | | | | |
|----------|---|-------------|----------|--------------|
| 334-1-13 | TRAFFIC C SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 1,371.33 TN | \$85.00 | \$116,563.05 |
| 337-7-33 | ASPH CONC FC,TRAFFIC C,FC- 12.5,RUBBER | 1,161.60 TN | \$100.00 | \$116,160.00 |
| 337-7-33 | ASPH CONC FC,TRAFFIC C,FC- 12.5,RUBBER | 822.80 TN | \$100.00 | \$82,280.00 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 20.00 |
| Milling Code | N |
| Stabilization Code | N |
| Base Code | N |
| Friction Course Code | N |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 232.32 TN | \$85.00 | \$19,747.20 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | N |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 2 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 2 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 338.00 EA | \$4.77 | \$1,612.26 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 4.00 NM | \$806.73 | \$3,226.92 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 4.00 GM | \$411.74 | \$1,646.96 |

Peripherals Subcomponent

| Description | Value |
|----------------------------------|-------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

Roadway Component Total

\$666,402.20

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|---------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 12.25 / 19.25 |
| Total Outside Shoulder Perf. Turf Width L/R | 5.00 / 5.00 |
| Sidewalk Width L/R | 5.00 / 12.00 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--------------------------------|----------|------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 2,640.00 | LF | \$19.17 | \$50,608.80 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 2,640.00 | LF | \$19.17 | \$50,608.80 |
| 522-2 | SIDEWALK CONC, 6" THICK | 4,986.67 | SY | \$33.57 | \$167,402.51 |
| 570-1-2 | PERFORMANCE TURF, SOD | 2,933.33 | SY | \$1.63 | \$4,781.33 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|---------------------------------|--|----------|------|------------|---------------------|
| 104-10-3 | SEDIMENT BARRIER | 5,280.00 | LF | \$0.63 | \$3,326.40 |
| 104-11 | FLOATING TURBIDITY BARRIER | 50.00 | LF | \$8.29 | \$414.50 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 50.00 | LF | \$2.21 | \$110.50 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 | EA | \$3,182.22 | \$3,182.22 |
| 104-18 | INLET PROTECTION SYSTEM | 23.00 | EA | \$49.34 | \$1,134.82 |
| 107-1 | LITTER REMOVAL | 0.95 | AC | \$24.60 | \$23.37 |
| 107-2 | MOWING | 0.95 | AC | \$34.55 | \$32.82 |
| Shoulder Component Total | | | | | \$281,626.07 |

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|------------------------|-------|
| Total Median Width | 22.00 |
| Performance Turf Width | 17.60 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-------------------------------|--------------------------------|----------|------|------------|--------------------|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 5,280.00 | LF | \$17.01 | \$89,812.80 |
| 570-1-2 | PERFORMANCE TURF, SOD | 5,162.67 | SY | \$1.63 | \$8,415.15 |
| Median Component Total | | | | | \$98,227.95 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|-------------------------|----------|------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 9.00 | CY | \$500.00 | \$4,500.00 |

| | | | | |
|---------------------------------|--|-----------|------------|---------------------|
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 18.00 EA | \$3,015.00 | \$54,270.00 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 5.00 EA | \$4,863.22 | \$24,316.10 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 276.00 LF | \$48.53 | \$13,394.28 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 80.00 LF | \$75.14 | \$6,011.20 |
| 570-1-1 | PERFORMANCE TURF | 152.00 SY | \$0.59 | \$89.68 |
| Drainage Component Total | | | | \$102,581.26 |

SIGNING COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|--------------------------------|---|---------------|------------|-------------------|
| 700-20-11 | SINGLE POST SIGN, F&I, LESS THAN 12 SF | 11.00 AS | \$229.89 | \$2,528.79 |
| 700-20-12 | SINGLE POST SIGN, F&I, 12-20 SF | 1.00 AS | \$478.85 | \$478.85 |
| 700-20-40 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$78.65 | \$78.65 |
| 700-20-60 | SINGLE POST SIGN, REMOVE | 11.00 AS | \$28.95 | \$318.45 |
| 700-21-11 | MULTI- POST SIGN, F&I, 50 OR < | 1.00 AS | \$3,061.42 | \$3,061.42 |
| 700-21-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$337.98 | \$337.98 |
| Signing Component Total | | | | \$6,804.14 |

LIGHTING COMPONENT**Conventional Lighting Subcomponent**

| Description | Value | | | |
|---------------------------------|---|---------------|------------|---------------------|
| Spacing | MIN | | | |
| Pay Items | Extended Amount | | | |
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 715-1-13 | LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2 | 9,642.00 LF | \$1.75 | \$16,873.50 |
| 715-2-11 | LIGHTING-CONDUIT, F&I, UNDERGROUND | 2,640.00 LF | \$4.33 | \$11,431.20 |
| 715-2-12 | LIGHTING-CONDUIT, F&I, UNDER EXIST PVMT | 524.00 LF | \$8.42 | \$4,412.08 |
| 715-14-11 | LIGHTING - PULL BOX,F&I,ROADSIDE-MOULDED | 18.00 EA | \$453.82 | \$8,168.76 |
| 715-500-1 | POLE CABLE DIST SYS, CONVENTIONAL | 18.00 EA | \$575.93 | \$10,366.74 |
| 715-511-140 | LIGHT POLE COMP,F&I,SGL ARM SM, AL,40' | 18.00 EA | \$4,000.00 | \$72,000.00 |
| Subcomponent Total | | | | \$123,252.28 |
| Lighting Component Total | | | | \$123,252.28 |

Sequence 4 Total **\$1,469,565.63**

Date: 12/7/2011 12:06:42 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 428947-1-22-01

Letting Date: 01/2099

Description: SR 40 FROM BREAKAWAY TRAIL TO WILLIAMSON BLVD

District: 05 County: 79 VOLUSIA

Market Area: 06 Units: English

Contract Class: 1 Lump Sum Project: N

Design/Build: N Project Length: 2.300 MI

Project Manager: MIM

Version 2 Project Grand Total

\$6,791,052.92

Description: Typical Sections Test

Project Sequences Subtotal
\$5,556,871.71

102-1 Maintenance of Traffic

10.00 %

\$555,687.17

101-1 Mobilization

10.00 %

\$611,255.89

Project Sequences Total**\$6,723,814.77**

Project Unknowns

0.00 %

\$0.00

Design/Build

0.00 %

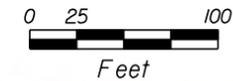
\$0.00

Non-Bid Components:

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|----------|------|-------------|-----------------|
| 999-25 | INITIAL CONTINGENCY AMOUNT (DO NOT BID) | | LS | \$67,238.15 | \$67,238.15 |

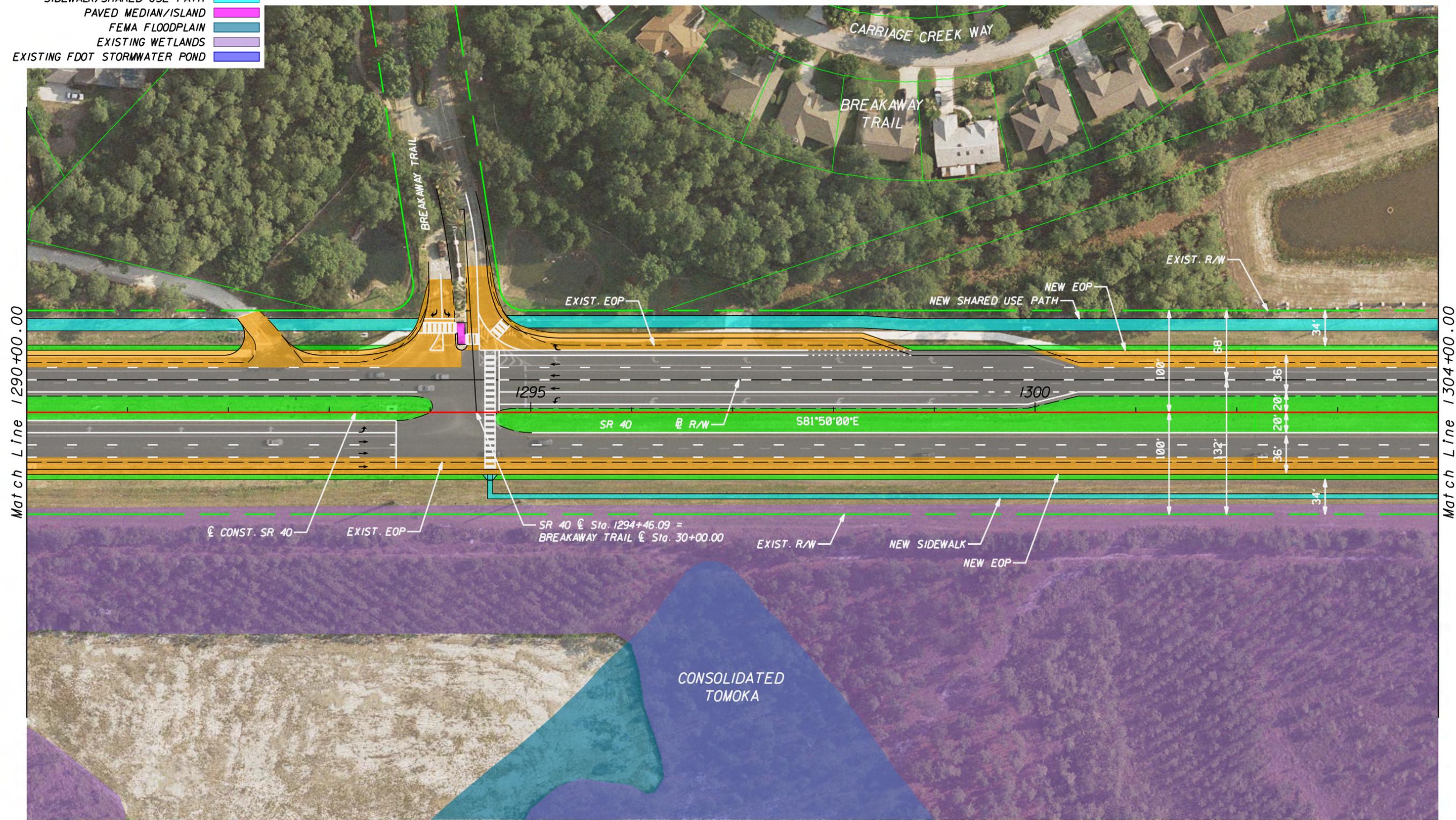
Project Non-Bid Subtotal**\$67,238.15****Version 2 Project Grand Total****\$6,791,052.92**

Appendix B
Concept Plans



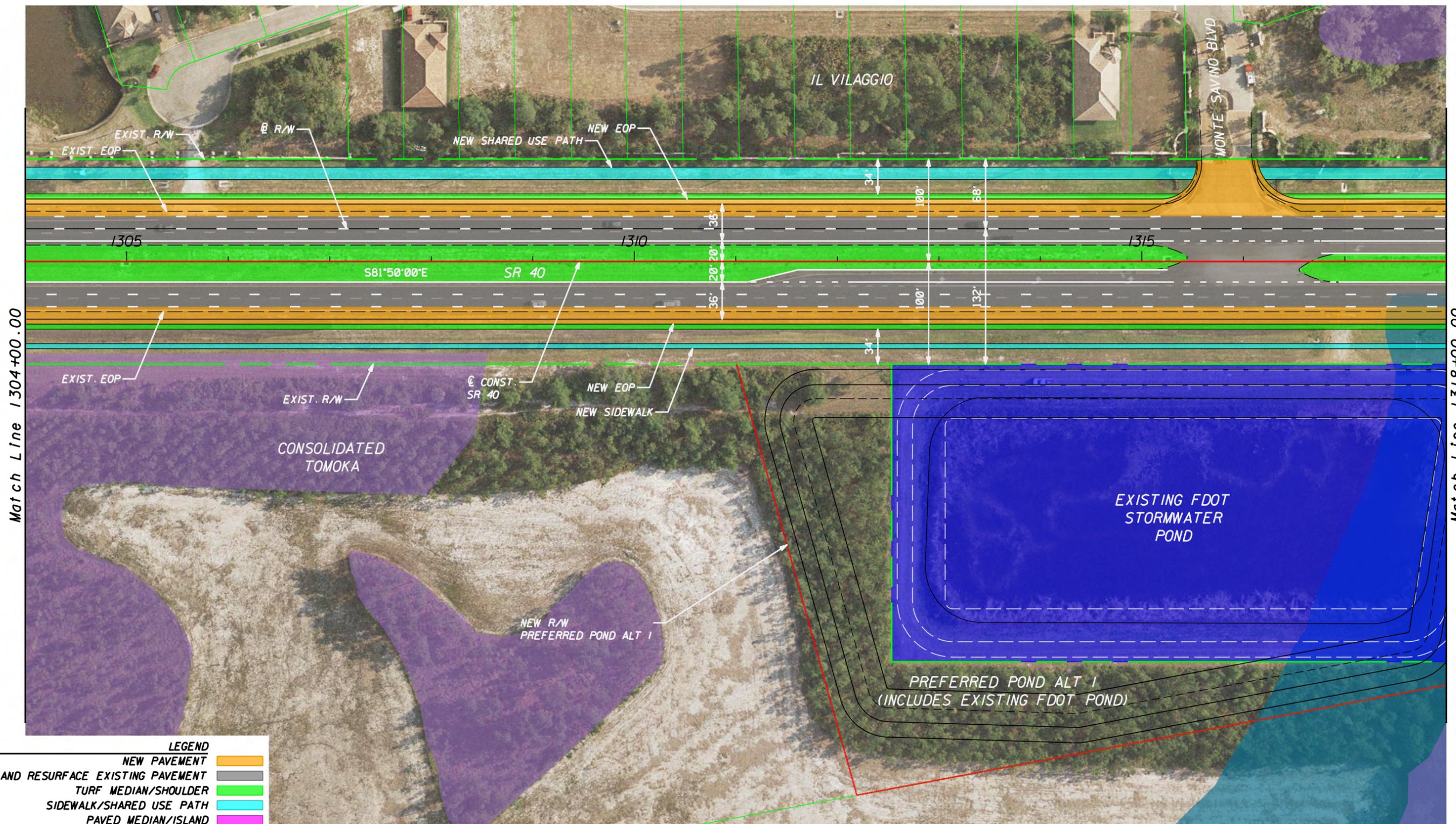
LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |



PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)

| REVISIONS | | | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1290+00 to Sta 1304+00 | SHEET NO. 2 |
|-----------|-------------|------|-------------|--|--|---------|----------------------|--|-----------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | 40 | VOLUSIA | 428947-1-22-01 | | |



Match Line 1304+00.00

Match Line 1318+00.00

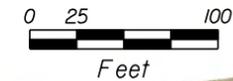
LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

**PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)**

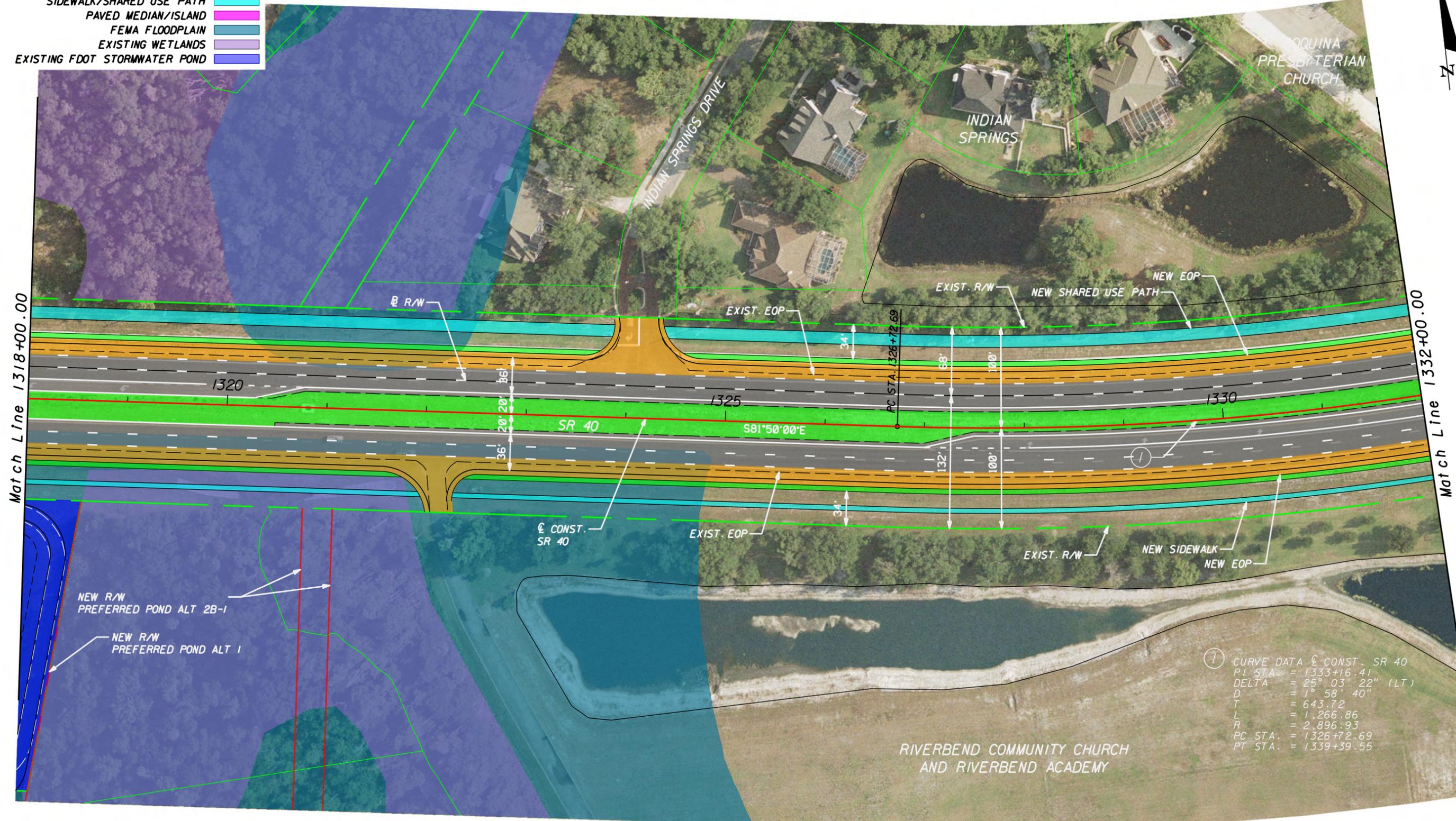
PRELIMINARY PLANS NOT FOR CONSTRUCTION

| REVISIONS | | DESCRIPTION | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1304+00 to Sta 1318+00 | SHEET NO. 3 |
|-----------|-------------|-------------|-------------|--|--|---------|----------------------|--|-------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | 40 | VOLUSIA | 428947-1-22-01 | | |



LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

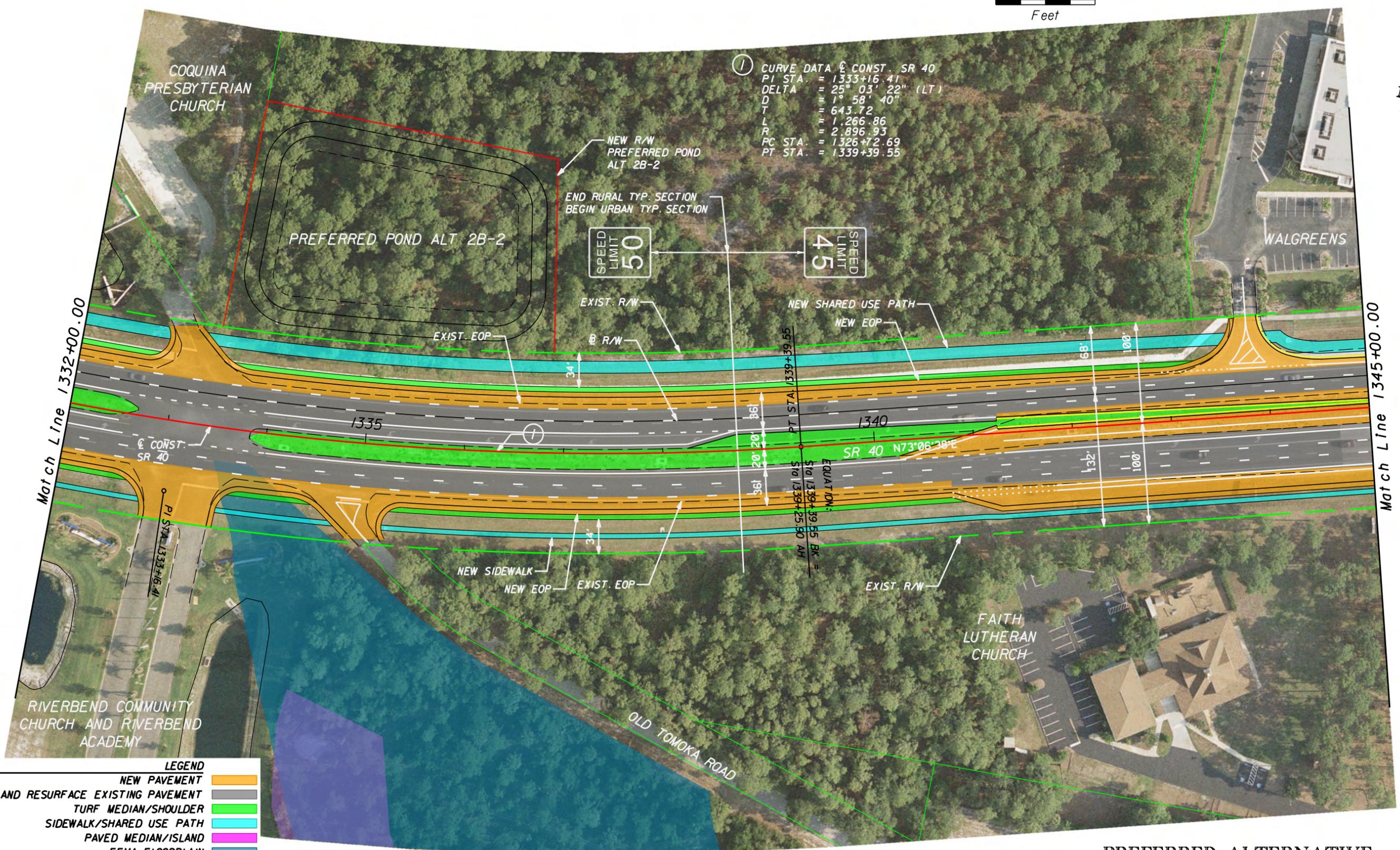
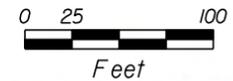


① CURVE DATA @ CONST. SR 40

| | |
|---------|--------------------|
| PI STA. | = 1333+16.41 |
| DELTA | = 25° 03' 22" (LT) |
| D | = 1° 58' 40" |
| T | = 643.72 |
| L | = 1,266.86 |
| R | = 2,896.93 |
| PC STA. | = 1326+72.69 |
| PT STA. | = 1339+39.55 |

**PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)**

| REVISIONS | | DESCRIPTION | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1318+00 to Sta 1332+00 | SHEET NO. 4 |
|-----------|-------------|-------------|-------------|---|--|---------|----------------------|--|-------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | 40 | VOLUSIA | 428947-1-22-01 | | |



① CURVE DATA & CONST. SR 40
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 T = 1.266.86
 R = 2.896.93
 PC STA. = 1326+72.69
 PT STA. = 1339+39.55

SPEED LIMIT 50

SPEED LIMIT 45

COQUINA PRESBYTERIAN CHURCH

WALGREENS

PREFERRED POND ALT 2B-2

NEW SIDEWALK
 NEW EOP

FAITH LUTHERAN CHURCH

RIVERBEND COMMUNITY CHURCH AND RIVERBEND ACADEMY

OLD TOMOKA ROAD

LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

PRELIMINARY PLANS NOT FOR CONSTRUCTION

PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)

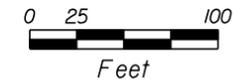
| REVISIONS | | | |
|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
 P.E. License No.: 25730
KITTELSON & ASSOCIATES, INC.
 TRANSPORTATION ENGINEERING / PLANNING
 225 E. Robinson St, Suite 450, ORLANDO FL 32801
 CERTIFICATE OF AUTHORIZATION NO. 007524

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

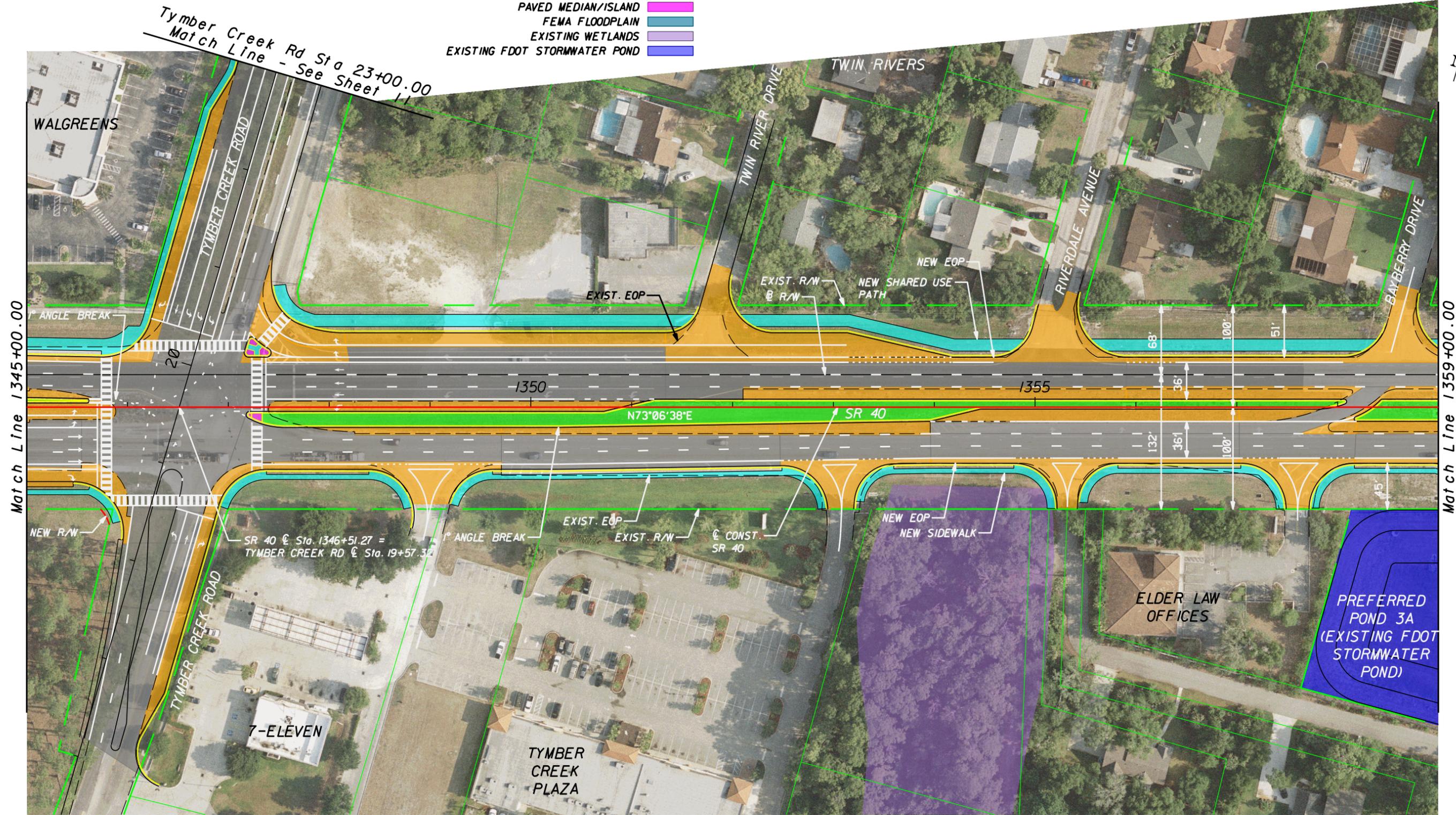
SR 40 PD&E Study
 Sta 1332+00 to Sta 1345+00

SHEET NO.
 5



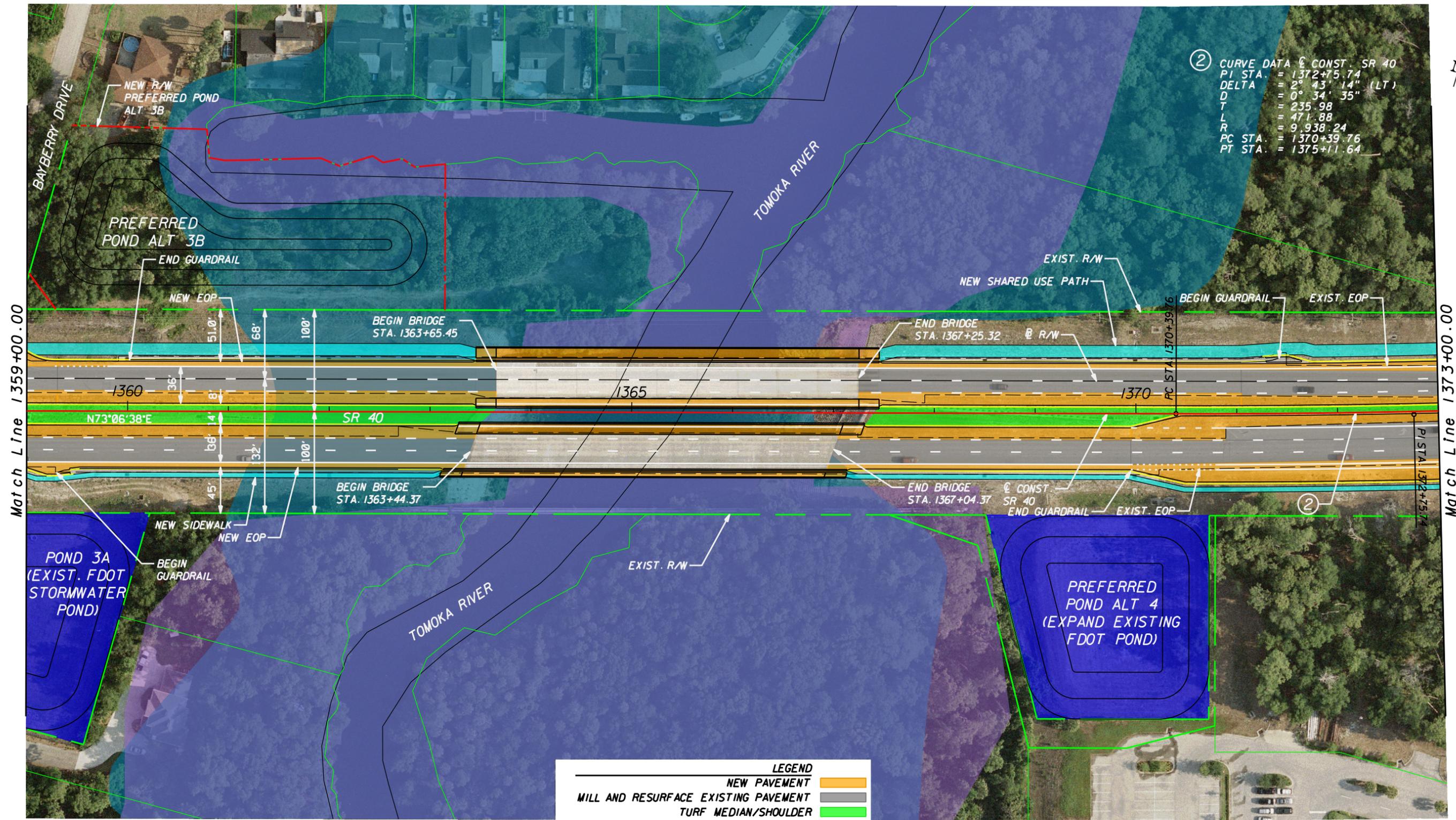
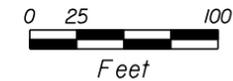
LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |



PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)

| REVISIONS | | DESCRIPTION | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1345+00 to Sta 1359+00 | SHEET NO. 6 |
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| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | 40 | VOLUSIA | 428947-1-22-01 | | |



② CURVE DATA @ CONST. SR 40
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 PT STA. = 1375+11.64

Match Line 1359+00.00

Match Line 1373+00.00

LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)

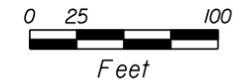
| REVISIONS | |
|-----------|-------------|
| DATE | DESCRIPTION |
| | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
 P.E. License No.: 25730
KITTELSON & ASSOCIATES, INC.
 TRANSPORTATION ENGINEERING / PLANNING
 225 E. Robinson St, Suite 450, ORLANDO FL 32801
 CERTIFICATE OF AUTHORIZATION NO. 007524

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

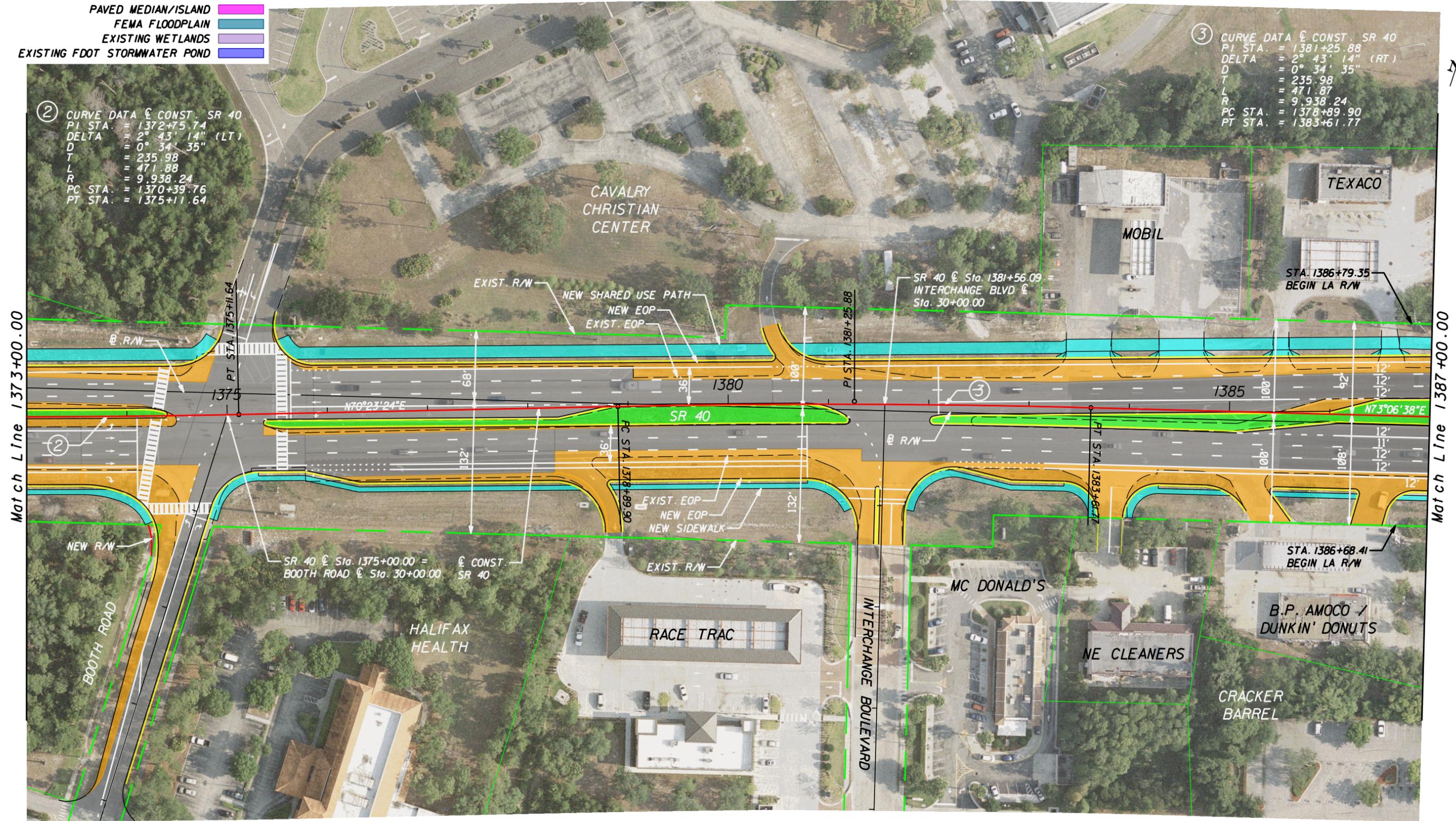
SR 40 PD&E Study
 Sta 1359+00 to Sta 1373+00

SHEET NO.
7



LEGEND

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| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |



PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)

PRELIMINARY PLANS NOT FOR CONSTRUCTION

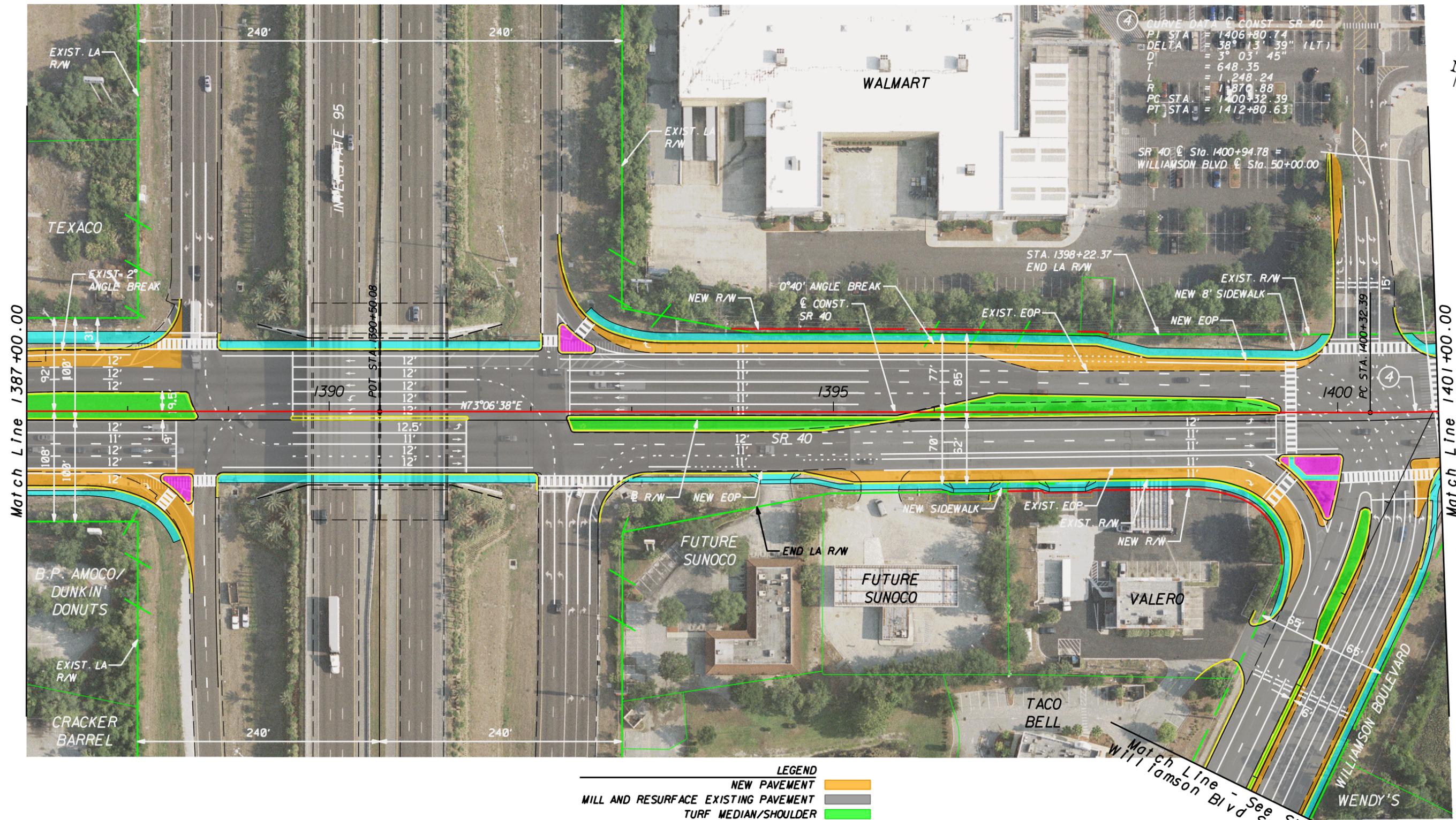
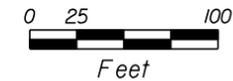
| REVISIONS | | | |
|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
 P.E. License No.: 25730
KITTELSON & ASSOCIATES, INC.
 TRANSPORTATION ENGINEERING / PLANNING
 225 E. Robinson St, Suite 450, ORLANDO FL 32801
 CERTIFICATE OF AUTHORIZATION NO. 007524

| | | |
|--|---------|----------------------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

SR 40 PD&E Study
 Sta 1373+00 to Sta 1387+00

SHEET NO.
 8



LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)

PRELIMINARY PLANS NOT FOR CONSTRUCTION

| REVISIONS | |
|-----------|-------------|
| DATE | DESCRIPTION |
| | |
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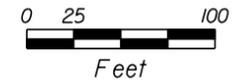
Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
P.E. License No.: 25730

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
225 E. Robinson St, Suite 450, ORLANDO FL 32801
CERTIFICATE OF AUTHORIZATION NO. 007524

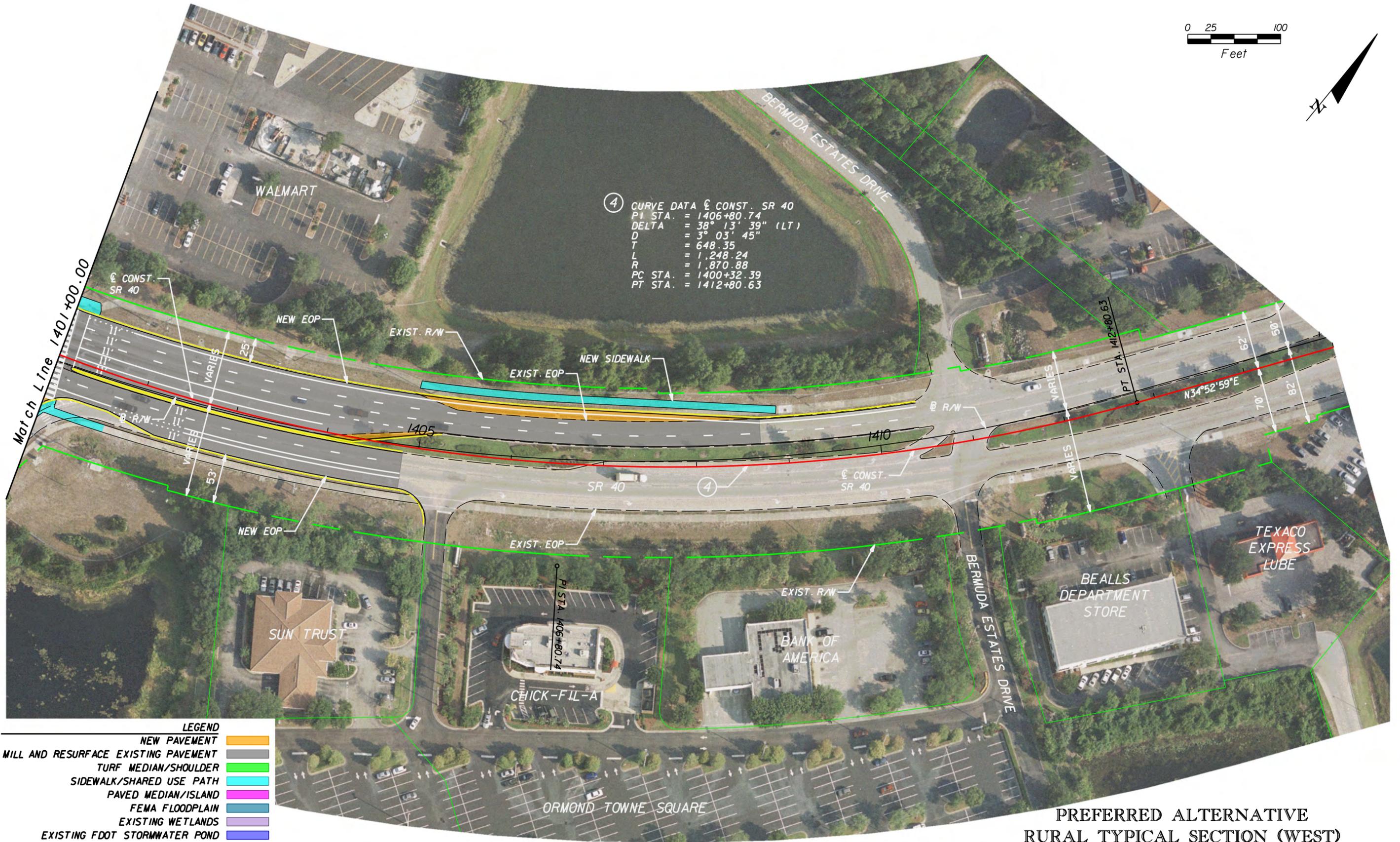
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

SR 40 PD&E Study
Sta 1387+00 to Sta 1401+00

SHEET NO.
9



④ CURVE DATA \hat{C} CONST. SR 40
 P1 STA. = 1406+80.74
 DELTA = 38° 13' 39" (LT)
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 R = 1,870.88
 PC STA. = 1400+32.39
 PT STA. = 1412+80.63



LEGEND

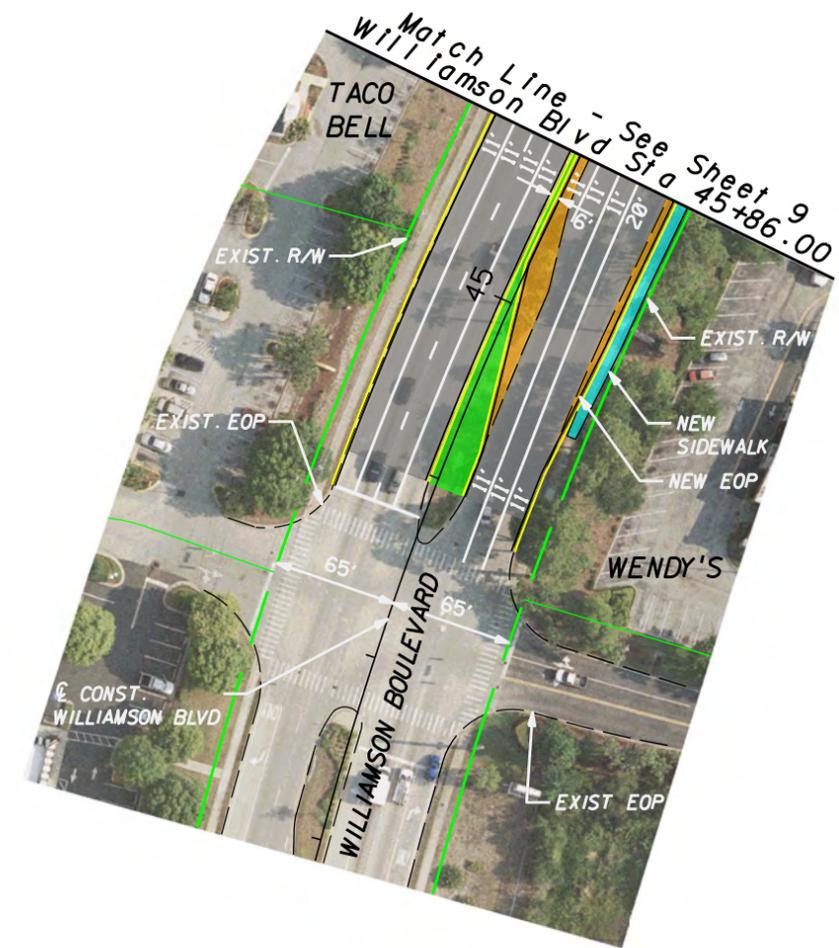
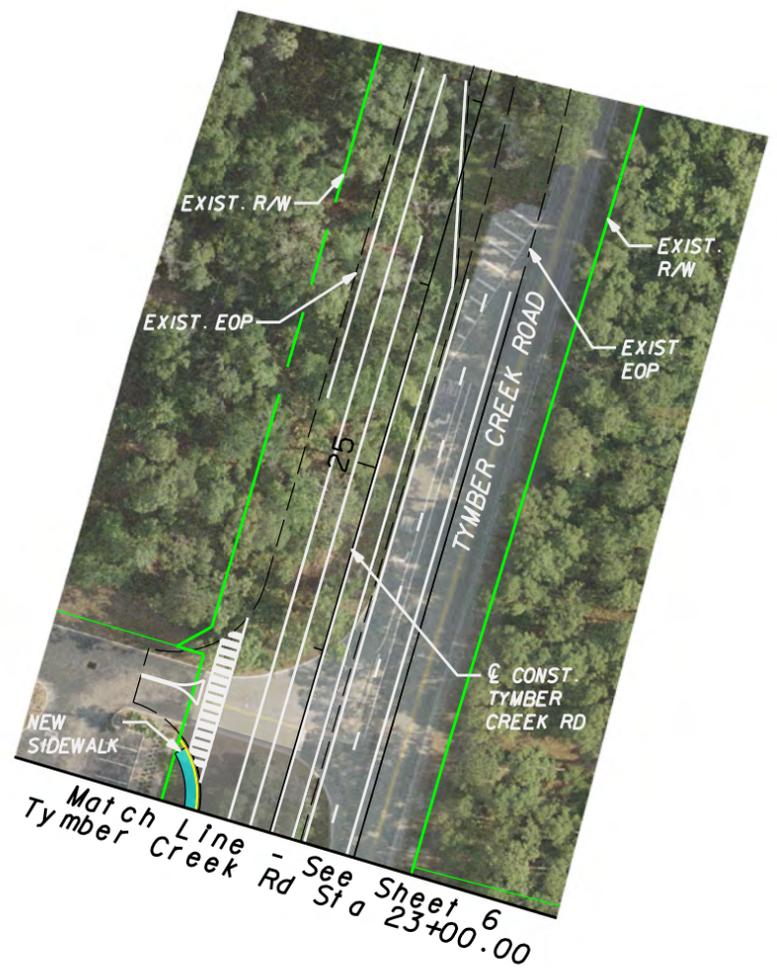
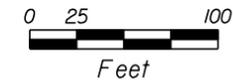
- NEW PAVEMENT
- MILL AND RESURFACE EXISTING PAVEMENT
- TURF MEDIAN/SHOULDER
- SIDEWALK/SHARED USE PATH
- PAVED MEDIAN/ISLAND
- FEMA FLOODPLAIN
- EXISTING WETLANDS
- EXISTING FDOT STORMWATER POND

PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)

PRELIMINARY PLANS NOT FOR CONSTRUCTION

| REVISIONS | | | | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1401+00 to Sta 1415+00 | SHEET NO. 10 |
|-----------|-------------|------|-------------|--|---------|----------------------|--|------------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | 40 | VOLUSIA | 428947-1-22-01 | | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
 P.E. License No.: 25730
K KITTELSON & ASSOCIATES, INC.
 TRANSPORTATION ENGINEERING / PLANNING
 225 E. Robinson St, Suite 450, ORLANDO FL 32801
 CERTIFICATE OF AUTHORIZATION NO. 007524



LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

PRELIMINARY PLANS NOT FOR CONSTRUCTION

PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)

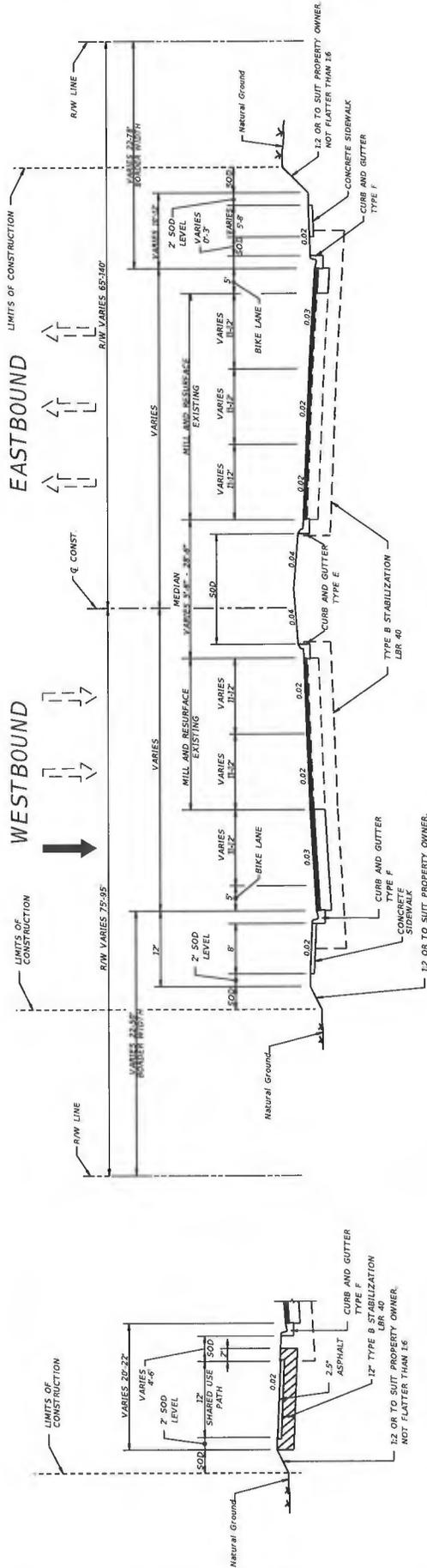
| REVISIONS | | | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1387+00 to Sta 1401+00 | SHEET NO. 11 |
|-----------|-------------|------|-------------|--|--|---------|----------------------|--|---------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | 40 | VOLUSIA | 428947-1-22-01 | | |

Appendix C
Approved Typical Section
Package and Design
Variations

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 428947-1-22-01 FEDERAL AID PROJECT NO. VOLUSIA COUNTY NAME VOLUSIA
 SECTION NO. SR 40 (GRANADA AVENUE) ROAD DESIGNATION M.P. 24.5 TO M.P. 26.5 LIMITS/MILEPOST M.P. 24.5 TO M.P. 26.5
 PROJECT DESCRIPTION SR 40 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY

PROPOSED ROADWAY TYPICAL SECTION



*LEFT SHOULDER DETAIL
 STA 1381+55.09 TO STA. 1388+70.00

URBAN TYPICAL SECTION
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH
 STA. 1381+55.09 TO STA. 1409+00.00*

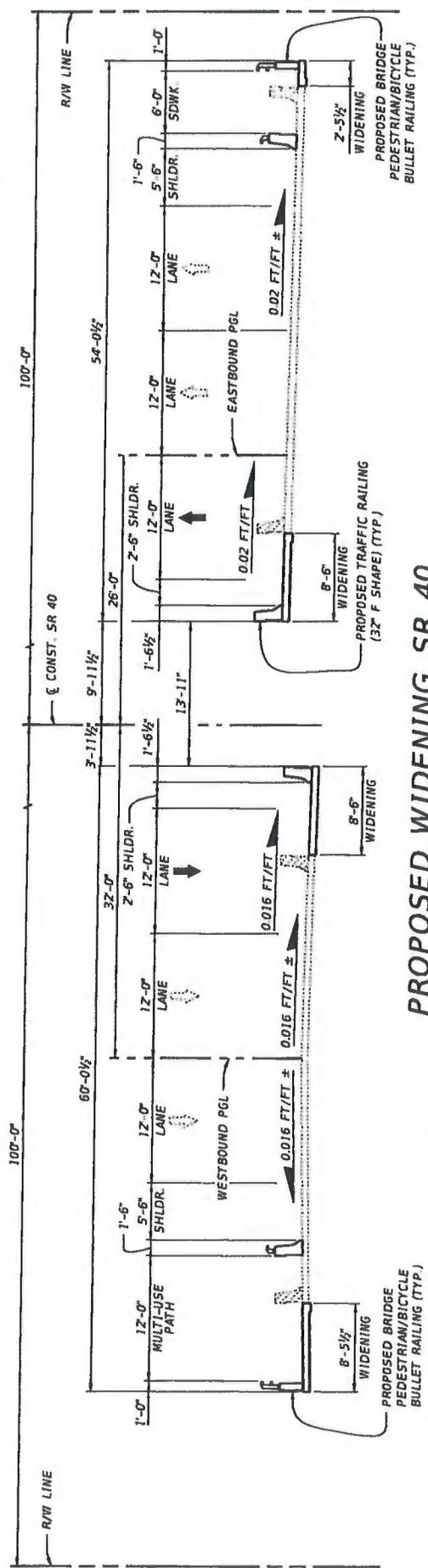
APPROVED BY: JOHN R. FREEMAN, JR., P.E.
John R. Freeman
 Engineer of Record Signature
 and Date 10/10/2013

FDOT CONCURRENCE
B.M. SK
 Annette K. Brennan, P.E.
 FDOT District Design Engineer
 Date 10/14/13

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 428947-1-22-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME VOLUSTIA
 SECTION NO. N/A ROAD DESIGNATION SR 40 LIMITS/MILEPOST MP 24.5 TO 26.5
 PROJECT DESCRIPTION WIDENING FROM 4-6 LANES OF SR 40 FROM BREAKAWAY TRAIL TO WILLIAMSON BLVD.

PROPOSED BRIDGE TYPICAL SECTION



PROPOSED WIDENING SR 40
WESTBOUND BRIDGE: STA. 1363+65.45 TO STA. 1367+25.32
EASTBOUND BRIDGE: STA. 1363+44.37 TO STA. 1367+04.37

APPROVED No. 58816 E. WOODS, P.E.
 MANDY EGAN WOODS
 LICENSE No. 58816
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 Signature: *Mandy Egan Woods*
 Date: 10/27/14

FDOT CONCURRENCE
 Annette K. Brennan, P.E.
 FDOT District Design Engineer
 Signature: *AK Brennan*
 Date: 10/31/14

428947-1

Log KH
11-1-2013
PDE-11-14-13

SUBMITTAL/APPROVAL LETTER

To: Annette K. Brennan
District Design Engineer

Date: October 9, 2013

Financial Project ID: 428947-1-22-01

New Const. (X) RRR ()

Federal Aid Number: N/A

Project Name: S.R. 40 (Granada Avenue) from Breakaway Trail to Williamson Boulevard

State Road Number: S.R. 40

Co./Sec./Sub. _____

Begin Project MP: 24.523

End Project MP: 26.504

Full Federal Oversight: Yes () No (X)

Request for Design Exception (), Design Variation (X)

(For Design Exception or Variations Requiring Central Office Approval)

Re-submittal: Yes () No () Original Ref# _____ - _____ - _____

Requested for the following element(s):

- () Design Speed () Lane Widths () Shoulder Widths () Bridge Widths
- () Structural Capacity () Vertical Clearance () Grades () Cross Slope
- () Superelevation () Horizontal Alignment () Vertical Alignment () Stopping Sight Distance
- () Horizontal Clearance (X) Other Border Width

A Design Variation is requested to provide a 34-foot border width on both sides of S.R. 40 from Breakaway Trail (MP 24.523) to Tymber Creek Road (MP 25.492).

Recommended By:

John R. Freeman, Jr.
John R. Freeman, Jr., P.E. No. 25730

Date 10/10/2013

Kittelsohn & Associates, Inc.
225 East Robinson Street, Suite 450
Orlando, FL 32801

Approvals:

J. P. S. Date 10/14/13
FOR District Design Engineer

N/A Date _____
District Structures Design Engineer

N/A Date _____
State Roadway Design Engineer

N/A Date _____
State Structures Design Engineer

N/A Date _____
State Chief Engineer

N/A Date _____
FHWA Division Administrator

Border Width Design Variation Report

State Road 40 PD&E Study From Breakaway Trail to Williamson Boulevard

ETDM No. 9491
Financial Management No. 428947-1-22-01
Volusia County, Florida

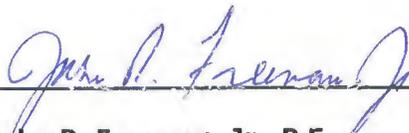
October 10, 2013

Prepared For:
Florida Department of Transportation District 5
719 South Woodland Boulevard
Deland, FL 32720-6834
(386) 943-5700

Prepared By:
Kittelson & Associates, Inc.
225 E. Robinson Street, Suite 450
Orlando, Florida 32801
(407) 540-0555

Professional Engineer Certificate

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Kittelson & Associates, Inc., a corporation authorized to operate as an engineering business, FEID No. 93-0964447, by the State of Florida, Department of Professional Regulation, and Board of Professional Engineers. I have reviewed or approved the evaluation, findings, opinions and conclusions as reported in this Border Width Design Variation Report.

Signature: 
Name: John R. Freeman, Jr., P.E.
P.E. Number: 25730
Date: 10/10/2013

DESIGN VARIATION REPORT

Project Background & Description

This design variation for border width is being requested as part of the preliminary design for the widening of S.R. 40 from Breakaway Trail (MP 24.523) to Williamson Boulevard (MP 26.504) in Volusia County, a distance of approximately 2.0 miles. The proposed improvements include widening the existing four-lane divided roadway to a six-lane divided roadway. S.R. 40 is classified as Urban Other Principal Arterial and is designated as an Emerging Strategic Intermodal System (SIS) Highway Facility.

S.R. 40 from Breakaway Trail (MP 24.523) to Tymber Creek Road (MP 25.492) is currently a four-lane divided roadway with two 12-foot travel lanes, 5-foot paved outside shoulders, roadside ditches and median drainage swales. An 8-foot shared-use path exists within the clear zone on the north side of S.R. 40. The roadway is centered within 200 feet of right-of-way within this segment. The segment of S.R. 40 between Breakaway Trail (MP 24.523) and Tymber Creek Road (MP 25.492) has an existing design speed of 65 mph, but is posted at 50 mph.

The proposed roadway cross-section between Breakaway Trail and Tymber Creek Road will utilize the existing two lanes in each direction and add a third 12-foot travel lane to the outside of each direction. The 5-foot paved shoulders and drainage ditches will be maintained on the outside of the roadway. A 12-foot shared-use path is proposed on the north side of S.R. 40 and a 5-foot sidewalk is proposed on the south side. Both the shared-use path and sidewalk will be placed outside the clear zone for S.R. 40. No mainline right-of-way acquisition (other than for stormwater retention ponds) is anticipated for the widening of S.R. 40. The roadway typical section is provided in *Attachment A*.

Design Criteria

The required border width for an arterial highway with flush shoulders and a design speed greater than 45 mph is 40 feet per the Plans Preparation Manual January 2013 (PPM) Table 2.5.1. Section 2.5 of the PPM states that the border width is measured from the shoulder point to the right-of-way line. The PPM also states that on existing streets and highways where right-of-way cannot be acquired or where the decision has been made to maintain and preserve the facility, the absolute minimum border width is 8 feet.

Proposed Criteria

From Breakaway Trail (MP 24.523) to Tymber Creek Road (MP 25.492) the proposed roadway typical section will consist of utilizing the existing two lanes in each direction, maintaining the existing swale median, and widening both sides of the roadway to provide three lanes in each direction within the existing right-of-way. Mainline right-of-way will not be acquired, resulting in a proposed border width of 34 feet along the mainline. This border width does not meet Chapter 2 (PPM) criteria but exceeds the minimum criteria of 8 feet for existing highways where right-of-way acquisition is avoided.

Discussion of Impacts due to Variation

Historic crash data was reviewed for the five-year period from 2007-2011. A total of 35 crashes were reported on the segment of S.R. 40 between Breakaway Trail and Tymber Creek Road, with 39 total injuries and no fatalities reported. Three crashes (approximately 9% of total) may be related to the roadside area. One of the crashes had "Harmful Events" listed as "Ran Into Ditch/Culvert" (one crash EB in daytime on dry roadway). One crash had the "Harmful Event" listed as "Crash with Sign Post" (WB vehicle in daytime on dry roadway). One crash had the "Harmful Event: listed as "Crash with Light Pole" (WB vehicle making right-turn during daytime on dry roadway). It is likely that the crash reported as

“Crash with Light Post” was more related to the intersection geometry in this case than to specific roadside features. Two of the crashes listed above were caused by careless driving, with one not listing a contributing cause, suggesting that each of the incidents were isolated and not indicative of any trends.

The proposed ditch geometry for the widening of S.R. 40 will conform with FDOT standards for roadside slopes within the clear zone, and are not anticipated to increase crashes associated with “Ran Into Ditch/Culvert”. The proposed shared-use path and sidewalk will be located outside the clear zone, providing increased protection for pedestrians and bicyclists along the segment. Signs and will be located per FDOT standard and are not expected to have an impact on crash frequency. No specific impacts to operations along S.R. 40 are anticipated as a result of the insufficient border width.

As shown in the proposed roadway typical section in *Attachment A*, the shared use path and sidewalk are proposed to be located outside the clear zone. A width of 20 feet will remain outside the clear zone to the right-of-way line on both sides of S.R. 40. The 12-foot wide shared use path and 5-foot wide sidewalk are proposed to fall within this 20-foot area on either side, but adequate width will remain to accommodate construction and maintenance of the facility, fencing, and permitted public utilities.

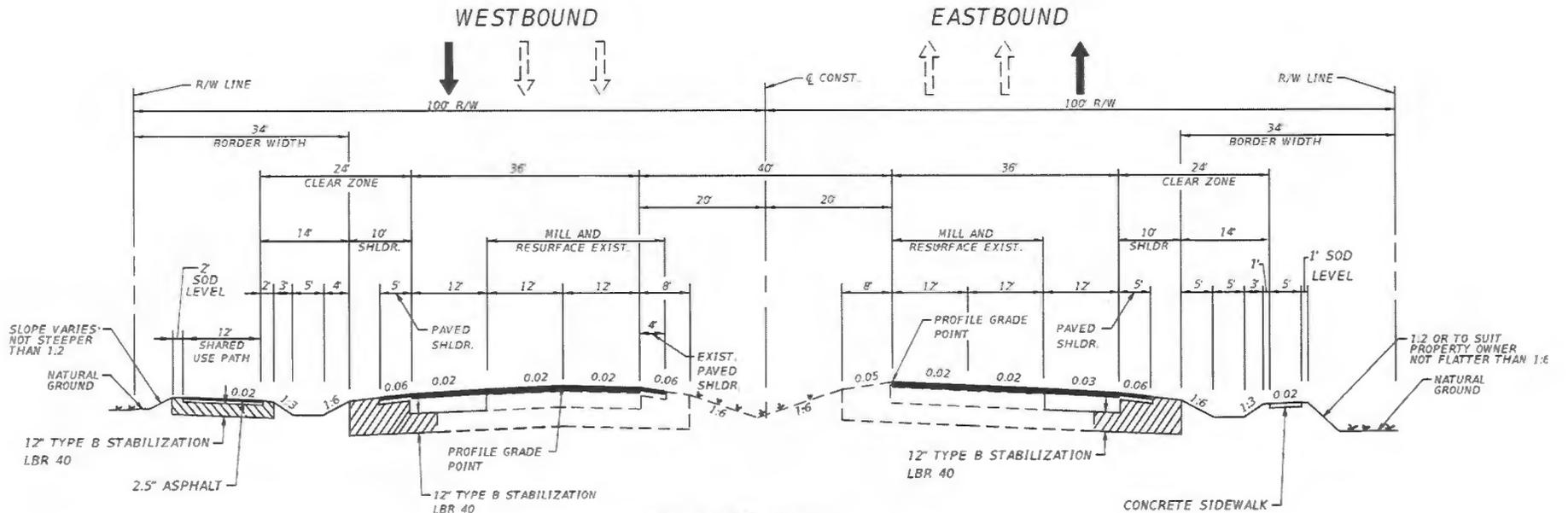
Justification

A primary objective of the S.R. 40 from Breakaway Trail to Williamson Boulevard was to provide the needed roadway widening within the existing 200-foot right-of-way width. To provide the FDOT standard 40-foot border width from Breakaway Trail to Tymber Creek Road would require the acquisition of six feet of mainline right-of-way on both sides of the roadway for approximately 6,300 feet, equating to approximately 75,600 square feet of acquired right-of-way. Given an average right-of-way cost of \$9.60 per square foot based on the average square footage costs of the right-of-way expected to be acquired for the preferred alternative, the right-of-way cost to satisfy Chapter 2 (PPM) border width criteria is approximately \$730,000. No additional project cost is anticipated due to the proposed insufficient border width.

Recommendation

We recommend that a Design Variation be approved for this project to provide a 34-foot mainline border width. The proposed project provides the needed future capacity, mobility, and multimodal improvements in a cost-effective manner and does not compromise safety. Based on the crash history along the segment of S.R. 40 in question, it appears that none of the crashes in the last six years of available data can be attributed to the roadside features. The character of the roadway within the clear zone will remain similar to the existing roadway, with the exception of the proposed shared-use path and sidewalk, which will be located outside the clear zone. Furthermore, adequate width outside the clear zone is anticipated to accommodate roadside design components, construction and maintenance, and permitted public utilities.

Attachment A – Roadway Typical Section



RURAL TYPICAL SECTION
 DESIGN SPEED = 65 MPH
 POSTED SPEED = 50 MPH (EXISTING)
 STA. 1281+60.00 TO STA. 1320+59.00

428947-1

Asst. Dir.
11-2013
DDE 10/14/13

SUBMITTAL/APPROVAL LETTER

To: Annette K. Brennan
District Design Engineer

Date: October 9, 2012

Financial Project ID: 428947-1-22-01

New Const. (X) RRR ()

Federal Aid Number: N/A

Project Name: S.R. 40 (Granada Avenue) from Breakaway Trail to Williamson Boulevard

State Road Number: S.R. 40

Co./Sec./Sub. Volusia

Begin Project MP: 24.523

End Project MP: 26.504

Full Federal Oversight: Yes () No (X)

Request for Design Exception (), Design Variation (X)

(For Design Exception or Variations Requiring Central Office Approval)

Re-submittal: Yes () No (X) Original Ref# _____ - _____ - _____

Requested for the following element(s):

- (X) Design Speed () Lane Widths () Shoulder Widths () Bridge Widths
- () Structural Capacity () Vertical Clearance () Grades () Cross Slope
- () Superelevation () Horizontal Alignment () Vertical Alignment () Stopping Sight Distance
- () Horizontal Clearance () Other _____

This design variation for Design Speed is being requested as part of the preliminary design of the improvement to S.R. 40 from Breakaway Trail (MP 24.523) to Williamson Boulevard (MP 26.504) in Volusia County. The proposed improvements include widening the existing four-lane divided roadway to a six-lane divided facility. S.R. 40 is designated as an Emerging Strategic Intermodal System (SIS) Highway Facility. This designation requires that the minimum design speed be 50 mph. The requested variation reduces the minimum design speed required for a SIS facility from 50 mph to 45 mph for the proposed urban six-lane divided segment from just west of Tymber Creek Road (MP 25.492) to just west of Interchange Boulevard (MP 26.149). The segment of S.R. 40 to the east of Interchange Boulevard currently has a posted speed of 45 mph, which would be maintained.

Recommended By:

John R. Freeman, Jr.
 John R. Freeman, Jr., P.E. No. 25730

Date 10/10/2013

Kittelson & Associates, Inc.
 225 East Robinson Street, Suite 450
 Orlando, FL 32801

Approvals:

B.M. St Date 10/14/13
 District Design Engineer

N/A Date _____
 District Structures Design Engineer

 State Roadway Design Engineer

N/A Date _____
 State Structures Design Engineer

 State Chief Engineer

N/A Date _____
 FHWA Division Administrator

Design Speed Design Variation Report

State Road 40 PD&E Study From Breakaway Trail to Williamson Boulevard

ETDM No. 9491

Financial Management No. 428947-1-22-01

Volusia County, Florida

October 10, 2013

Prepared For:

Florida Department of Transportation District 5

719 South Woodland Boulevard

Deland, FL 32720-6834

(386) 943-5700

Prepared By:

Kittelson & Associates, Inc.

225 E. Robinson Street, Suite 450

Orlando, Florida 32801

(407) 540-0555

Professional Engineer Certificate

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Kittelson & Associates, Inc., a corporation authorized to operate as an engineering business, FEID No. 93-0964447, by the State of Florida, Department of Professional Regulation, and Board of Professional Engineers. I have reviewed or approved the evaluation, findings, opinions and conclusions as reported in this Design Speed Design Variation Report.

Signature: _____

John R. Freeman, Jr.

Name: _____

John R. Freeman, Jr., P.E.

P.E. Number: _____

25730

Date: _____

10/10/2013

DESIGN VARIATION REPORT

Project Background & Description

This design variation for design speed is being requested as part of the preliminary design for the widening of S.R. 40 from Breakaway Trail (MP 24.523) to Williamson Boulevard (MP 26.504) in Volusia County, a distance of approximately 2.0 miles. The proposed improvements include widening the existing four-lane divided roadway to a six-lane divided roadway. S.R. 40 is designated as an Emerging Strategic Intermodal System (SIS) Highway Facility. This designation requires a minimum design speed of 50 mph be utilized. The proposed design variation reduces the design speed from 50 mph to 45 mph for the segment from just west of Tymber Creek Road to just west of Interchange Boulevard.

S.R. 40 is classified as an Urban Other Principal Arterial through the limits of the project. The existing posted speed limit is 50 mph from Breakaway Trail to just west of Interchange Boulevard, and 45 mph from just west of Interchange Boulevard to Williamson Boulevard. The existing right-of-way width is 200 feet between Breakaway Trail and Booth Road, and varies between Booth Road and Williamson Boulevard.

From Tymber Creek Road to Interchange Boulevard the proposed typical section is an urban six-lane divided cross-section, with three 12-foot travel lanes in each direction and 5-foot bike lanes. The roadway will utilize Type E curb & gutter with a 22-foot wide raised median, and Type F curb & gutter on the outside of the roadway. A 5-foot sidewalk will be constructed on the south side of S.R. 40, with a 3-foot offset behind the curb. A 12-foot shared-use path will be constructed on the north side of S.R. with a 4-foot offset behind the curb. The segment has a proposed design and posted speed of 45 mph. The adjacent segment to the west, from Breakaway Trail to Tymber Creek Road, will have a rural six-lane cross-section and will maintain the existing 50 mph posted speed limit. The adjacent segment to the east, from Interchange Boulevard to Williamson Boulevard, will have an urban six-lane cross-section and will maintain the existing 45 mph posted speed. The proposed urban six-lane typical cross-section for the segment of S.R. 40 between Tymber Creek Road and Interchange Boulevard is shown in Figure 1.

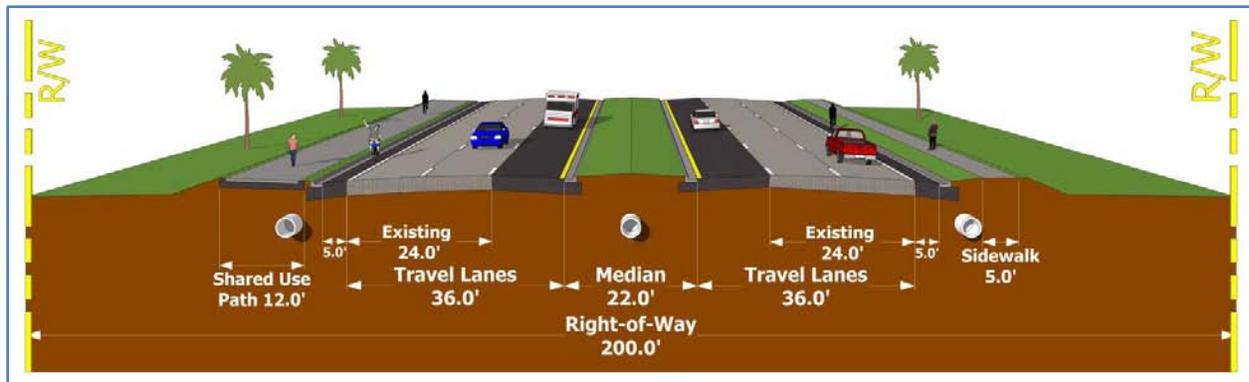


Figure 1 Proposed Urban Typical Section – Tymber Creek Road to Interchange Boulevard

This design variation is being requested with regard to Volume One, Section 1.9, Table 1.9.2 of the FDOT Plans Preparation Manual (PPM) 2012. Below are the four items that must be addressed as described in Section 23.6 of the PPM 2012.

Design Criteria

Section 1.9, Table 1.9.2 of the PPM specifies that the minimum design speed for arterials that are on the SIS (including Emerging SIS Highway Corridors) shall be 50 mph. According to Section 1.9 of the PPM, a design speed of 45 mph may be used on curb and gutter facilities where the existing posted speed limit is 45 mph or less and Access Management Class 3 is proposed.

The design criteria per AASHTO's *A Policy on Geometric Design of Highways and Streets, 2011* (AASHTO Green Book) calls for a design speed of 30 mph to 60 mph for urban arterials with lower speeds in the range applying to central business districts and in more developed areas.

Proposed Criteria

The proposed criteria will reduce the design speed from 50 mph to 45 mph on S.R. 40 from just west of Tymber Creek Road (MP 25.492) to just west of Interchange Boulevard (MP 26.149), and maintain the existing 45 mph posted speed from Interchange Boulevard to Williamson Boulevard. The existing 45 mph posted speed zone will be shifted to the west approximately 0.75 miles (from MP 26.149 to MP 25.492) with the proposed improvements. The existing roadway corridor is a developed urban area and the design speed reduction meets the criteria established within the AASHTO Green Book. All other requirements for a 45 mph urban typical section will be met by the proposed design.

Discussion of Impacts due to Variation

According to the Design Traffic Technical Memorandum (DDTM) prepared for the S.R. 40 Breakaway Trail to Williamson Boulevard PD&E Project, S.R. 40 currently carries 23,400 vehicles per day on the segment between I-95 and Tymber Creek Road. The same segment is anticipated to carry 48,500 vehicles per day in the 2025 design year, and 63,900 vehicles per day in the 2035 design year. Trucks were found to make up 10.3% of total existing daily vehicles; with 10.5% trucks expected in the future design years.

Operations:

The proposed reduction in design speed from 50 mph to 45 mph is not anticipated to have an adverse impact on operations on the study segment of S.R. 40. The segment between Tymber Creek Road and Interchange Boulevard is approximately 4,000 feet (0.75 miles). The travel time difference between a 45 mph speed and 50 mph speed over that segment is 6 seconds.

In addition to the two signalized intersections (Tymber Creek Road and Booth Road) along the segment of S.R. 40 between Tymber Creek Road and Interchange Boulevard, nine unsignalized access points exist onto or off of S.R. 40. Seven of the access points are right-in/right-out only, one is right-in only, and one is right-in/right-out/left-in only. Two full access median openings exist on the segment at the signalized intersections of Tymber Creek Road and Booth Road. Reducing the speed on the segment would help to reduce speed differentials between vehicles leaving or entering S.R. 40 from the various signalized and unsignalized access points described above.

Adjacent Sections:

The segment of S.R. 40 from Interchange Boulevard to Williamson Boulevard is currently heavily developed with commercial land uses due to the proximity to the I-95 interchange. This segment currently has a 45 mph posted speed limit and an urban roadway character. A mix of commercial and residential land uses continue along S.R. 40 to the west to Tymber Creek Road. To the west of Tymber Creek Road

adjacent land uses transition to residential and institutional. The existing land uses along S.R. 40 are shown in Figure 1, and future land uses are shown in Figure 2. The existing and future land uses along S.R. 40 from Tymber Creek Road to Interchange Boulevard support continuing the urban roadway cross-section and 45 mph design and posted speed to the west of Interchange Boulevard, where the urban typical section and 45 mph posted speed currently ends.

Level of Service:

The level of service on the segment of S.R. 40 between Tymber Creek Road and I-95 is anticipated to be “C” in both the 2025 and 2035 design years with the provision of a 6-lane cross-section. The proposed reduction in design speed from 50 mph to 45 mph on the segment is not anticipated to negatively affect the level of service for vehicles. However, the reduction in design speed will have a positive effect on bicycle and pedestrian level of service, according to the factors involved in multi-modal level of service methodology contained in the Highway Capacity Manual 2010.

Safety:

Historic crash data was reviewed for the five-year period from 2007-2011. A summary of the data indicates that there were 37 total crashes along the segment of S.R. 40 from just west of Tymber Creek Road to just west of Interchange Boulevard. The total crashes include those occurring at the two signalized intersections along the segment at Tymber Creek Road and Booth Road, which make up at least 33 of the 37 total. A total of 43 injuries were reported in the 37 crashes between 2007 and 2011, suggesting that speed is a contributing factor.

Rear-end crashes on S.R. 40 made up 10 of the intersection crashes at Tymber Creek Road, and 6 of the crashes at Booth Road. The contributing cause reported for the majority of these crashes was “careless driving.” It could reasonably be expected that the severity of rear-end crashes would be reduced by reducing speeds on the segment containing these two signalized intersections. Posting a speed of 45 mph on the segment would provide speed consistency along the corridor, starting west of Tymber Creek Road. Vehicles traveling westbound along the corridor currently change speed from 45 mph to 50 mph between Interchange Boulevard and Booth Road, but may still be required to stop at either Booth Road or Tymber Creek Road. Additionally, the existing character of the roadway currently shifts from urban to rural/suburban with the 50 mph speed limit west of Interchange Boulevard, indicating that the driver workload may be reduced. Vehicles traveling eastbound currently are not required to change speed approaching Tymber Creek Road or Booth Road. Reducing the speed in advance of Tymber Creek Road will help to set driver expectations that they are entering a more urban environment.

Providing the proposed urban typical section and 45 mph design speed to the west of Tymber Creek Road will provide a more consistent environment to set driver expectations of the continuing driver workload associated with the urban environment.

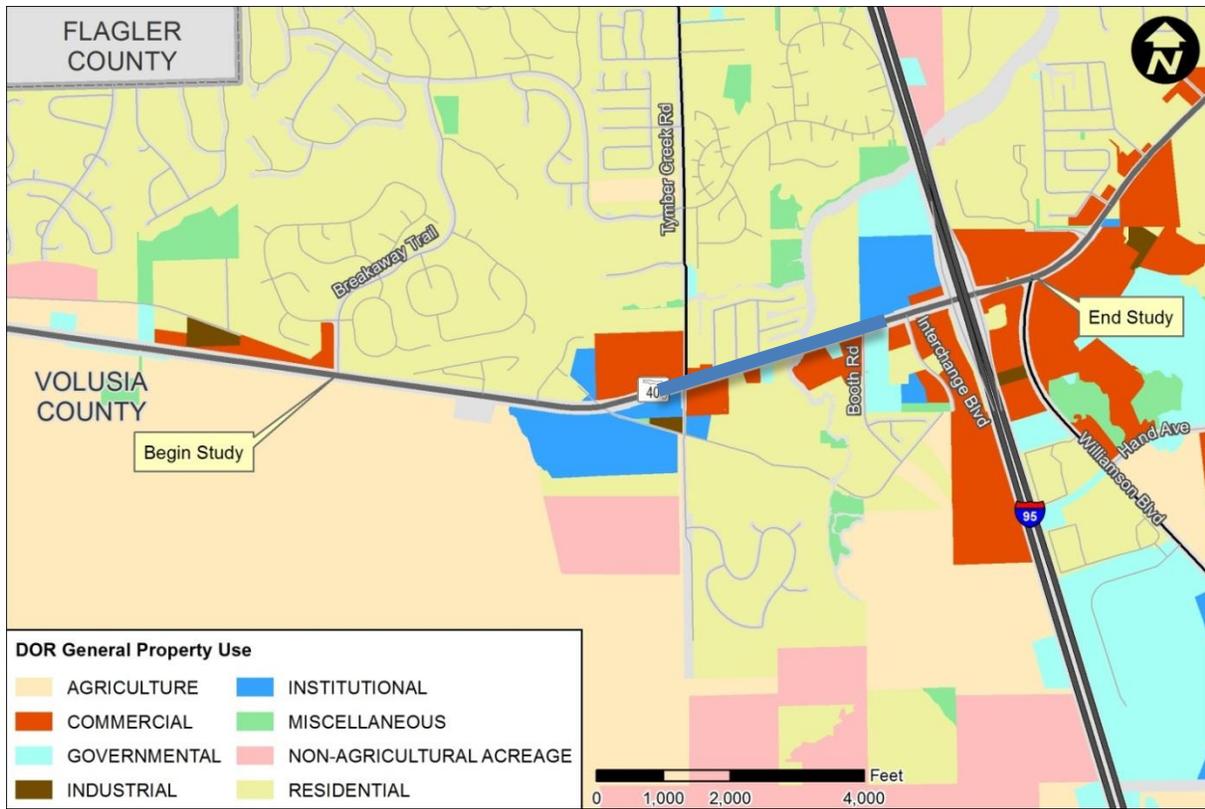


Figure 2 Existing Land Use Map

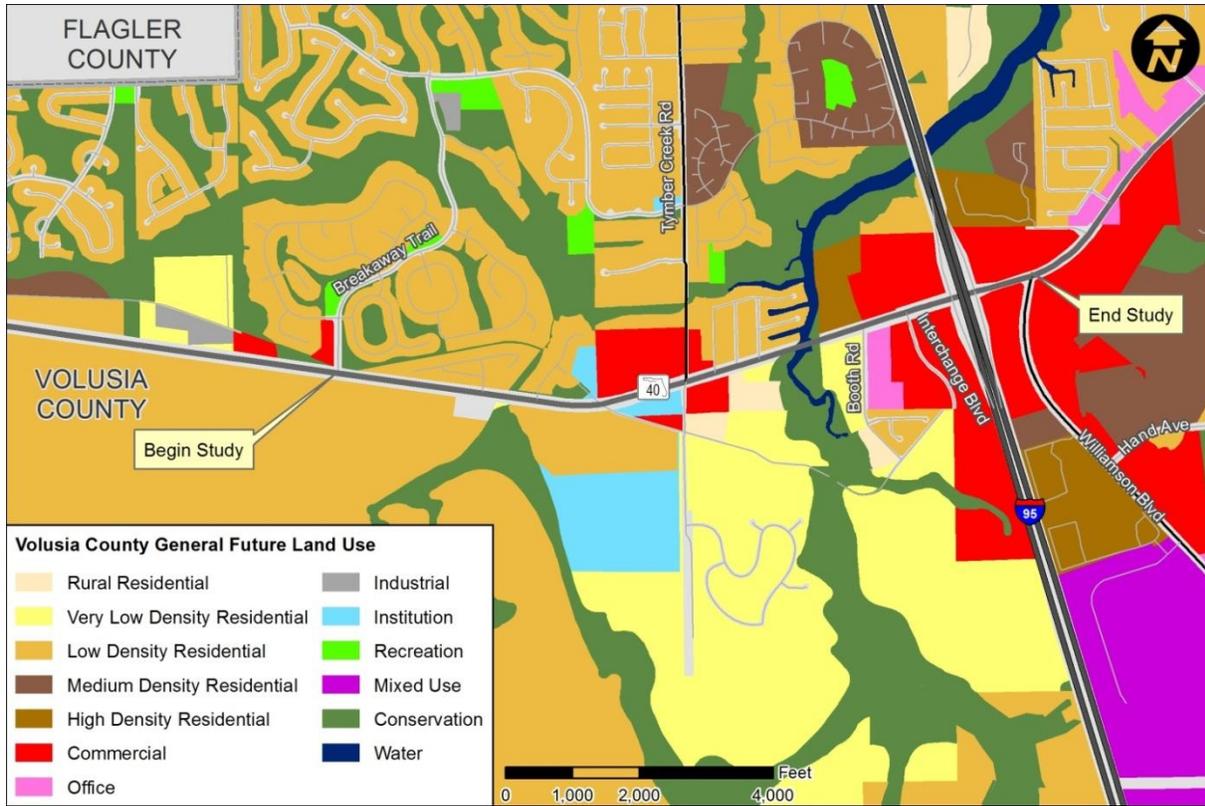


Figure 3 Future Land Use Map

Consideration of Practical Alternatives:

During the S.R. 40 PD&E Study, several different roadway typical sections were evaluated taking into account the existing commercial development, safety considerations, future land uses, and the impacts/costs associated with acquisition of right-of-way. The recommended typical section from Tymber Creek Road to Interchange Boulevard is a standard urban six-lane typical section with a 45 mph design speed. This typical section will reduce the overall typical section width, minimizing impacts to the surrounding land uses and supporting the developing urban environment, while still addressing the capacity, mobility, and safety concerns within the corridor by adding travel lanes, raised medians, and pedestrian/bicycle facilities that do not currently exist. The lower design speed is also supported by the City of Ormond Beach and Volusia County.

The proposed roadway and Tomoka River Bridge typical sections are provided in Attachment A. Concept plans showing the proposed improvements are provided in Attachment B.

A high speed urban typical section, utilizing a 50 mph design speed, was considered for the segment of S.R. 40 from Tymber Creek Road to Interchange Boulevard. Utilizing the high speed urban typical section with the existing 40-foot median width was found to have significant right-of-way impacts on adjacent properties at the intersections where additional turn-lanes are required. Utilizing a minimum 30-foot median width with the high-speed urban typical section reduced the right-of-way impacts, but the impacts were still found to be greater than those with the 45 mph urban typical section. Utilizing the high speed urban typical section would also mean having three different roadway typical sections through the 2-mile length of the study area, with transitions required between the different cross-sections. Additionally, S.R. 40 to the east of Williamson Boulevard is currently an urban typical section consistent with that proposed for this project, so the high speed urban typical section would be an inconsistent segment in the corridor. A cross-section for the high speed urban typical section considered is shown in Figure 3. Based on cost estimates performed during the evaluation of alternatives, the high speed urban typical section would have a total cost approximately \$3.2 million greater than the proposed urban typical section (including construction, right-of-way, environmental, design and C.E.I.).

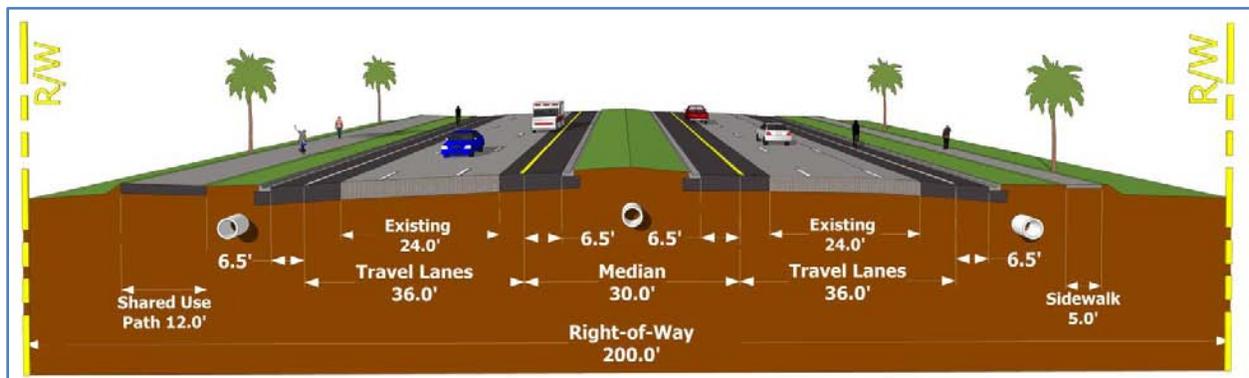


Figure 4 High Speed Urban Typical Section

Additional Justification

A primary objective of the S.R. 40 from Breakaway Trail to Williamson Boulevard was to provide the needed roadway widening within the existing 200-foot right-of-way width. The preferred alternative urban typical section had the least impacts to right-of-way in the segment of S.R. 40 from Tymber Creek Road to Interchange Boulevard. The construction of a high speed six-lane urban typical section with a 50 mph design speed would require the acquisition of additional right-of-way, primarily in the vicinity of Tymber

Creek Road, when compared to the proposed 45 mph six-lane urban typical section. The estimated right-of-way cost associated with the high speed urban typical section would be approximately \$560,000 more than the proposed urban typical section through the segment of S.R. 40.

Through coordination with the City of Ormond Beach and Volusia County, it was determined that both entities support the 45 mph design speed and associated urban typical section. The consistency with adjacent land uses and development patterns along the corridor, local government support, in conjunction with all of the advantages listed above, justifies the variation. Therefore, we recommend approval of this design variation.

Recommendation

We recommend that a Design Variation be approved for this project to provide a 45 mph design speed on S.R. 40 from just west of Breakaway Trail (MP 25.492) to the existing 45 mph segment just west of Interchange Boulevard (MP 26.149). The proposed project provides the needed future capacity, mobility, and multimodal improvements in a cost-effective manner and does not compromise safety.

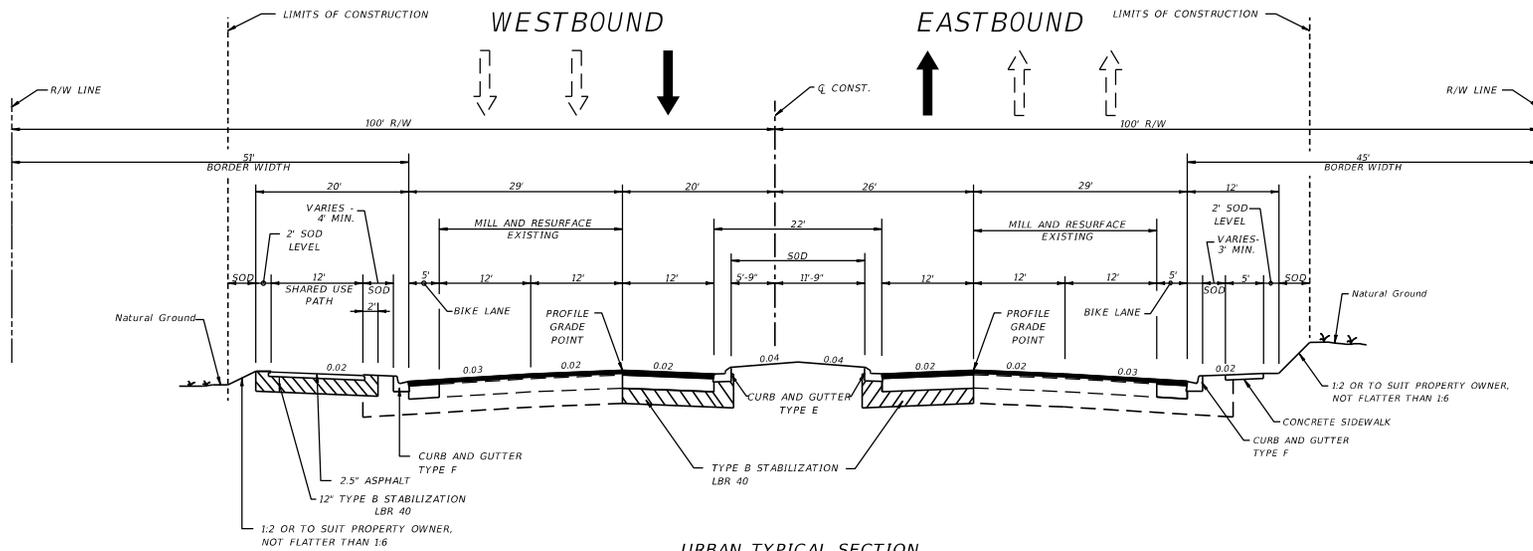
The improvements to roadway safety and local government support, in conjunction with all of the advantages listed above, justifies the variation. Therefore, we recommend approval of this design variation.

Attachment A – Preferred Roadway and Bridge Typical Sections

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 428947-1-22-01 FEDERAL AID PROJECT NO. _____ COUNTY NAME VOLUSIA
 SECTION NO. _____ ROAD DESIGNATION SR 40 (GRANADA AVENUE) LIMITS/MILEPOST M.P. 24.5 TO M.P. 26.5
 PROJECT DESCRIPTION SR 40 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY

PROPOSED ROADWAY TYPICAL SECTION



URBAN TYPICAL SECTION
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH
 STA. 1340+59.36 TO STA. 1381+56.09

APPROVED BY: JOHN R. FREEMAN, JR., P.E.

FDOT CONCURRENCE

Engineer Of Record Signature
and Date

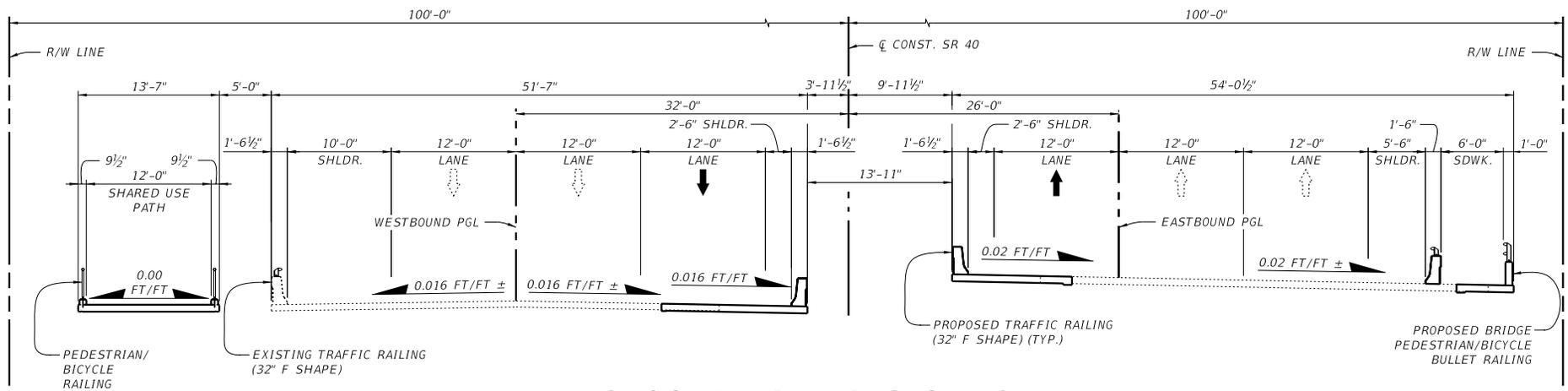
 Annette K. Brennan, P.E.
 FDOT District Design Engineer

Date

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 428947-1-22-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME VOLUSIA
 SECTION NO. N/A ROAD DESIGNATION SR 40 LIMITS/MILEPOST MP 24.5 TO 26.5
 PROJECT DESCRIPTION WIDENING FROM 4-6 LANES OF SR 40 FROM BREAKAWAY TRAIL TO WILLIAMSON BLVD.

PROPOSED BRIDGE TYPICAL SECTION



PROPOSED WIDENING SR 40
WESTBOUND BRIDGE: STA. 1363+65.45 TO STA. 1367+25.32
EASTBOUND BRIDGE: STA. 1363+44.37 TO STA. 1367+04.37
PEDESTRIAN BRIDGE: STA. 1363+65.45 TO STA. 1367+25.32

APPROVED BY: Amanda E. Woods, P.E.

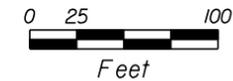
FDOT CONCURRENCE

Engineer Of Record Signature
and Date

Annette K. Brennan, P.E.
FDOT District Design Engineer

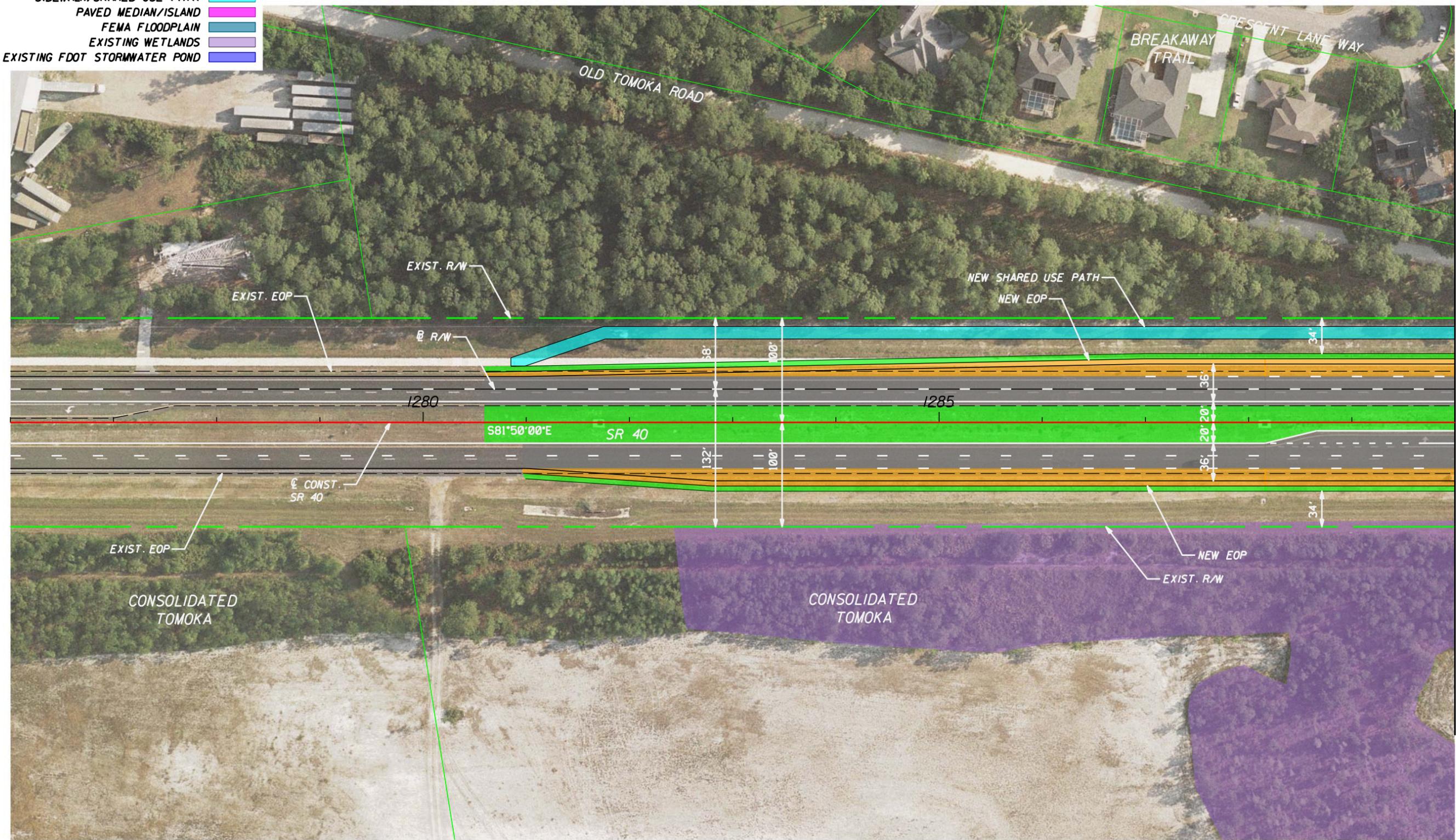
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Attachment B – Roadway Concept Plans



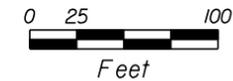
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| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |



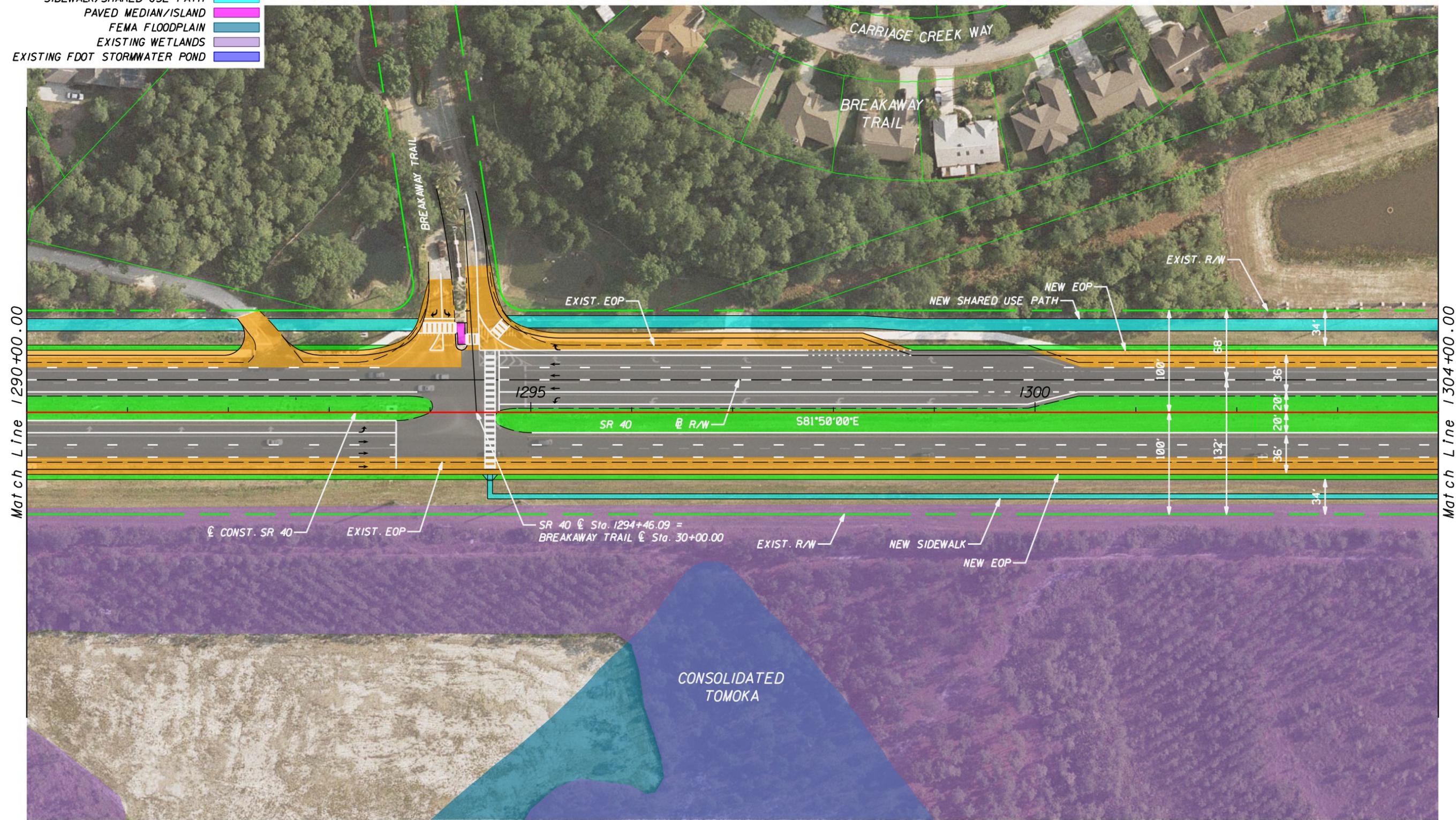
PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)

| REVISIONS | | | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1276+00 to Sta 1290+00 | SHEET NO. 1 |
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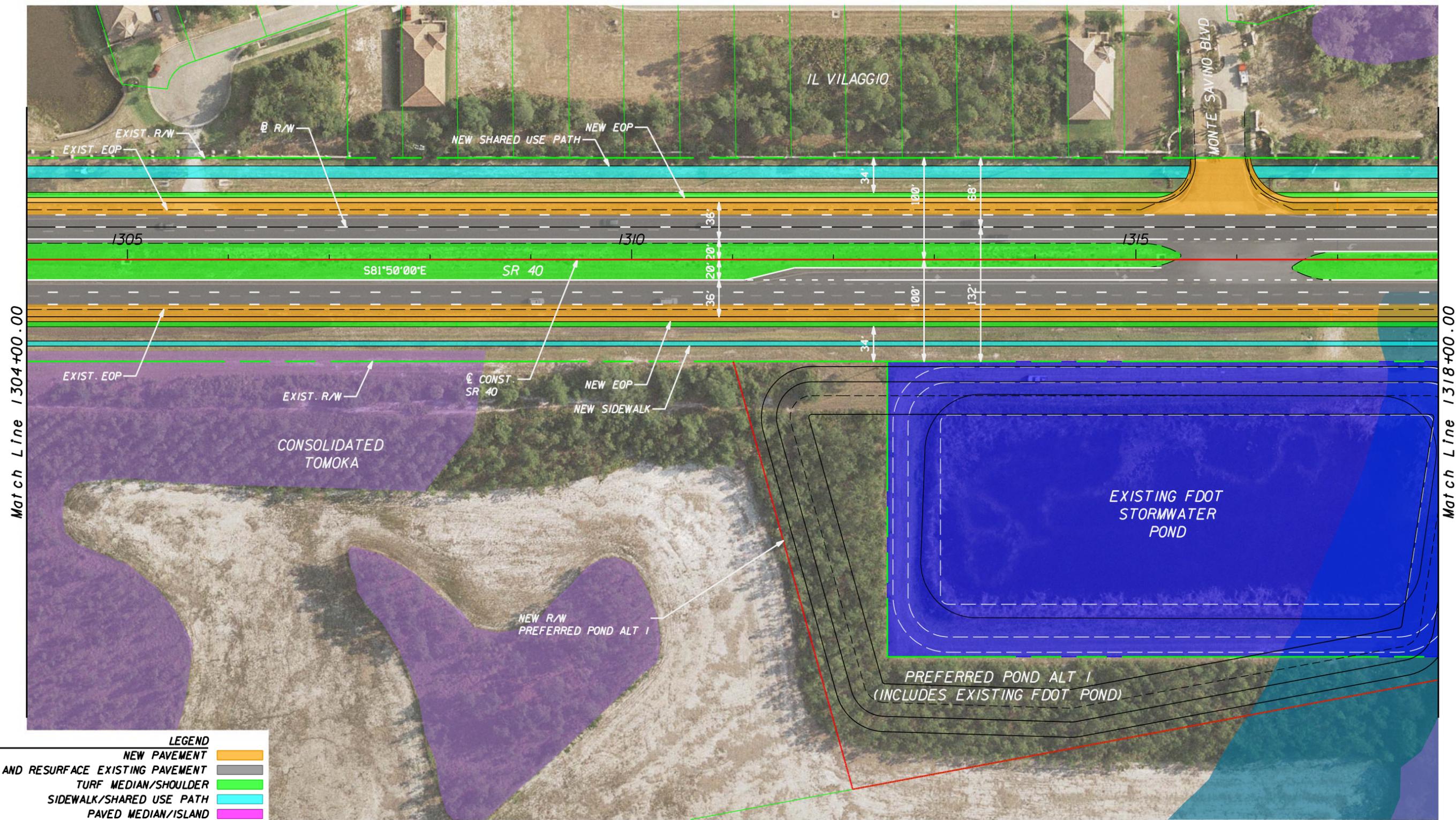
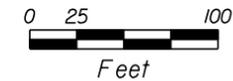
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PREFERRED ALTERNATIVE
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Match Line 1304+00.00

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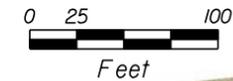
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**PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)**

PRELIMINARY PLANS NOT FOR CONSTRUCTION

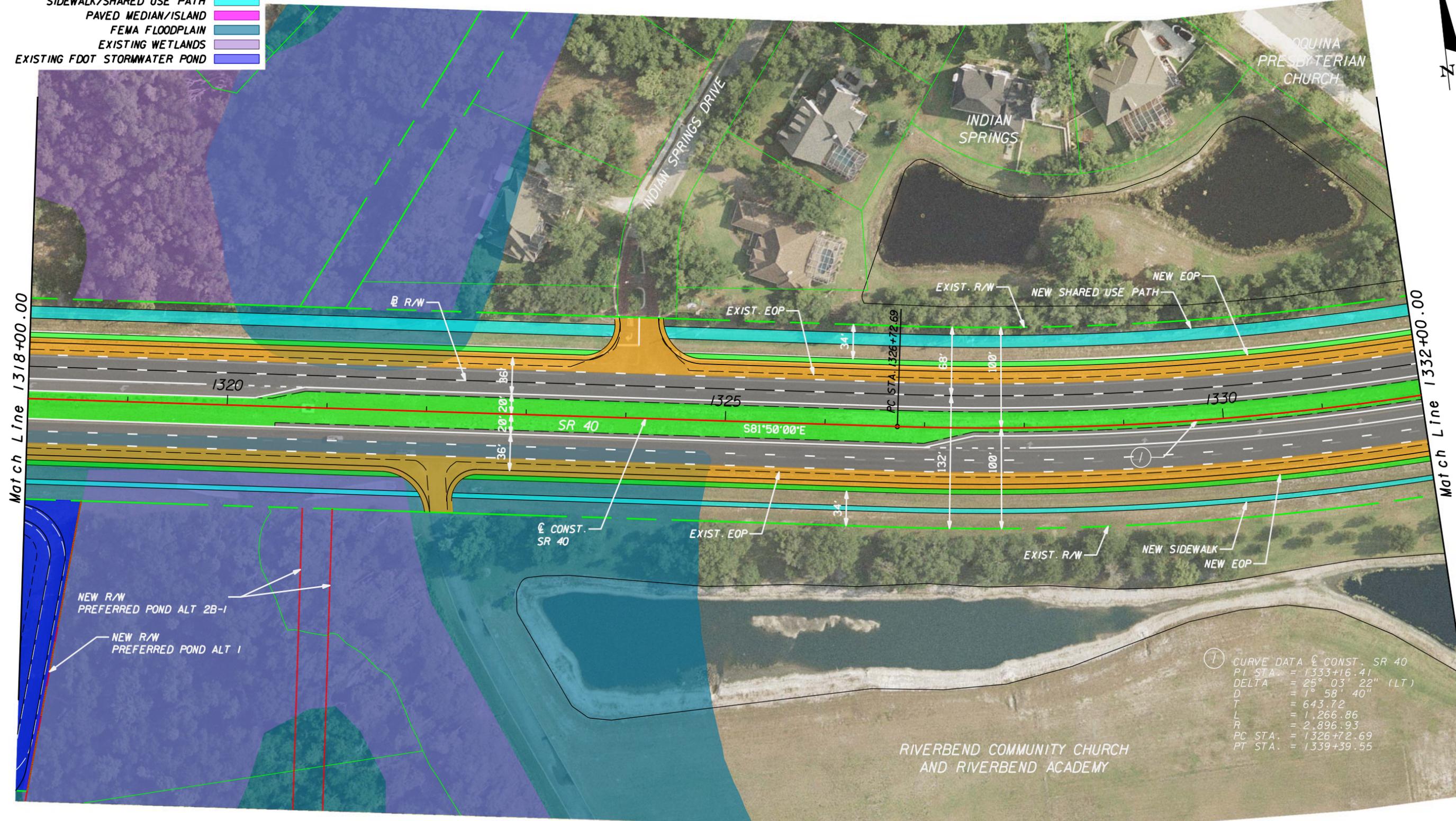
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Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
P.E. License No.: 25730
K KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
225 E. Robinson St, Suite 450, ORLANDO FL 32801
CERTIFICATE OF AUTHORIZATION NO. 007524



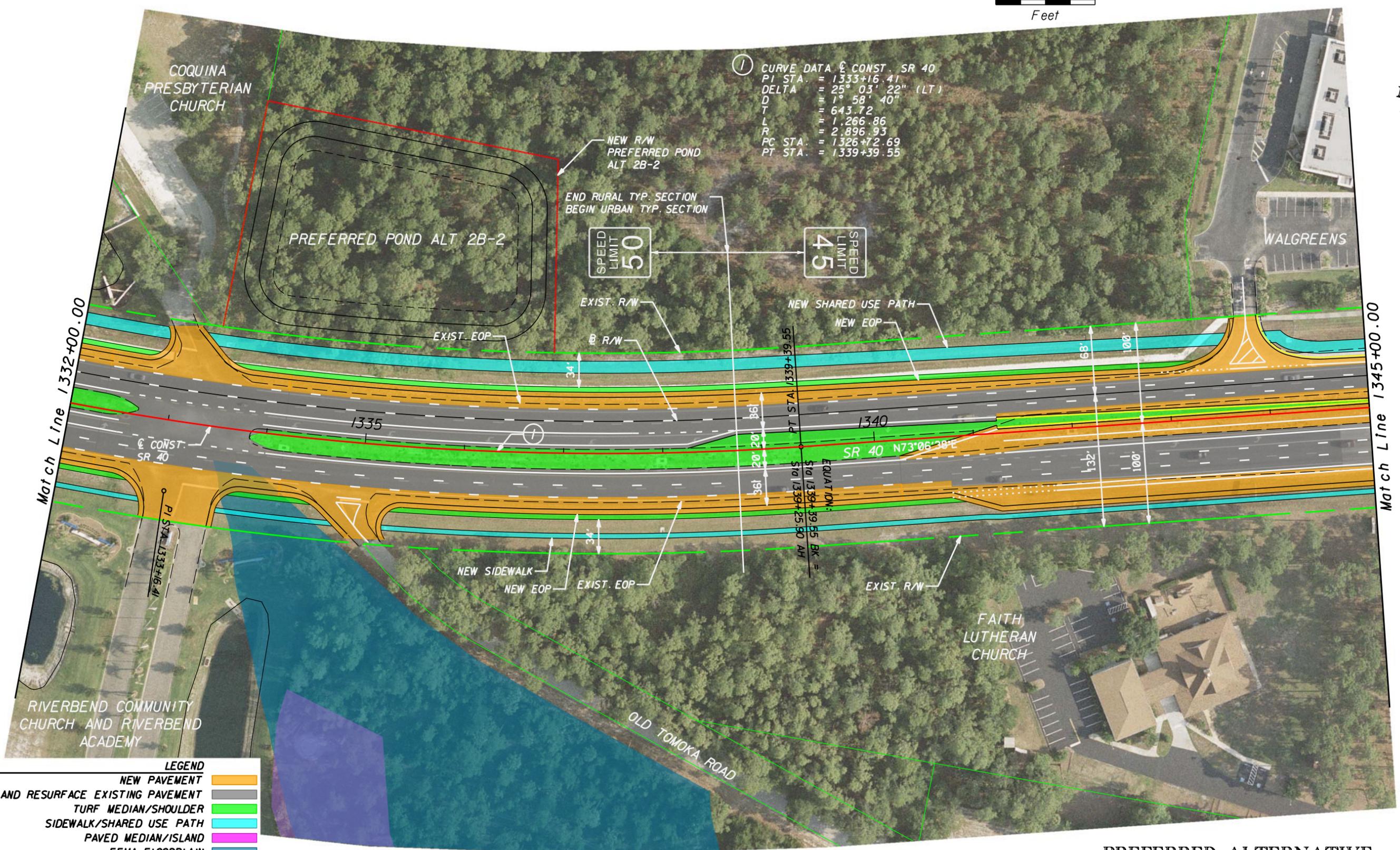
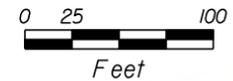
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**PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)**

| REVISIONS | | DESCRIPTION | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1318+00 to Sta 1332+00 | SHEET NO. 4 |
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PRELIMINARY PLANS NOT FOR CONSTRUCTION

PREFERRED ALTERNATIVE
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TO URBAN TYPICAL SECTION (EAST)

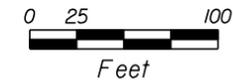
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Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
P.E. License No.: 25730
KITTELSON & ASSOCIATES, INC.
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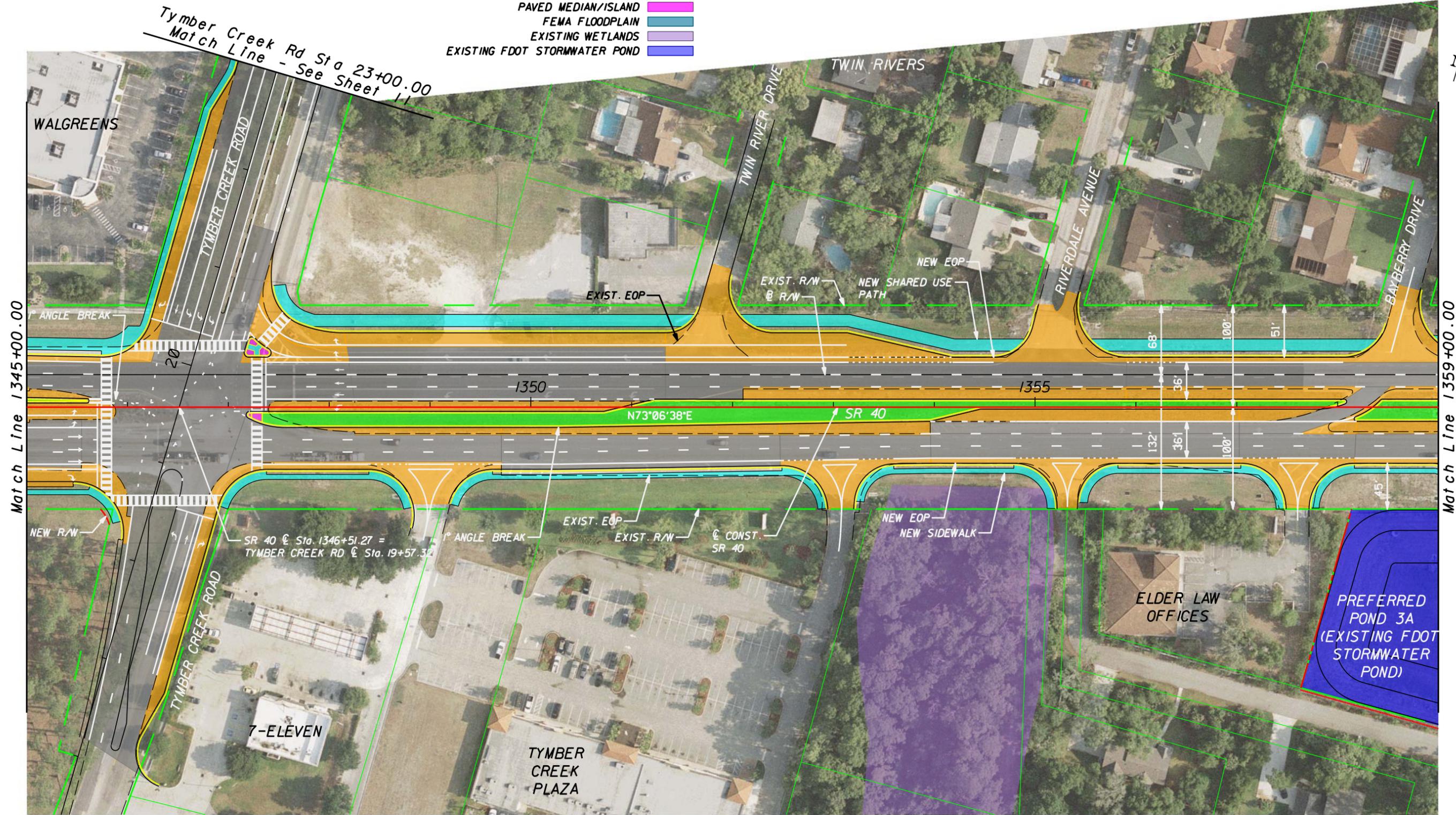
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SR 40 PD&E Study
Sta 1332+00 to Sta 1345+00

SHEET NO.
5

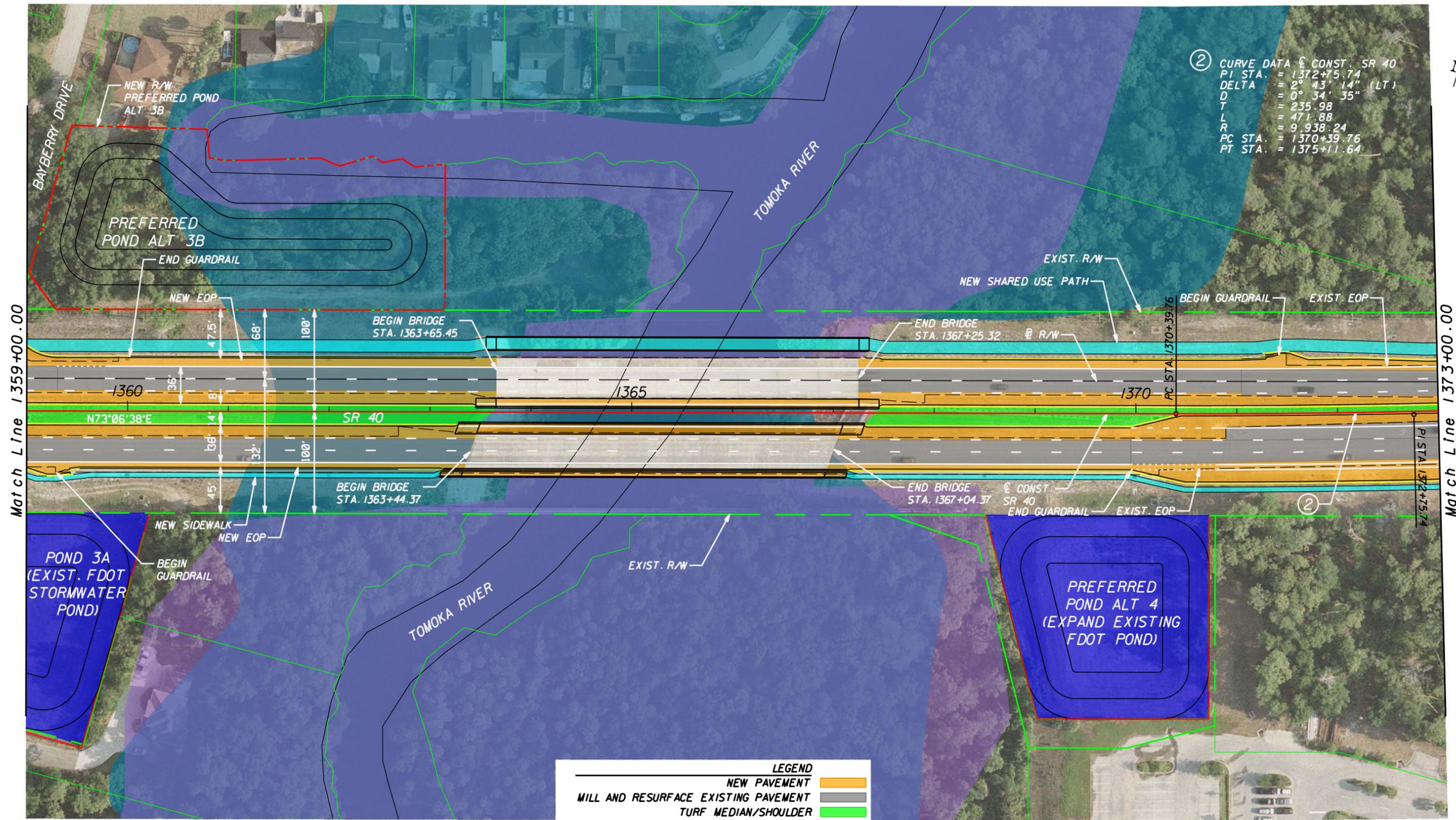
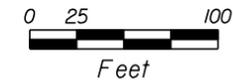


- LEGEND**
- NEW PAVEMENT
 - MILL AND RESURFACE EXISTING PAVEMENT
 - TURF MEDIAN/SHOULDER
 - SIDEWALK/SHARED USE PATH
 - PAVED MEDIAN/ISLAND
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PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
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| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
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② CURVE DATA & CONST. SR 40
 PI STA. = 1372+75.74
 DELTA = 2° 43' 14" (LT)
 D = 0° 34' 35"
 T = 235.98
 L = 471.88
 R = 9,938.24
 PC STA. = 1370+39.76
 PT STA. = 1375+11.64

LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)

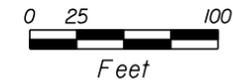
| REVISIONS | |
|-----------|-------------|
| DATE | DESCRIPTION |
| | |
| | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
 P.E. License No.: 25730
KITTELSON & ASSOCIATES, INC.
 TRANSPORTATION ENGINEERING / PLANNING
 225 E. Robinson St, Suite 450, ORLANDO FL 32801
 CERTIFICATE OF AUTHORIZATION NO. 007524

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

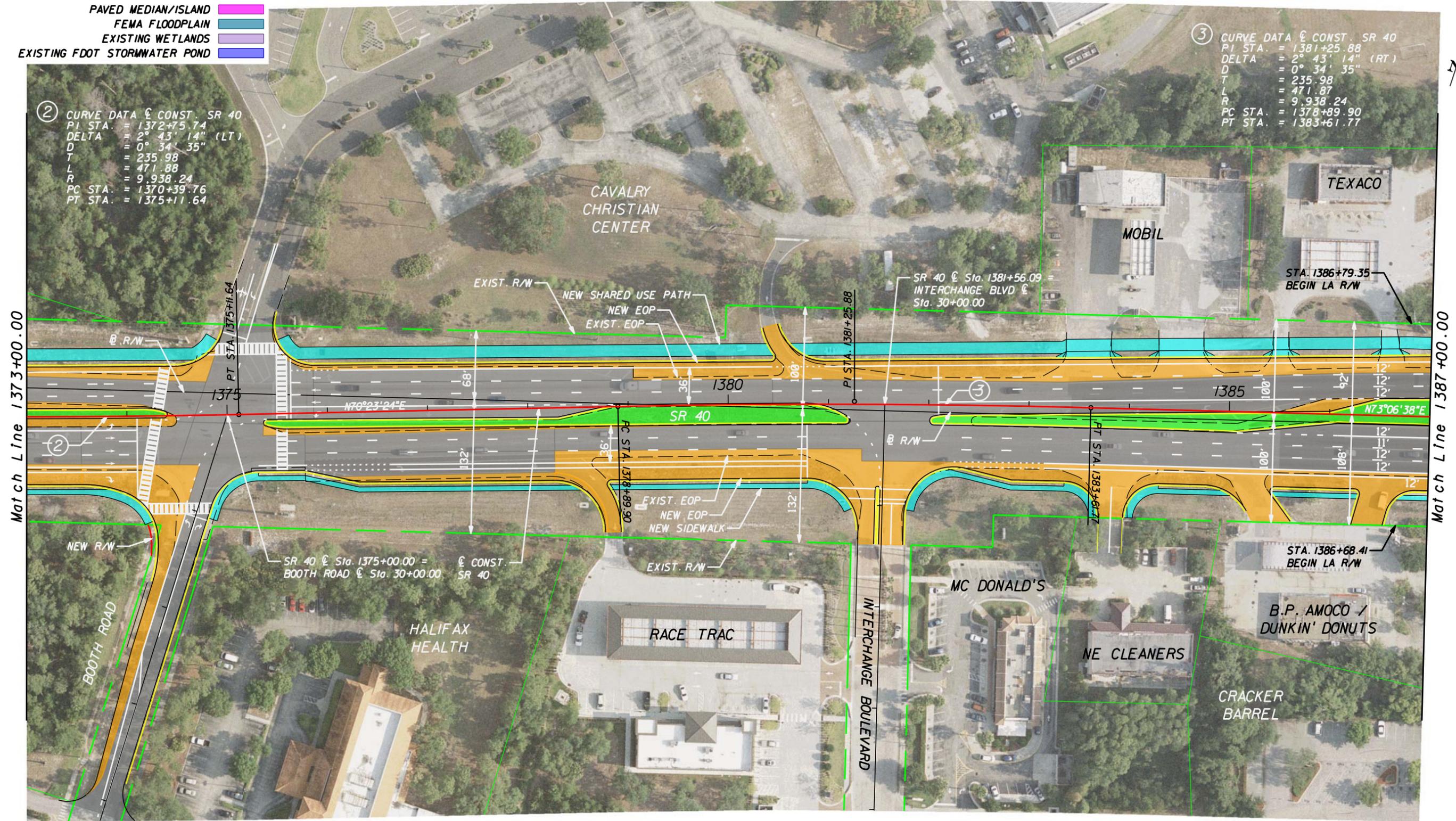
SR 40 PD&E Study
 Sta 1359+00 to Sta 1373+00

SHEET NO.
 7



LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |



② CURVE DATA & CONST. SR 40
 PI STA. = 1372+75.74
 DELTA = 2° 43' 14" (LT)
 D = 0° 34' 35"
 T = 235.98
 L = 471.88
 R = 9,938.24
 PC STA. = 1370+39.76
 PT STA. = 1375+11.64

③ CURVE DATA & CONST. SR 40
 PI STA. = 1381+25.88
 DELTA = 2° 43' 14" (RT)
 D = 0° 34' 35"
 T = 235.98
 L = 471.87
 R = 9,938.24
 PC STA. = 1378+89.90
 PT STA. = 1383+61.77

SR 40 @ Sta. 1381+56.09 =
 INTERCHANGE BLVD @
 Sta. 30+00.00

SR 40 @ Sta. 1375+00.00 =
 BOOTH ROAD @ Sta. 30+00.00

SR 40 @ Sta. 1386+68.41 =
 BEGIN LA R/W

PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)

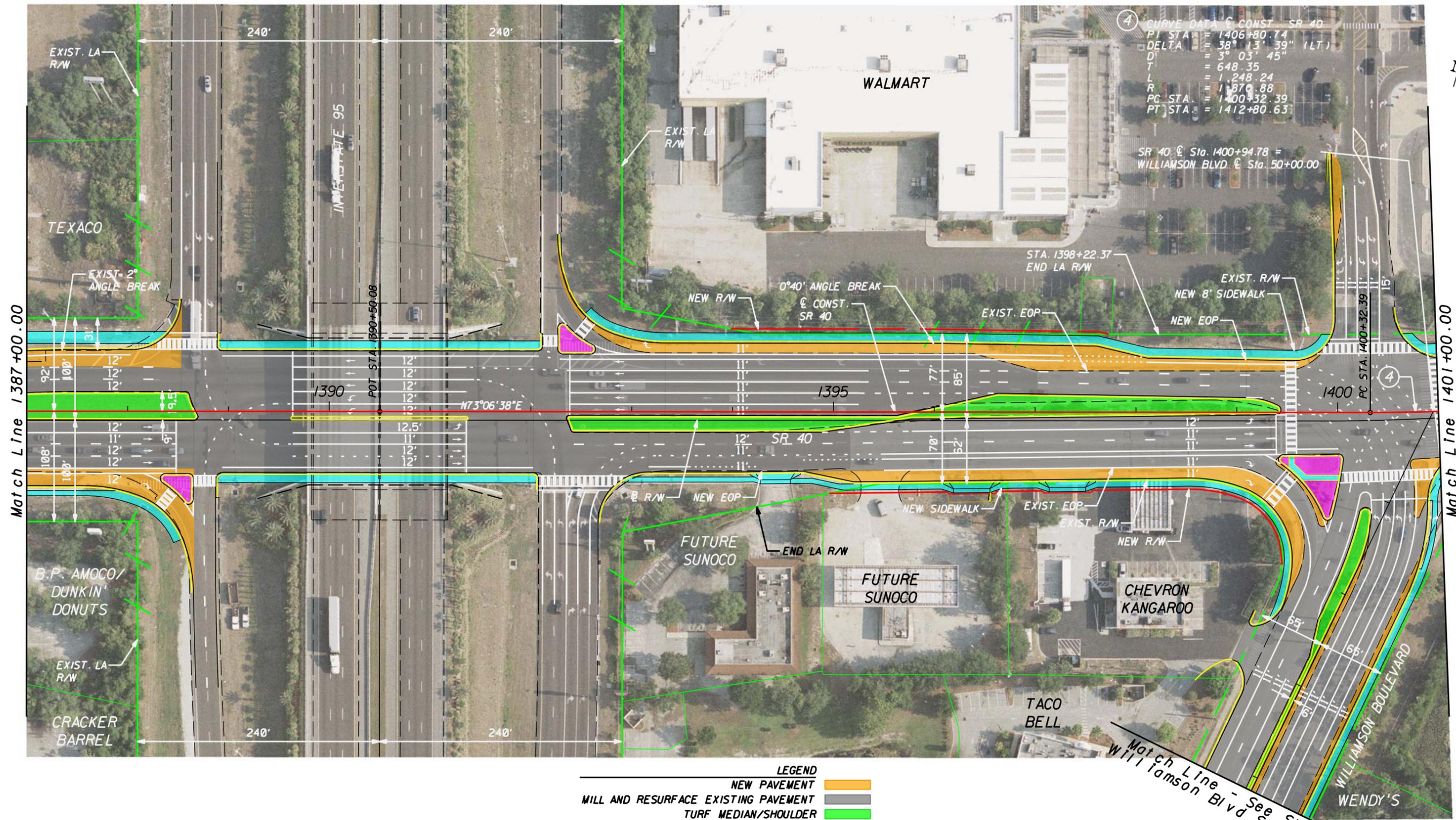
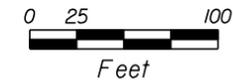
| REVISIONS | | | |
|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
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 CERTIFICATE OF AUTHORIZATION NO. 007524

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

SR 40 PD&E Study
 Sta 1373+00 to Sta 1387+00

SHEET NO.
 8



LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

**PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)**

PRELIMINARY PLANS NOT FOR CONSTRUCTION

| REVISIONS | |
|-----------|-------------|
| DATE | DESCRIPTION |
| | |
| | |

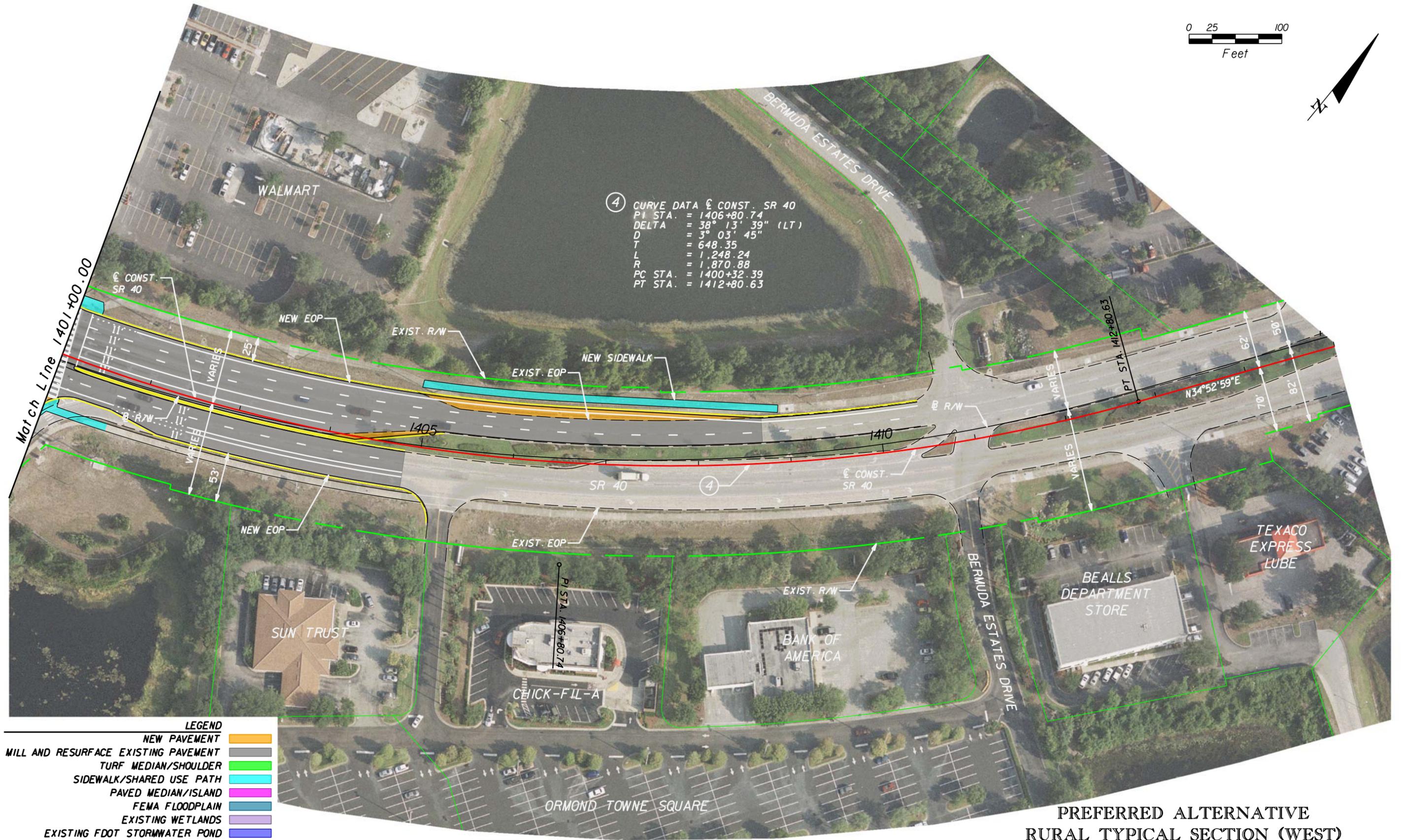
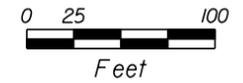
Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
P.E. License No.: 25730

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
225 E. Robinson St, Suite 450, ORLANDO FL 32801
CERTIFICATE OF AUTHORIZATION NO. 007524

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|---------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| 40 | VOLUSIA | 428947-1-22-01 |

SR 40 PD&E Study
Sta 1387+00 to Sta 1401+00

SHEET NO.
9



④ CURVE DATA \hat{C} CONST. SR 40
 PI STA. = 1406+80.74
 DELTA = 38° 13' 39" (LT)
 D = 3° 03' 45"
 T = 648.35
 L = 1,248.24
 R = 1,870.88
 PC STA. = 1400+32.39
 PT STA. = 1412+80.63

LEGEND

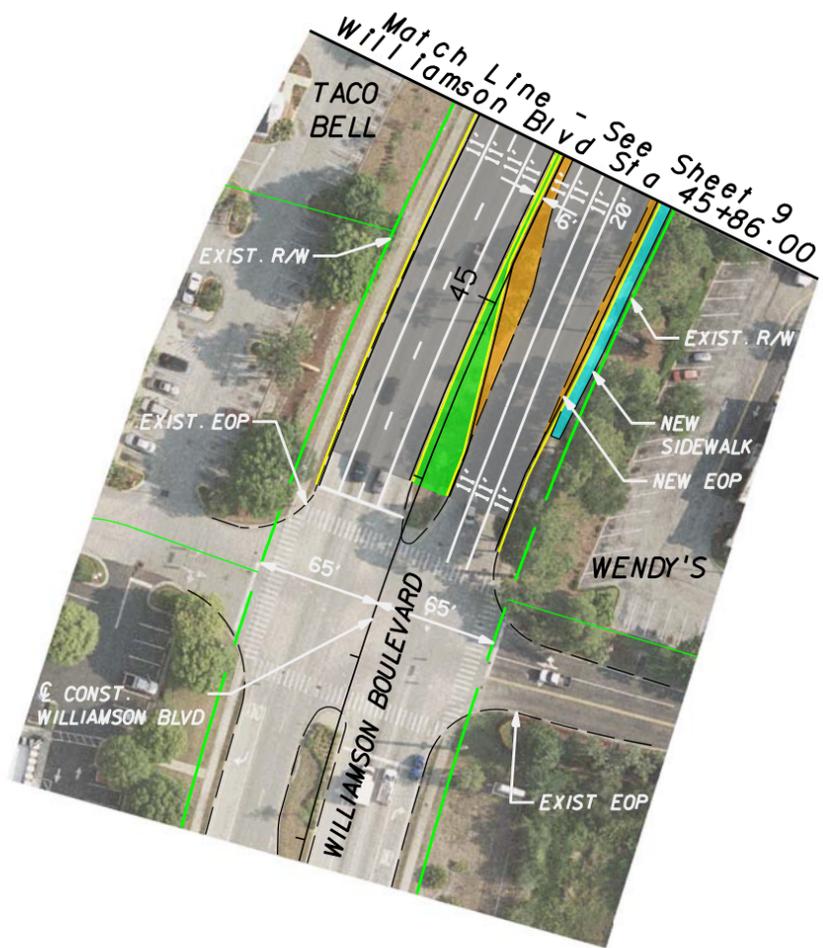
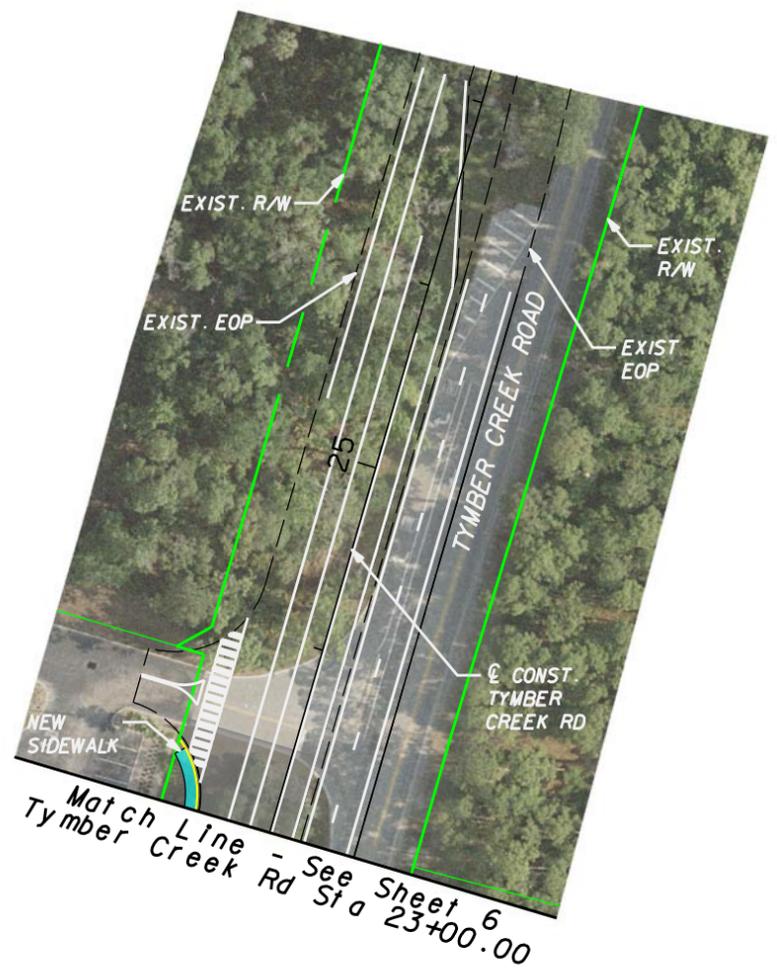
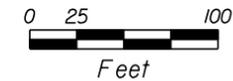
- NEW PAVEMENT
- MILL AND RESURFACE EXISTING PAVEMENT
- TURF MEDIAN/SHOULDER
- SIDEWALK/SHARED USE PATH
- PAVED MEDIAN/ISLAND
- FEMA FLOODPLAIN
- EXISTING WETLANDS
- EXISTING FDOT STORMWATER POND

**PREFERRED ALTERNATIVE
 RURAL TYPICAL SECTION (WEST)
 TO URBAN TYPICAL SECTION (EAST)**

PRELIMINARY PLANS NOT FOR CONSTRUCTION

| REVISIONS | | | | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1401+00 to Sta 1415+00 | SHEET NO. 10 |
|-----------|-------------|------|-------------|--|---------|----------------------|--|---------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | 40 | VOLUSIA | 428947-1-22-01 | | |

Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE
 P.E. License No.: 25730
KITTELSON & ASSOCIATES, INC.
 TRANSPORTATION ENGINEERING / PLANNING
 225 E. Robinson St, Suite 450, ORLANDO FL 32801
 CERTIFICATE OF AUTHORIZATION NO. 007524



LEGEND

| | |
|--------------------------------------|--|
| NEW PAVEMENT | |
| MILL AND RESURFACE EXISTING PAVEMENT | |
| TURF MEDIAN/SHOULDER | |
| SIDEWALK/SHARED USE PATH | |
| PAVED MEDIAN/ISLAND | |
| FEMA FLOODPLAIN | |
| EXISTING WETLANDS | |
| EXISTING FDOT STORMWATER POND | |

PRELIMINARY PLANS NOT FOR CONSTRUCTION

PREFERRED ALTERNATIVE
RURAL TYPICAL SECTION (WEST)
TO URBAN TYPICAL SECTION (EAST)

| REVISIONS | | | | Engineer of Record: JOHN R. FREEMAN, JR., P.E., PTOE P.E. License No.: 25730 KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING / PLANNING 225 E. Robinson St, Suite 450, ORLANDO FL 32801 CERTIFICATE OF AUTHORIZATION NO. 007524 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SR 40 PD&E Study Sta 1387+00 to Sta 1401+00 | SHEET NO. 11 |
|-----------|-------------|------|-------------|--|--|---------|----------------------|--|---------------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | 40 | VOLUSIA | 428947-1-22-01 | | |

Appendix D
Construction Cost
Estimate

Date: 10/09/2014
 FDOT Long Range Estimating System - Production
 R1: Project Summary without Components Report

Project: 428947-1-52-01 Letting Date: Jan-99
 Description: SR 40 from Breakaway Trail to Williamson Boulevard
 District: 05 County: 79 VOLUSIA
 Project Manager: MIM

Description: Alternative B: SR 40 from Breakaway Trail to Williamson Boulevard Typical Section 1 (West) to Typical Section 4 (East)

| | | |
|-----------------------|--|--|
| Sequence 1 WDR Total | \$4,776,645.00 | |
| Description: | Typical Section 1 - West Segment Breakaway Trail to Tymber Creek Rd (Sta 1281+00 to Sta 1345+00) Widen to Outside - existing wide median | |
| Sequence 2 WDU Total | \$4,261,540.00 | |
| Description: | Typical Section 4 - East Segment Inside Widening Sta 1345+00 to Sta 1388+00 | |
| Sequence 3 WDU Total | \$1,003,435.00 | |
| Description: | Widening, re-alignment for SR40 from Interchange Blvd to Williamson Rd (Sta 1392+00 to Sta 1402+00) | |
| Sequence 4 WDU Total | \$224,115.00 | |
| Description: | Resurfacing of SR40 between I-95 to east of Williamson Rd (STA 1388+00 to STA 1405+00) - not covered in widening for this segment | |
| Sequence 5 WDU Total | \$232,205.00 | |
| Description: | WIDENING/RESURFACING OF TYMBER CREEK RD AT SR40 INTERSECTION. 225 FEET SOUTH, 500 FT NORTH OF INTERSECTION | |
| Sequence 6 WDU Total | \$98,440.00 | |
| Description: | WIDENING/RESURFACING OF BOOTH RD AT SR40 INTERSECTION. 275 FEET SOUTH. WIDEN TO WEST SIDE BY 12' | |
| Sequence 7 WDU Total | \$223,745.00 | |
| Description: | WIDENING/RESURFACING OF WILLIAMSON BLVD AT SR40 INTERSECTION. 550 FEET SOUTH. WIDEN TO EAST SIDE AND INSIDE WIDENING | |
| Sequence 8 Misc Total | \$1,804,385.00 | |
| Description: | WIDENING OF TOMOKA RIVER BRIDGE BOTH DIRECTIONS | |

| | | | |
|---|------------|---------------|------------------------|
| Construction Sequences Subtotal | | Total Project | \$12,624,510.00 |
| Maintenance of Traffic | 10.00% | | \$1,262,451.00 |
| Mobilization | 10.00% | | \$1,388,696.10 |
| Project Unknowns | 15.00% | | \$2,291,348.57 |
| Project Non-Bid Subtotal | | | \$150,000.00 |
| Project Construction Grand Total | | | \$17,717,005.67 |
| Final Design Fees | 12% | | \$2,126,040.68 |
| C.E.I. | 17% | | \$3,011,890.96 |
| Right-of-Way Acquisition | | | \$7,430,500.00 |
| Wetland Mitigation | 1.18 acres | | \$131,482.68 |
| Project Grand Total Cost | | | \$30,416,919.99 |

Date: 10/9/2014 10:46:59 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 428947-1-52-01

Letting Date: 01/2099

Description: SR 40 FROM BREAKAWAY TRAIL TO WILLIAMSON BLVD

District: 05 County: 79 VOLUSIA

Market Area: 06 Units: English

Contract Class: 1 Lump Sum Project: N

Design/Build: N Project Length: 2.420 MI

Project Manager: MIM

Version 11 Project Grand Total

\$16,209,253.82

Description: Preferred Alternative B, updated with revised bridge cross-section and 2014 bid item costs.

Sequence: 1 WDR - Widen/Resurface, Divided, Rural

Net Length: 1.212 MI
6,400 LF

Description: Typical Section 1 - West Segment Breakaway Trail to Tymber Creek Rd (Sta 1281+00 to Sta 1345+00) Widen to Outside - existing wide median

EARTHWORK COMPONENT

User Input Data

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 12.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 1.212 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|----------------------------------|----------|------|------------|-----------------|
| 110-1-1 | CLEARING & GRUBBING | 3.53 | AC | \$7,387.05 | \$26,076.29 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 6,442.02 | CY | \$11.81 | \$76,080.26 |

X-Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|-----------|------|------------|-----------------|
| 120-6 | EMBANKMENT | 17,780.00 | CY | \$6.27 | \$111,480.60 |
| | Comment: Embankment for MUP and sidewalk berms. Assumed 50 sq. ft. end area for MUP, 25 sq. ft. end area for sidewalk | | | | |

Earthwork Component Total

\$213,637.15

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 24.00 / 24.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 12.00 / 12.00 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|-----------|------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 31,288.34 | SY | \$3.66 | \$114,515.32 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 17,535.69 | SY | \$15.32 | \$268,646.77 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 34,132.74 | SY | \$2.50 | \$85,331.85 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 3,754.60 | TN | \$94.55 | \$354,997.43 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 2,815.95 | TN | \$94.55 | \$266,248.07 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 1,365.31 | TN | \$131.82 | \$179,975.16 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 682.65 | TN | \$131.82 | \$89,986.92 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 15.00 |
| Milling Code | Y |
| Stabilization Code | Y |
| Base Code | Y |
| Friction Course Code | Y |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|----------|------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 4,693.25 | SY | \$3.66 | \$17,177.29 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 2,630.35 | SY | \$15.32 | \$40,296.96 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 5,119.91 | SY | \$2.50 | \$12,799.78 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 563.19 | TN | \$94.55 | \$53,249.61 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 204.80 | TN | \$131.82 | \$26,996.74 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |

| | |
|---------------------------------------|---|
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 818.00 EA | \$3.37 | \$2,756.66 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 4.85 NM | \$900.88 | \$4,369.27 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 4.85 GM | \$382.58 | \$1,855.51 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 4.85 NM | \$4,131.67 | \$20,038.60 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 4.85 GM | \$1,175.57 | \$5,701.51 |

Peripherals Subcomponent

| Description | Value |
|----------------------------------|-------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 6.00 / 6.00 |
| Bike Path Structural Spread Rate | 125 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|-------------------------------------|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 11,377.58 SY | \$3.66 | \$41,641.94 |
| 285-701 | OPTIONAL BASE,BASE GROUP 01 | 8,533.18 SY | \$9.92 | \$84,649.15 |
| 334-1-11 | SUPERPAVE ASPHALTIC CONC, TRAFFIC A | 533.32 TN | \$102.73 | \$54,787.96 |

Roadway Component Total

\$1,726,022.51

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|---------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 10.00 / 10.00 |
| Total Outside Shoulder Perf. Turf Width L/R | 2.67 / 2.67 |
| Existing Paved Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Outside Shoulder Width L/R | 5.00 / 5.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips No. of Sides | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|-------------------------------------|---------------|------------|-----------------|
| 285-704 | OPTIONAL BASE,BASE GROUP 04 | 7,580.31 SY | \$11.37 | \$86,188.12 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 391.10 TN | \$94.55 | \$36,978.50 |
| 337-7-5 | | 284.44 TN | \$131.82 | \$37,494.88 |

| | | | | |
|---------|---|-------------|--------|------------|
| 570-1-1 | ASPH CONC FC, INC BIT/RUBBER, FC-5 PERFORMANCE TURF | 3,797.27 SY | \$0.64 | \$2,430.25 |
|---------|---|-------------|--------|------------|

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 522-1 | CONC SIDEWALK AND DRIVEWAYS, 4" THICK Comment: 5' wide sidewalk south side for length of segment. | 3,556.00 SY | \$31.85 | \$113,258.60 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 104-10-3 | SEDIMENT BARRIER | 14,719.74 LF | \$1.36 | \$20,018.85 |
| 104-11 | FLOATING TURBIDITY BARRIER | 121.21 LF | \$8.50 | \$1,030.29 |
| 104-12 | STAKED TURBIDITY BARRIER- NYL REINF PVC | 121.21 LF | \$3.79 | \$459.39 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 2.00 EA | \$1,983.88 | \$3,967.76 |
| 107-1 | LITTER REMOVAL | 4.12 AC | \$23.51 | \$96.86 |
| 107-2 | MOWING | 4.12 AC | \$39.97 | \$164.68 |

Shoulder Component Total

\$302,088.19

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|--|-------------|
| Total Median Width | 40.00 |
| Performance Turf Width | 0.00 |
| New Total Median Shoulder Width L/R | 0.00 / 0.00 |
| New Paved Median Shoulder Width L/R | 0.00 / 0.00 |
| Existing Total Median Shoulder Width L/R | 8.00 / 8.00 |
| Existing Paved Median Shoulder Width L/R | 4.00 / 0.00 |
| Structural Spread Rate | 110 |
| Friction Course Spread Rate | 80 |
| Total Width (T) / 8" Overlap (O) | T |
| Rumble Strips No. of Sides | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 327-70-1 | MILLING EXIST ASPH PAVT, 1" AVG DEPTH | 2,844.39 SY | \$2.11 | \$6,001.66 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 156.44 TN | \$94.55 | \$14,791.40 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 | 113.78 TN | \$131.82 | \$14,998.48 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 327-70-1 | MILLING EXIST ASPH PAVT, 1" AVG DEPTH Comment: Milling of 4' right side median shoulder from Sta 1320+59 to Sta 1342+65 | 980.00 SY | \$2.11 | \$2,067.80 |

| | | | | |
|-------------------------------|---|----------|----------|-------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C Comment: 1" Overlay of 4' right median shoulder from Sta 1320+59 to Sta 1342+65 | 53.90 TN | \$94.55 | \$5,096.24 |
| 337-7-5 | ASPH CONC FC, INC BIT/RUBBER, FC-5 Comment: Friction Course Overlay of 4' right median shoulder from Sta 1320+59 to Sta 1342+65. Spread rate 80 lb/sq. yd. | 39.20 TN | \$131.82 | \$5,167.34 |
| Median Component Total | | | | \$48,122.93 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|--|---------------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 21.82 CY | \$1,354.57 | \$29,556.72 |
| 430-174-124 | PIPE CULV, OPT MATL, ROUND,24"SD | 2,280.00 LF | \$78.66 | \$179,344.80 |
| 430-984-129 | MITERED END SECT, OPTIONAL RD, 24" SD | 49.00 EA | \$1,258.40 | \$61,661.60 |
| 570-1-1 | PERFORMANCE TURF | 853.32 SY | \$0.64 | \$546.12 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|---|---------------|------------|-----------------|
| 425-1-512 | INLETS, DT BOT, TYPE B, >10' Comment: Median inlets | 7.00 EA | \$4,502.73 | \$31,519.11 |
| 425-1-542 | INLETS, DT BOT, TYPE D, >10' Comment: Lateral and trunkline inlets | 31.00 EA | \$5,165.34 | \$160,125.54 |
| 430-175-118 | PIPE CULV, OPT MATL, ROUND, 18"S/CD Comment: Per InWood Estimate | 4,208.00 LF | \$53.78 | \$226,306.24 |
| 430-175-130 | PIPE CULV, OPT MATL, ROUND, 30"S/CD Comment: Per InWood Estimate | 1,144.00 LF | \$80.36 | \$91,931.84 |

Retention Basin 1

| Description | Value |
|-------------|--|
| Size | 5 AC |
| Multiplier | 1 |
| Depth | 10.00 |
| Description | Preferred Pond 1 for Drainage Basin 1 = 5.69 acres total Pond 1 area reduced for existing FDOT pond area within Pond Alt 1 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|------------------------------|---------------|------------|-----------------|
| 110-1-1 | CLEARING & GRUBBING | 5.00 AC | \$7,387.05 | \$36,935.25 |
| 120-1 | REGULAR EXCAVATION | 80,666.67 CY | \$4.66 | \$375,906.68 |
| 400-2-2 | CONC CLASS II, ENDWALLS | 30.00 CY | \$1,354.57 | \$40,637.10 |
| 425-1-541 | INLETS, DT BOT, TYPE D, <10' | 1.00 EA | \$3,183.98 | \$3,183.98 |
| 425-2-71 | MANHOLES, J-7, <10' | 2.00 EA | \$6,428.86 | \$12,857.72 |
| 430-175-142 | | 56.00 LF | \$124.09 | \$6,949.04 |

| | | | | |
|-------------|---|--------------|------------|-------------|
| | PIPE CULV, OPT MATL, ROUND, 42"S/CD | | | |
| 430-175-160 | PIPE CULV, OPT MATL, ROUND, 60"S/CD | 400.00 LF | \$245.70 | \$98,280.00 |
| 550-10-220 | FENCING, TYPE B, 5.1-6.0', STANDARD | 1,860.00 LF | \$10.04 | \$18,674.40 |
| 550-60-234 | FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN | 2.00 EA | \$2,671.64 | \$5,343.28 |
| 570-1-1 | PERFORMANCE TURF | 24,200.00 SY | \$0.64 | \$15,488.00 |

Retention Basin 2

| | |
|--------------------|---|
| Description | Value |
| Size | 5 AC |
| Multiplier | 1 |
| Depth | 10.00 |
| Description | Preferred Pond 2B-1 for Drainage Basin 1 and 2 = 4.41 acres total |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|---|---------------|------------|-----------------|
| 110-1-1 | CLEARING & GRUBBING | 5.00 AC | \$7,387.05 | \$36,935.25 |
| 120-1 | REGULAR EXCAVATION | 80,666.67 CY | \$4.66 | \$375,906.68 |
| 400-2-2 | CONC CLASS II, ENDWALLS | 30.00 CY | \$1,354.57 | \$40,637.10 |
| 425-1-541 | INLETS, DT BOT, TYPE D, <10' | 1.00 EA | \$3,183.98 | \$3,183.98 |
| 425-2-71 | MANHOLES, J-7, <10' | 2.00 EA | \$6,428.86 | \$12,857.72 |
| 430-175-142 | PIPE CULV, OPT MATL, ROUND, 42"S/CD | 56.00 LF | \$124.09 | \$6,949.04 |
| 430-175-160 | PIPE CULV, OPT MATL, ROUND, 60"S/CD | 400.00 LF | \$245.70 | \$98,280.00 |
| 550-10-220 | FENCING, TYPE B, 5.1-6.0', STANDARD | 1,860.00 LF | \$10.04 | \$18,674.40 |
| 550-60-234 | FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN | 2.00 EA | \$2,671.64 | \$5,343.28 |
| 570-1-1 | PERFORMANCE TURF | 24,200.00 SY | \$0.64 | \$15,488.00 |

Retention Basin 3

| | |
|--------------------|---|
| Description | Value |
| Size | 1.5 AC |
| Multiplier | 1 |
| Depth | 10.00 |
| Description | Preferred Pond 2B-2 for Drainage Basin 1 and 2 = 1.55 acres total |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|--|---------------|------------|-----------------|
| 110-1-1 | CLEARING & GRUBBING | 1.50 AC | \$7,387.05 | \$11,080.58 |
| 120-1 | REGULAR EXCAVATION | 24,200.00 CY | \$4.66 | \$112,772.00 |
| 400-2-2 | CONC CLASS II, ENDWALLS | 18.00 CY | \$1,354.57 | \$24,382.26 |
| 425-1-541 | INLETS, DT BOT, TYPE D, <10' | 1.00 EA | \$3,183.98 | \$3,183.98 |
| 425-2-71 | MANHOLES, J-7, <10' | 1.00 EA | \$6,428.86 | \$6,428.86 |
| 430-175-142 | PIPE CULV, OPT MATL, ROUND, 42"S/CD | 56.00 LF | \$124.09 | \$6,949.04 |
| 430-175-160 | | 200.00 LF | \$245.70 | \$49,140.00 |

| | | | | |
|---------------------------------|---|-------------|------------|-----------------------|
| | PIPE CULV, OPT MATL, ROUND, 60"S/CD | | | |
| 550-10-220 | FENCING, TYPE B, 5.1-6.0', STANDARD | 1,025.00 LF | \$10.04 | \$10,291.00 |
| 550-60-234 | FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN | 1.00 EA | \$2,671.64 | \$2,671.64 |
| 570-1-1 | PERFORMANCE TURF | 7,260.00 SY | \$0.64 | \$4,646.40 |
| Drainage Component Total | | | | \$2,241,048.63 |

SIGNING COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 3.00 AS | \$334.09 | \$1,002.27 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 30.00 AS | \$920.39 | \$27,611.70 |
| 700-1-50 | SINGLE POST SIGN, RELOCATE | 3.00 AS | \$202.86 | \$608.58 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 30.00 AS | \$18.20 | \$546.00 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 3.00 AS | \$452.81 | \$1,358.43 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 700-2-13 | MULTI- POST SIGN, F&I GM, 21-30 SF | 3.00 AS | \$3,368.34 | \$10,105.02 |

Signing Component Total**\$41,232.00****SIGNALIZATIONS COMPONENT****Signalization 1**

| Description | Value |
|-------------|---|
| Type | 6 Lane Mast Arm |
| Multiplier | 1 |
| Description | Breakaway Trail Traffic Signal Replacement |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|-------------|-----------------|
| 630-1-12 | CONDUIT, F& I, UNDERGROUND | 700.00 LF | \$4.68 | \$3,276.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 300.00 LF | \$15.73 | \$4,719.00 |
| 632-7-1 | SIGNAL CABLE- NEW OR RECO, FUR & INSTALL | 1.00 PI | \$4,361.14 | \$4,361.14 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 22.00 EA | \$495.48 | \$10,900.56 |
| 639-2-1 | ELECTRICAL SERVICE WIRE | 60.00 LF | \$4.26 | \$255.60 |
| 641-2-11 | PREST CNC POLE, F&I, TYP P-II, PEDESTAL | 1.00 EA | \$865.71 | \$865.71 |
| 649-1-10 | STEEL STRAIN POLE, F&I, PEDESTAL | 1.00 EA | \$760.46 | \$760.46 |
| 649-31-105 | M/ARM, F&I, WS-150, SINGLE ARM, W/O LUM-78 | 3.00 EA | \$38,207.54 | \$114,622.62 |
| 650-1-311 | TRAFFIC SIGNAL, F&I, 3 SECT, 1 WAY, ALUMINUM | 15.00 AS | \$976.14 | \$14,642.10 |

| | | | | |
|-----------|--|----------|-------------|-------------|
| 653-191 | PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1 | 6.00 AS | \$594.67 | \$3,568.02 |
| 660-1-102 | LOOP DETECTOR INDUCTIVE, F&I, TYPE 2 | 15.00 EA | \$189.52 | \$2,842.80 |
| 660-2-106 | LOOP ASSEMBLY, F&I, TYPE F | 15.00 AS | \$654.94 | \$9,824.10 |
| 665-1-12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | 6.00 EA | \$1,458.12 | \$8,748.72 |
| 670-5-111 | TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT | 1.00 AS | \$22,568.99 | \$22,568.99 |
| 700-3-101 | SIGN PANEL, F&I GM, UP TO 12 SF | 3.00 EA | \$217.36 | \$652.08 |

X-Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-----------|---------------------------------------|----------|------|------------|-----------------|
| 639-1-122 | ELECTRICAL POWER SRV,F&I, UG,PUR CONT | 1.00 | AS | \$1,883.09 | \$1,883.09 |

Signalizations Component Total

\$204,490.99

Sequence 1 Total

\$4,776,642.40

Sequence: 2 WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.814 MI
4,300 LF**Description:** Typical Section 4 (5' bike lanes) - East Segment Inside Widening Sta 1345+00 to Sta 1388+00**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 12.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.814 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 5.00 % / 5.00 % |
| Existing Outside Shoulder Cross Slope L/R | 6.00 % / 6.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|-----------|------|------------|---------------------|
| 110-1-1 | CLEARING & GRUBBING | 2.37 | AC | \$7,387.05 | \$17,507.31 |
| 120-1 | REGULAR EXCAVATION | 14,409.17 | CY | \$4.66 | \$67,146.73 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 20,429.45 | CY | \$11.81 | \$241,271.80 |
| Earthwork Component Total | | | | | \$325,925.84 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 24.00 / 24.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 5.00 / 5.00 |
| Widened Inside Pavement Width L/R | 12.00 / 12.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|-----------|------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 21,175.27 | SY | \$3.66 | \$77,501.49 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 16,875.24 | SY | \$15.32 | \$258,528.68 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 22,933.50 | SY | \$2.50 | \$57,333.75 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 2,522.69 | TN | \$94.55 | \$238,520.34 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 2,680.35 | TN | \$94.55 | \$253,427.09 |

| | | | | |
|----------|---|-----------|----------|-------------|
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 917.34 TN | \$101.14 | \$92,779.77 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 649.78 TN | \$101.14 | \$65,718.75 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------|---|---------------|------------|-----------------|
| 515-2-311 | PED/BICYCLE RAILING, ALUM,42" TYPE 1 Comment: for approaches to Tomoka River bridge | 1,200.00 LF | \$58.36 | \$70,032.00 |
| 536-1-3 | GUARDRAIL- ROADWAY, DOUBLE FACE Comment: Median barrier at Tomoka River Bridge | 500.00 LF | \$21.25 | \$10,625.00 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 20.00 |
| Milling Code | Y |
| Stabilization Code | Y |
| Base Code | Y |
| Friction Course Code | Y |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 4,235.05 SY | \$3.66 | \$15,500.28 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 3,375.05 SY | \$15.32 | \$51,705.77 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 4,586.70 SY | \$2.50 | \$11,466.75 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 504.54 TN | \$94.55 | \$47,704.26 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 183.47 TN | \$101.14 | \$18,556.16 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 550.00 EA | \$3.37 | \$1,853.50 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 3.26 NM | \$900.88 | \$2,936.87 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 3.26 GM | \$382.58 | \$1,247.21 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 3.26 NM | \$4,131.67 | \$13,469.24 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 3.26 GM | \$1,175.57 | \$3,832.36 |

Peripherals Subcomponent

| Description | Value |
|----------------------------------|-------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 6.00 / 6.00 |
| Bike Path Structural Spread Rate | 100 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|--------------------------------|---|----------|------|-------------|-----------------------|
| 160-4 | TYPE B STABILIZATION | 7,644.50 | SY | \$3.66 | \$27,978.87 |
| 285-701 | OPTIONAL BASE,BASE GROUP 01 | 5,733.38 | SY | \$9.92 | \$56,875.13 |
| 334-1-11 | SUPERPAVE ASPHALTIC CONC, TRAFFIC A | 286.67 | TN | \$102.73 | \$29,449.61 |
| 339-1 | MISCELLANEOUS ASPHALT PAVEMENT | 50.33 | TN | \$155.10 | \$7,806.18 |
| 536-1-1 | GUARDRAIL- ROADWAY | 1,450.00 | LF | \$15.91 | \$23,069.50 |
| 536-8 | GUARDRAIL- BRIDGE ANCHORAGE ASSEM, F&I | 6.00 | EA | \$2,219.78 | \$13,318.68 |
| 536-85-22 | GUARDRAIL END ANCHORAGE ASSEMBLY- FLARED | 4.00 | EA | \$1,884.82 | \$7,539.28 |
| 544-75-1 | CRASH CUSHION | 2.00 | EA | \$17,660.47 | \$35,320.94 |
| Roadway Component Total | | | | | \$1,494,097.46 |

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|--------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 8.25 / 12.25 |
| Total Outside Shoulder Perf. Turf Width L/R | 6.00 / 5.00 |
| Sidewalk Width L/R | 0.00 / 5.00 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|----------|------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 4,300.03 | LF | \$18.26 | \$78,518.55 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 4,300.03 | LF | \$18.26 | \$78,518.55 |
| 522-1 | CONC SIDEWALK AND DRIVEWAYS, 4" THICK | 2,388.91 | SY | \$31.85 | \$76,086.78 |
| 570-1-1 | PERFORMANCE TURF | 5,255.59 | SY | \$0.64 | \$3,363.58 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|----------|------|------------|-----------------|
| 104-10-3 | SEDIMENT BARRIER | 8,600.06 | LF | \$1.36 | \$11,696.08 |
| 104-11 | FLOATING TURBIDITY BARRIER | 81.44 | LF | \$8.50 | \$692.24 |
| 104-12 | STAKED TURBIDITY BARRIER- NYL REINF PVC | 81.44 | LF | \$3.79 | \$308.66 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 | EA | \$1,983.88 | \$1,983.88 |

| | | | | |
|---------------------------------|-------------------------|----------|---------|---------------------|
| 104-18 | INLET PROTECTION SYSTEM | 38.00 EA | \$77.78 | \$2,955.64 |
| 107-1 | LITTER REMOVAL | 1.55 AC | \$23.51 | \$36.44 |
| 107-2 | MOWING | 1.55 AC | \$39.97 | \$61.95 |
| Shoulder Component Total | | | | \$254,222.35 |

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|------------------------|-------|
| Total Median Width | 22.00 |
| Performance Turf Width | 17.50 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------------------------|--------------------------------|---------------|------------|---------------------|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 8,600.06 LF | \$13.59 | \$116,874.82 |
| 570-1-1 | PERFORMANCE TURF | 8,361.17 SY | \$0.64 | \$5,351.15 |
| Median Component Total | | | | \$122,225.97 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|-------------------------------------|---------------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 14.66 CY | \$1,354.57 | \$19,858.00 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 2,416.00 LF | \$62.80 | \$151,724.80 |
| 570-1-1 | PERFORMANCE TURF | 247.58 SY | \$0.64 | \$158.45 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|---|---------------|------------|-----------------|
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 26.00 EA | \$4,209.69 | \$109,451.94 |
| | Comment: Per InWood estimate - for lateral, trunkline, and median (half Type 5, half type 6) | | | |
| 425-1-361 | INLETS, CURB, TYPE P-6, <10' | 26.00 EA | \$4,684.52 | \$121,797.52 |
| | Comment: Per InWood estimate - for lateral, trunkline, and median (half Type 5, half type 6) | | | |
| 430-175-118 | PIPE CULV, OPT MATL, ROUND, 18"S/CD | 4,104.00 LF | \$53.78 | \$220,713.12 |
| | Comment: Per InWood estimate - for lateral and trunkline | | | |
| 430-175-130 | PIPE CULV, OPT MATL, ROUND, 30"S/CD | 768.00 LF | \$80.36 | \$61,716.48 |
| | Comment: Per InWood estimate - for trunkline | | | |

Retention Basin 1

| Description | Value |
|-------------|---|
| Size | 1 AC |
| Multiplier | 1 |
| Depth | 6.00 |
| Description | Preferred Pond #3B - total area = 1.17 acres. Existing FDOT pond = 0.96 acres |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|---|---------------|------------|---------------------|
| 110-1-1 | CLEARING & GRUBBING | 1.00 AC | \$7,387.05 | \$7,387.05 |
| 120-1 | REGULAR EXCAVATION | 9,680.00 CY | \$4.66 | \$45,108.80 |
| 400-2-2 | CONC CLASS II, ENDWALLS | 18.00 CY | \$1,354.57 | \$24,382.26 |
| 425-1-541 | INLETS, DT BOT, TYPE D, <10' | 1.00 EA | \$3,183.98 | \$3,183.98 |
| 425-2-71 | MANHOLES, J-7, <10' | 1.00 EA | \$6,428.86 | \$6,428.86 |
| 430-175-142 | PIPE CULV, OPT MATL, ROUND, 42"S/CD | 56.00 LF | \$124.09 | \$6,949.04 |
| 430-175-160 | PIPE CULV, OPT MATL, ROUND, 60"S/CD | 200.00 LF | \$245.70 | \$49,140.00 |
| 550-10-220 | FENCING, TYPE B, 5.1-6.0', STANDARD | 840.00 LF | \$10.04 | \$8,433.60 |
| 550-60-234 | FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN | 1.00 EA | \$2,671.64 | \$2,671.64 |
| 570-1-1 | PERFORMANCE TURF | 4,840.00 SY | \$0.64 | \$3,097.60 |
| Drainage Component Total | | | | \$842,203.14 |

SIGNING COMPONENT

| Pay Items | | | | |
|--------------------------------|---------------------------------------|---------------|------------|--------------------|
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 18.00 AS | \$334.09 | \$6,013.62 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 2.00 AS | \$920.39 | \$1,840.78 |
| 700-1-50 | SINGLE POST SIGN, RELOCATE | 2.00 AS | \$202.86 | \$405.72 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 18.00 AS | \$18.20 | \$327.60 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 2.00 AS | \$452.81 | \$905.62 |
| X-Items | | | | |
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 700-2-13 | MULTI- POST SIGN, F&I GM, 21-30 SF | 2.00 AS | \$3,368.34 | \$6,736.68 |
| Signing Component Total | | | | \$16,230.02 |

SIGNALIZATIONS COMPONENT

Signalization 1

| Description | Value |
|-------------|---|
| Type | 6 Lane Mast Arm |
| Multiplier | 1 |
| Description | SR40/Tymber Creek Road intersection. Replace signal. |

| Pay Items | | | | |
|-----------|---|---------------|------------|-----------------|
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 630-1-12 | CONDUIT, F& I, UNDERGROUND | 700.00 LF | \$4.68 | \$3,276.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 300.00 LF | \$15.73 | \$4,719.00 |
| 632-7-1 | SIGNAL CABLE- NEW OR RECO, FUR & INSTALL | 1.00 PI | \$4,361.14 | \$4,361.14 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 22.00 EA | \$495.48 | \$10,900.56 |
| 639-2-1 | ELECTRICAL SERVICE WIRE | 60.00 LF | \$4.26 | \$255.60 |

| | | | | |
|------------|--|----------|-------------|--------------|
| 641-2-11 | PREST CNC POLE,F&I,TYP P-II,PEDESTAL | 1.00 EA | \$865.71 | \$865.71 |
| 649-1-10 | STEEL STRAIN POLE, F&I, PEDESTAL | 1.00 EA | \$760.46 | \$760.46 |
| 649-31-105 | M/ARM,F&I, WS-150,SINGLE ARM,W/O LUM-78 | 4.00 EA | \$38,207.54 | \$152,830.16 |
| 650-1-311 | TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM | 20.00 AS | \$976.14 | \$19,522.80 |
| 653-191 | PEDESTRIAN SIGNAL, F&I, LED- COUNT DWN, 1 | 8.00 AS | \$594.67 | \$4,757.36 |
| 660-1-102 | LOOP DETECTOR INDUCTIVE, F&I, TYPE 2 | 20.00 EA | \$189.52 | \$3,790.40 |
| 660-2-106 | LOOP ASSEMBLY, F&I, TYPE F | 20.00 AS | \$654.94 | \$13,098.80 |
| 665-1-12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | 8.00 EA | \$1,458.12 | \$11,664.96 |
| 670-5-111 | TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT | 1.00 AS | \$22,568.99 | \$22,568.99 |
| 700-3-101 | SIGN PANEL, F&I GM, UP TO 12 SF | 4.00 EA | \$217.36 | \$869.44 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------|--|---------------|------------|-----------------|
| 639-1-122 | ELECTRICAL POWER SRV,F&I, UG,PUR CONT | 1.00 AS | \$1,883.09 | \$1,883.09 |

Signalization 2

| Description | Value |
|-------------|--|
| Type | 6 Lane Mast Arm |
| Multiplier | 1 |
| Description | SR40/Booth Road intersection. Replace signal. |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|--|---------------|-------------|-----------------|
| 630-1-12 | CONDUIT, F& I, UNDERGROUND | 700.00 LF | \$4.68 | \$3,276.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 300.00 LF | \$15.73 | \$4,719.00 |
| 632-7-1 | SIGNAL CABLE- NEW OR RECO, FUR & INSTALL | 1.00 PI | \$4,361.14 | \$4,361.14 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 22.00 EA | \$495.48 | \$10,900.56 |
| 639-2-1 | ELECTRICAL SERVICE WIRE | 60.00 LF | \$4.26 | \$255.60 |
| 641-2-11 | PREST CNC POLE,F&I,TYP P-II,PEDESTAL | 1.00 EA | \$865.71 | \$865.71 |
| 649-1-10 | STEEL STRAIN POLE, F&I, PEDESTAL | 1.00 EA | \$760.46 | \$760.46 |
| 649-31-105 | M/ARM,F&I, WS-150,SINGLE ARM,W/O LUM-78 | 4.00 EA | \$38,207.54 | \$152,830.16 |
| 650-1-311 | TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM | 20.00 AS | \$976.14 | \$19,522.80 |
| 653-191 | PEDESTRIAN SIGNAL, F&I, LED- COUNT DWN, 1 | 8.00 AS | \$594.67 | \$4,757.36 |
| 660-1-102 | LOOP DETECTOR INDUCTIVE, F&I, TYPE 2 | 20.00 EA | \$189.52 | \$3,790.40 |
| 660-2-106 | LOOP ASSEMBLY, F&I, TYPE F | 20.00 AS | \$654.94 | \$13,098.80 |
| 665-1-12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | 8.00 EA | \$1,458.12 | \$11,664.96 |

| | | | | |
|-----------|--|---------|-------------|-------------|
| 670-5-111 | TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT | 1.00 AS | \$22,568.99 | \$22,568.99 |
| 700-3-101 | SIGN PANEL, F&I GM, UP TO 12 SF | 4.00 EA | \$217.36 | \$869.44 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------|--|---------------|------------|-----------------|
| 639-1-122 | ELECTRICAL POWER SRV,F&I, UG,PUR CONT | 1.00 AS | \$1,883.09 | \$1,883.09 |

Signalizations Component Total \$512,248.94

LIGHTING COMPONENT**Conventional Lighting Subcomponent**

| Description | | | | Value |
|---------------------------------|--|---------------|------------|---------------------|
| Spacing | | | | MIN |
| Pay Items | | | | |
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 4,300.03 LF | \$5.80 | \$24,940.17 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 853.49 LF | \$15.73 | \$13,425.40 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 29.00 EA | \$495.48 | \$14,368.92 |
| 715-1-13 | LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2 | 15,704.89 LF | \$1.89 | \$29,682.24 |
| 715-500-1 | POLE CABLE DIST SYS, CONVENTIONAL | 29.00 EA | \$835.52 | \$24,230.08 |
| 715-511-140 | LIGHT POLE COMP,F&I,SGL ARM SM, AL,40' | 29.00 EA | \$8,608.24 | \$249,638.96 |
| Subcomponent Total | | | | \$356,285.77 |
| Lighting Component Total | | | | \$356,285.77 |

RETAINING WALLS COMPONENT**Retaining Wall 1**

| Description | Value |
|--------------|--------|
| Length | 200.00 |
| Begin height | 20.00 |
| End Height | 10.00 |
| Multiplier | 1 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--------------------------------------|---------------|------------|-----------------|
| 548-12 | RET WALL SYSTEM, PERM, EX BARRIER | 3,000.00 SF | \$32.20 | \$96,600.00 |

Retaining Wall 2

| Description | Value |
|--------------|--------|
| Length | 200.00 |
| Begin height | 20.00 |
| End Height | 10.00 |
| Multiplier | 1 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-----------------|-----------------------------------|-----------------|-------------|-------------------|------------------------|
| 548-12 | RET WALL SYSTEM, PERM, EX BARRIER | 3,000.00 | SF | \$32.20 | \$96,600.00 |

Retaining Wall 3

| Description | Value |
|--------------------|--------------|
| Length | 150.00 |
| Begin height | 20.00 |
| End Height | 10.00 |
| Multiplier | 1 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-----------------|-----------------------------------|-----------------|-------------|-------------------|------------------------|
| 548-12 | RET WALL SYSTEM, PERM, EX BARRIER | 2,250.00 | SF | \$32.20 | \$72,450.00 |

Retaining Wall 4

| Description | Value |
|--------------------|--------------|
| Length | 150.00 |
| Begin height | 20.00 |
| End Height | 10.00 |
| Multiplier | 1 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|-----------------|-----------------------------------|-----------------|-------------|-------------------|------------------------|
| 548-12 | RET WALL SYSTEM, PERM, EX BARRIER | 2,250.00 | SF | \$32.20 | \$72,450.00 |

| | |
|--|---------------------|
| Retaining Walls Component Total | \$338,100.00 |
|--|---------------------|

| | |
|-------------------------|-----------------------|
| Sequence 2 Total | \$4,261,539.49 |
|-------------------------|-----------------------|

Sequence: 3WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.189 MI
1,000 LF**Description:** Widening, re-alignment for SR40 from Interchange Blvd to Williamson Rd (Sta 1392+00 to Sta 1402+00)**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 12.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.189 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Existing Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|----------|------|------------|--------------------|
| 110-1-1 | CLEARING & GRUBBING | 0.55 | AC | \$7,387.05 | \$4,062.88 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 1,198.98 | CY | \$11.81 | \$14,159.95 |
| Earthwork Component Total | | | | | \$18,222.83 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 0 |
| Existing Roadway Pavement Width L/R | 0.00 / 0.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 12.00 / 12.00 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|---|----------|------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 3,240.10 | SY | \$3.66 | \$11,858.77 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 2,740.09 | SY | \$15.32 | \$41,978.18 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 440.01 | TN | \$94.55 | \$41,602.95 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 | 106.67 | TN | \$101.14 | \$10,788.60 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 5.00 |
| Milling Code | Y |
| Stabilization Code | Y |
| Base Code | Y |
| Friction Course Code | Y |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|-----------------------------|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 162.00 SY | \$3.66 | \$592.92 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 137.00 SY | \$15.32 | \$2,098.84 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|--|---------------|------------|-----------------|
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.76 NM | \$900.88 | \$684.67 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.76 NM | \$4,131.67 | \$3,140.07 |

Peripherals Subcomponent

| Description | Value |
|----------------------------------|-------------|
| Off Road Bike Path(s) | 0 |
| Off Road Bike Path Width L/R | 0.00 / 0.00 |
| Bike Path Structural Spread Rate | 0 |
| Noise Barrier Wall Length | 0.00 |
| Noise Barrier Wall Begin Height | 0.00 |
| Noise Barrier Wall End Height | 0.00 |

Roadway Component Total

\$112,745.00

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|---------------|
| Existing Total Outside Shoulder Width L/R | 12.25 / 12.25 |
| New Total Outside Shoulder Width L/R | 15.25 / 13.25 |
| Total Outside Shoulder Perf. Turf Width L/R | 5.00 / 5.00 |
| Sidewalk Width L/R | 8.00 / 6.00 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|-----------------------------------|---------------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 1,000.03 LF | \$18.26 | \$18,260.55 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 1,000.03 LF | \$18.26 | \$18,260.55 |

| | | | | |
|---------|---------------------------------------|-------------|---------|-------------|
| 522-1 | CONC SIDEWALK AND DRIVEWAYS, 4" THICK | 1,555.61 SY | \$31.85 | \$49,546.18 |
| 570-1-1 | PERFORMANCE TURF | 1,111.15 SY | \$0.64 | \$711.14 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E Comment: For miscellaneous widening along Williamson and SR40 | 450.00 LF | \$13.59 | \$6,115.50 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F Comment: For miscellaneous widening along Tymber Creek, Williamson and SR40 | 1,300.00 LF | \$18.26 | \$23,738.00 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|--|---------------|------------|-----------------|
| 104-10-3 | SEDIMENT BARRIER | 2,000.06 LF | \$1.36 | \$2,720.08 |
| 104-11 | FLOATING TURBIDITY BARRIER | 18.94 LF | \$8.50 | \$160.99 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 18.94 LF | \$3.79 | \$71.78 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 EA | \$1,983.88 | \$1,983.88 |
| 104-18 | INLET PROTECTION SYSTEM | 9.00 EA | \$77.78 | \$700.02 |
| 107-1 | LITTER REMOVAL | 0.36 AC | \$23.51 | \$8.46 |
| 107-2 | MOWING | 0.36 AC | \$39.97 | \$14.39 |
| Shoulder Component Total | | | | \$122,291.52 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|-------------------------------------|---------------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 3.41 CY | \$1,354.57 | \$4,619.08 |
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 7.00 EA | \$4,209.69 | \$29,467.83 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 2.00 EA | \$6,728.11 | \$13,456.22 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 104.00 LF | \$62.80 | \$6,531.20 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 32.00 LF | \$94.81 | \$3,033.92 |
| 570-1-1 | PERFORMANCE TURF | 57.58 SY | \$0.64 | \$36.85 |
| Drainage Component Total | | | | \$57,145.10 |

SIGNING COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|------------------------------------|---------------|------------|-----------------|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 5.00 AS | \$334.09 | \$1,670.45 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 1.00 AS | \$920.39 | \$920.39 |
| 700-1-50 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$202.86 | \$202.86 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 5.00 AS | \$18.20 | \$91.00 |

| | | | | |
|----------|--------------------------|---------|----------|----------|
| 700-2-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$452.81 | \$452.81 |
|----------|--------------------------|---------|----------|----------|

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|------------------------------------|---------------|------------|-----------------|
| 700-2-13 | MULTI- POST SIGN, F&I GM, 21-30 SF | 1.00 AS | \$3,368.34 | \$3,368.34 |

| | | | | |
|--------------------------------|--|--|--|------------|
| Signing Component Total | | | | \$6,705.85 |
|--------------------------------|--|--|--|------------|

SIGNALIZATIONS COMPONENT**Signalization 1**

| Description | Value |
|-------------|---|
| Type | Miscellaneous |
| Multiplier | 1 |
| Description | SR40/I-95 NB Ramps intersection. Replace one signal pole for WB RT lane widening. |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|---|---------------|-------------|-----------------|
| 630-1-12 | CONDUIT, F& I, UNDERGROUND | 100.00 LF | \$4.68 | \$468.00 |
| 635-2-40 | PULL & SPLICE BOX, RELOCATE | 4.00 EA | \$488.74 | \$1,954.96 |
| | Comment: For pole and cabinet relocation at I-95 NB Ramps | | | |
| 639-1-122 | ELECTRICAL POWER SRV,F&I, UG,PUR CONT | 1.00 AS | \$1,883.09 | \$1,883.09 |
| 639-2-1 | ELECTRICAL SERVICE WIRE | 50.00 LF | \$4.26 | \$213.00 |
| 639-3-12 | ELEC SERV DISCON, F&I, CABINET | 1.00 EA | \$4,070.00 | \$4,070.00 |
| 649-31-103 | M/ARM,F&I, WS-150,SINGLE ARM,W/O LUM-60 | 1.00 EA | \$33,176.14 | \$33,176.14 |
| | Comment: replace mast arm pole - NE corner of SR40/I-95 NB ramps | | | |
| 650-4 | TRAFFIC SIGNAL, RELOCATE | 2.00 AS | \$459.99 | \$919.98 |
| 653-400 | PEDESTRIAN SIGNAL, RELOCATE | 1.00 AS | \$306.17 | \$306.17 |
| 670-5-500 | TRAF CNTL ASSEM, RELOCATE | 1.00 AS | \$2,710.48 | \$2,710.48 |

Signalization 2

| Description | Value |
|-------------|--|
| Type | 6 Lane Mast Arm |
| Multiplier | 1 |
| Description | Replace signal at Williamson Blvd/SR40 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 630-1-12 | CONDUIT, F& I, UNDERGROUND | 700.00 LF | \$4.68 | \$3,276.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 300.00 LF | \$15.73 | \$4,719.00 |
| 632-7-1 | SIGNAL CABLE- NEW OR RECO, FUR & INSTALL | 1.00 PI | \$4,361.14 | \$4,361.14 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 22.00 EA | \$495.48 | \$10,900.56 |
| 639-2-1 | ELECTRICAL SERVICE WIRE | 60.00 LF | \$4.26 | \$255.60 |
| 641-2-11 | | 1.00 EA | \$865.71 | \$865.71 |

| | | | | |
|------------|--|----------|-------------|--------------|
| | PREST CNC POLE,F&I,TYP P-II,PEDESTAL | | | |
| 649-1-10 | STEEL STRAIN POLE, F&I, PEDESTAL | 1.00 EA | \$760.46 | \$760.46 |
| 649-31-105 | M/ARM,F&I, WS-150,SINGLE ARM,W/O LUM-78 | 4.00 EA | \$38,207.54 | \$152,830.16 |
| 650-1-311 | TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM | 20.00 AS | \$976.14 | \$19,522.80 |
| 653-191 | PEDESTRIAN SIGNAL, F&I, LED- COUNT DWN, 1 | 8.00 AS | \$594.67 | \$4,757.36 |
| 660-1-102 | LOOP DETECTOR INDUCTIVE, F&I, TYPE 2 | 20.00 EA | \$189.52 | \$3,790.40 |
| 660-2-106 | LOOP ASSEMBLY, F&I, TYPE F | 20.00 AS | \$654.94 | \$13,098.80 |
| 665-1-12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | 8.00 EA | \$1,458.12 | \$11,664.96 |
| 670-5-111 | TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT | 1.00 AS | \$22,568.99 | \$22,568.99 |
| 700-3-101 | SIGN PANEL, F&I GM, UP TO 12 SF | 4.00 EA | \$217.36 | \$869.44 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------------|--|---------------|------------|---------------------|
| 639-1-122 | ELECTRICAL POWER SRV,F&I, UG,PUR CONT | 1.00 AS | \$1,883.09 | \$1,883.09 |
| Signalizations Component Total | | | | \$301,826.29 |

LIGHTING COMPONENT**Conventional Lighting Subcomponent**

| Description | Value | | | |
|---------------------------------|--|---------------|------------|--------------------|
| Spacing | MIN | | | |
| Pay Items | | | | |
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 1,000.03 LF | \$5.80 | \$5,800.17 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 198.49 LF | \$15.73 | \$3,122.25 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 7.00 EA | \$495.48 | \$3,468.36 |
| 715-1-13 | LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2 | 3,652.39 LF | \$1.89 | \$6,903.02 |
| 715-500-1 | POLE CABLE DIST SYS, CONVENTIONAL | 7.00 EA | \$835.52 | \$5,848.64 |
| 715-511-140 | LIGHT POLE COMP,F&I,SGL ARM SM, AL,40' | 7.00 EA | \$8,608.24 | \$60,257.68 |
| Subcomponent Total | | | | \$85,400.12 |
| Lighting Component Total | | | | \$85,400.12 |

UTILITIES COMPONENT**X-Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|--------------|-----------------|
| 1000-7 | UTILITY WORK- JPA/UTILITY AGREEME, POWER | 1.00 LS | \$299,099.20 | \$299,099.20 |

Comment: FP&L ESTIMATE OF \$200K PER MILE FOR
RELOCATING OVERHEAD POWER.

| | |
|----------------------------------|----------------|
| Utilities Component Total | \$299,099.20 |
| <hr/> | |
| Sequence 3 Total | \$1,003,435.91 |
| <hr/> | |

Sequence: 4 WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.322 MI
1,700 LF**Description:** Resurfacing of SR40 between I-95 to east of Williamson Rd (STA 1388+00 to STA 1405+00) - not covered in widening for this segment**ROADWAY COMPONENT****User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 36.00 / 36.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 0.00 / 0.00 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 13,601.28 SY | \$2.50 | \$34,003.20 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 1,496.14 TN | \$94.55 | \$141,460.04 |
| 337-7-43 | ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22 | 544.05 TN | \$101.14 | \$55,025.22 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|--|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 217.00 EA | \$3.37 | \$731.29 |
| 710-11-111 | PAINTED PAVT MARK, STD, WHITE, SOLID, 6" | 1.29 NM | \$900.88 | \$1,162.14 |
| 710-11-131 | PAINTED PAVT MARK, STD, WHITE, SKIP, 6" | 1.29 GM | \$382.58 | \$493.53 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 1.29 NM | \$4,131.67 | \$5,329.85 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 1.29 GM | \$1,175.57 | \$1,516.49 |

Roadway Component Total

\$239,721.76

Sequence 4 Total

\$239,721.76

Sequence: 5WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.137 MI
725 LF**Description:** WIDENING/RESURFACING OF TYMBER CREEK RD AT SR40 INTERSECTION. 225 FEET
SOUTH, 500 FT NORTH OF INTERSECTION**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.137 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Existing Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|----------------------|-------------------|------------------------|
| 110-1-1 | CLEARING & GRUBBING | 0.20 AC | \$7,387.05 | \$1,477.41 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 1,450.47 CY | \$11.81 | \$17,130.05 |
| Earthwork Component Total | | | | \$18,607.46 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 28.00 / 28.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 0.00 / 12.00 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|----------------------|-------------------|------------------------|
| 160-4 | TYPE B STABILIZATION | 1,174.41 SY | \$3.66 | \$4,298.34 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 993.17 SY | \$15.32 | \$15,215.36 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 4,510.76 SY | \$2.50 | \$11,276.90 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 496.18 TN | \$94.55 | \$46,913.82 |

| | | | | |
|----------|---|-----------|----------|-------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 159.49 TN | \$94.55 | \$15,079.78 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 180.43 TN | \$101.14 | \$18,248.69 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 38.66 TN | \$101.14 | \$3,910.07 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 10.00 |
| Milling Code | Y |
| Stabilization Code | Y |
| Base Code | Y |
| Friction Course Code | Y |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 117.44 SY | \$3.66 | \$429.83 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 99.32 SY | \$15.32 | \$1,521.58 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 451.08 SY | \$2.50 | \$1,127.70 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 49.62 TN | \$94.55 | \$4,691.57 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 18.04 TN | \$101.14 | \$1,824.57 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|--|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 93.00 EA | \$3.37 | \$313.41 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.55 NM | \$900.88 | \$495.48 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 0.55 GM | \$382.58 | \$210.42 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.55 NM | \$4,131.67 | \$2,272.42 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 0.55 GM | \$1,175.57 | \$646.56 |

Roadway Component Total

\$128,476.50

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|-------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 0.00 / 8.25 |
| Total Outside Shoulder Perf. Turf Width L/R | 0.00 / 0.00 |
| Sidewalk Width L/R | 0.00 / 6.00 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 724.94 LF | \$18.26 | \$13,237.40 |
| 522-1 | CONC SIDEWALK AND DRIVEWAYS, 4" THICK | 483.30 SY | \$31.85 | \$15,393.10 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|--|---------------|------------|--------------------|
| 104-10-3 | SEDIMENT BARRIER | 1,449.89 LF | \$1.36 | \$1,971.85 |
| 104-11 | FLOATING TURBIDITY BARRIER | 13.73 LF | \$8.50 | \$116.71 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 13.73 LF | \$3.79 | \$52.04 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 EA | \$1,983.88 | \$1,983.88 |
| 104-18 | INLET PROTECTION SYSTEM | 7.00 EA | \$77.78 | \$544.46 |
| 107-1 | LITTER REMOVAL | 0.26 AC | \$23.51 | \$6.11 |
| 107-2 | MOWING | 0.26 AC | \$39.97 | \$10.39 |
| Shoulder Component Total | | | | \$33,315.95 |

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|------------------------|-------|
| Total Median Width | 22.00 |
| Performance Turf Width | 5.34 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------------------------|------------------|---------------|------------|-----------------|
| 570-1-1 | PERFORMANCE TURF | 430.13 SY | \$0.64 | \$275.28 |
| Median Component Total | | | | \$275.28 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|-------------------------------------|---------------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 2.47 CY | \$1,354.57 | \$3,345.79 |
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 5.00 EA | \$4,209.69 | \$21,048.45 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 2.00 EA | \$6,728.11 | \$13,456.22 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 80.00 LF | \$62.80 | \$5,024.00 |
| 430-175-136 | | 24.00 LF | \$94.81 | \$2,275.44 |

| | | | | |
|---------------------------------|--|----------|--------|--------------------|
| 570-1-1 | PIPE CULV, OPT MATL, ROUND, 36"S/CD PERFORMANCE TURF | 41.74 SY | \$0.64 | \$26.71 |
| Drainage Component Total | | | | \$45,176.61 |

SIGNING COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|----------------------|-------------------|------------------------|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 4.00 AS | \$334.09 | \$1,336.36 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 1.00 AS | \$920.39 | \$920.39 |
| 700-1-50 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$202.86 | \$202.86 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 4.00 AS | \$18.20 | \$72.80 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$452.81 | \$452.81 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|--------------------------------|---------------------------------------|----------------------|-------------------|------------------------|
| 700-2-13 | MULTI- POST SIGN, F&I GM, 21-30 SF | 1.00 AS | \$3,368.34 | \$3,368.34 |
| Signing Component Total | | | | \$6,353.56 |

| | | | | |
|-------------------------|--|--|--|---------------------|
| Sequence 5 Total | | | | \$232,205.36 |
|-------------------------|--|--|--|---------------------|

Sequence: 6WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.052 MI
275 LF**Description:** WIDENING/RESURFACING OF BOOTH RD AT SR40 INTERSECTION. 275 FEET SOUTH.
WIDEN TO WEST SIDE BY 12'**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 12.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.137 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Existing Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|----------------------|-------------------|------------------------|
| 110-1-1 | CLEARING & GRUBBING | 0.08 AC | \$7,387.05 | \$590.96 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 2,031.30 CY | \$11.81 | \$23,989.65 |
| Earthwork Component Total | | | | \$24,580.61 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 2 |
| Existing Roadway Pavement Width L/R | 12.00 / 12.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 12.00 / 0.00 |
| Widened Inside Pavement Width L/R | 0.00 / 0.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|----------------------|-------------------|------------------------|
| 160-4 | TYPE B STABILIZATION | 445.64 SY | \$3.66 | \$1,631.04 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 376.87 SY | \$15.32 | \$5,773.65 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 733.57 SY | \$2.50 | \$1,833.93 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 80.69 TN | \$94.55 | \$7,629.24 |

| | | | | |
|----------|---|----------|----------|------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 60.52 TN | \$94.55 | \$5,722.17 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 29.34 TN | \$101.14 | \$2,967.45 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 14.67 TN | \$101.14 | \$1,483.72 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 10.00 |
| Milling Code | Y |
| Stabilization Code | Y |
| Base Code | Y |
| Friction Course Code | Y |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 44.56 SY | \$3.66 | \$163.09 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 37.69 SY | \$15.32 | \$577.41 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 73.36 SY | \$2.50 | \$183.40 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 8.07 TN | \$94.55 | \$763.02 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 2.93 TN | \$101.14 | \$296.34 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 0 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|--|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 7.00 EA | \$3.37 | \$23.59 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.21 NM | \$900.88 | \$189.18 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.21 NM | \$4,131.67 | \$867.65 |

Roadway Component Total

\$30,104.88

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|--------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 12.25 / 7.25 |
| Total Outside Shoulder Perf. Turf Width L/R | 5.00 / 5.00 |

Sidewalk Width L/R

5.00 / 0.00

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 275.09 LF | \$18.26 | \$5,023.14 |
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 275.09 LF | \$18.26 | \$5,023.14 |
| 522-1 | CONC SIDEWALK AND DRIVEWAYS, 4" THICK | 152.83 SY | \$31.85 | \$4,867.64 |
| 570-1-1 | PERFORMANCE TURF | 305.65 SY | \$0.64 | \$195.62 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|--|---------------|------------|-----------------|
| 104-10-3 | SEDIMENT BARRIER | 550.18 LF | \$1.36 | \$748.24 |
| 104-11 | FLOATING TURBIDITY BARRIER | 5.21 LF | \$8.50 | \$44.28 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 5.21 LF | \$3.79 | \$19.75 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 EA | \$1,983.88 | \$1,983.88 |
| 104-18 | INLET PROTECTION SYSTEM | 3.00 EA | \$77.78 | \$233.34 |
| 107-1 | LITTER REMOVAL | 0.10 AC | \$23.51 | \$2.35 |
| 107-2 | MOWING | 0.10 AC | \$39.97 | \$4.00 |

Shoulder Component Total

\$18,145.39

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|-------------------------------------|---------------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 0.94 CY | \$1,354.57 | \$1,273.30 |
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 2.00 EA | \$4,209.69 | \$8,419.38 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 1.00 EA | \$6,728.11 | \$6,728.11 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 32.00 LF | \$62.80 | \$2,009.60 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 16.00 LF | \$94.81 | \$1,516.96 |
| 570-1-1 | PERFORMANCE TURF | 15.84 SY | \$0.64 | \$10.14 |

Drainage Component Total

\$19,957.49

SIGNING COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|------------------------------------|---------------|------------|-----------------|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 2.00 AS | \$334.09 | \$668.18 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 1.00 AS | \$920.39 | \$920.39 |
| 700-1-50 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$202.86 | \$202.86 |

| | | | | |
|----------|--------------------------|---------|----------|----------|
| 700-1-60 | SINGLE POST SIGN, REMOVE | 2.00 AS | \$18.20 | \$36.40 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$452.81 | \$452.81 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|--------------------------------|------------------------------------|----------------------|-------------------|------------------------|
| 700-2-13 | MULTI- POST SIGN, F&I GM, 21-30 SF | 1.00 AS | \$3,368.34 | \$3,368.34 |
| Signing Component Total | | | | \$5,648.98 |
| Sequence 6 Total | | | | \$98,437.35 |

Sequence: 7WDU - Widen/Resurface, Divided, Urban**Net Length:** 0.104 MI
550 LF**Description:** WIDENING/RESURFACING OF WILLIAMSON BLVD AT SR40 INTERSECTION. 550 FEET SOUTH. WIDEN TO EAST SIDE AND INSIDE WIDENING**EARTHWORK COMPONENT****User Input Data**

| Description | Value |
|--|-----------------|
| Standard Clearing and Grubbing Limits L/R | 0.00 / 0.00 |
| Incidental Clearing and Grubbing Area | 0.00 |
| Alignment Number | 1 |
| Distance | 0.137 |
| Top of Structural Course For Begin Section | 102.00 |
| Top of Structural Course For End Section | 102.00 |
| Horizontal Elevation For Begin Section | 100.00 |
| Horizontal Elevation For End Section | 100.00 |
| Existing Front Slope L/R | 6 to 1 / 6 to 1 |
| Existing Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Existing Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Front Slope L/R | 6 to 1 / 6 to 1 |
| Median Shoulder Cross Slope L/R | 4.00 % / 4.00 % |
| Outside Shoulder Cross Slope L/R | 2.00 % / 2.00 % |
| Roadway Cross Slope L/R | 2.00 % / 2.00 % |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------------------------------|----------------------------------|----------------------|-------------------|------------------------|
| 120-1 | REGULAR EXCAVATION | 465.09 CY | \$4.66 | \$2,167.32 |
| 120-2-2 | BORROW EXCAVATION, TRUCK MEASURE | 1,347.59 CY | \$11.81 | \$15,915.04 |
| Earthwork Component Total | | | | \$18,082.36 |

ROADWAY COMPONENT**User Input Data**

| Description | Value |
|-------------------------------------|---------------|
| Number of Lanes | 6 |
| Existing Roadway Pavement Width L/R | 36.00 / 36.00 |
| Structural Spread Rate | 220 |
| Friction Course Spread Rate | 80 |
| Widened Outside Pavement Width L/R | 0.00 / 5.00 |
| Widened Inside Pavement Width L/R | 0.00 / 5.00 |
| Widened Structural Spread Rate | 330 |
| Widened Friction Course Spread Rate | 80 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-----------------|---------------------------------------|----------------------|-------------------|------------------------|
| 160-4 | TYPE B STABILIZATION | 926.74 SY | \$3.66 | \$3,391.87 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 651.65 SY | \$15.32 | \$9,983.28 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 4,401.41 SY | \$2.50 | \$11,003.52 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 484.15 TN | \$94.55 | \$45,776.38 |

| | | | | |
|----------|---|-----------|----------|-------------|
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 100.87 TN | \$94.55 | \$9,537.26 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 176.06 TN | \$101.14 | \$17,806.71 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 24.45 TN | \$101.14 | \$2,472.87 |

Turnouts/Crossovers Subcomponent

| Description | Value |
|----------------------|-------|
| Asphalt Adjustment | 20.00 |
| Milling Code | Y |
| Stabilization Code | Y |
| Base Code | Y |
| Friction Course Code | Y |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---|---------------|------------|-----------------|
| 160-4 | TYPE B STABILIZATION | 185.35 SY | \$3.66 | \$678.38 |
| 285-709 | OPTIONAL BASE,BASE GROUP 09 | 130.33 SY | \$15.32 | \$1,996.66 |
| 327-70-5 | MILLING EXIST ASPH PAVT, 2" AVG DEPTH | 880.28 SY | \$2.50 | \$2,200.70 |
| 334-1-13 | SUPERPAVE ASPHALTIC CONC, TRAFFIC C | 96.83 TN | \$94.55 | \$9,155.28 |
| 337-7-43 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 35.21 TN | \$101.14 | \$3,561.14 |

Pavement Marking Subcomponent

| Description | Value |
|--|---------|
| Include Thermo/Tape/Other | Y |
| Pavement Type | Asphalt |
| Solid Stripe No. of Paint Applications | 1 |
| Solid Stripe No. of Stripes | 4 |
| Skip Stripe No. of Paint Applications | 1 |
| Skip Stripe No. of Stripes | 4 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|------------|--|---------------|------------|-----------------|
| 706-3 | RETRO-REFLECTIVE PAVEMENT MARKERS | 70.00 EA | \$3.37 | \$235.90 |
| 710-11-111 | PAINTED PAVT MARK,STD,WHITE,SOLID,6" | 0.42 NM | \$900.88 | \$378.37 |
| 710-11-131 | PAINTED PAVT MARK,STD,WHITE,SKIP, 6" | 0.42 GM | \$382.58 | \$160.68 |
| 711-15-111 | THERMOPLASTIC, STD-OP, WHITE, SOLID, 6" | 0.42 NM | \$4,131.67 | \$1,735.30 |
| 711-15-131 | THERMOPLASTIC, STD-OP, WHITE, SKIP, 6" | 0.42 GM | \$1,175.57 | \$493.74 |

Roadway Component Total

\$120,568.05

SHOULDER COMPONENT**User Input Data**

| Description | Value |
|---|-------------|
| Existing Total Outside Shoulder Width L/R | 0.00 / 0.00 |
| New Total Outside Shoulder Width L/R | 0.00 / 8.25 |
| Total Outside Shoulder Perf. Turf Width L/R | 0.00 / 0.00 |
| Sidewalk Width L/R | 0.00 / 6.00 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 520-1-10 | CONCRETE CURB & GUTTER, TYPE F | 550.18 LF | \$18.26 | \$10,046.29 |
| 522-1 | CONC SIDEWALK AND DRIVEWAYS, 4" THICK | 366.78 SY | \$31.85 | \$11,681.94 |

Erosion Control**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|---------------------------------|--|---------------|------------|--------------------|
| 104-10-3 | SEDIMENT BARRIER | 1,100.35 LF | \$1.36 | \$1,496.48 |
| 104-11 | FLOATING TURBIDITY BARRIER | 10.42 LF | \$8.50 | \$88.57 |
| 104-12 | STAKED TURBIDITY BARRIER-NYL REINF PVC | 10.42 LF | \$3.79 | \$39.49 |
| 104-15 | SOIL TRACKING PREVENTION DEVICE | 1.00 EA | \$1,983.88 | \$1,983.88 |
| 104-18 | INLET PROTECTION SYSTEM | 5.00 EA | \$77.78 | \$388.90 |
| 107-1 | LITTER REMOVAL | 0.20 AC | \$23.51 | \$4.70 |
| 107-2 | MOWING | 0.20 AC | \$39.97 | \$7.99 |
| Shoulder Component Total | | | | \$25,738.24 |

MEDIAN COMPONENT**User Input Data**

| Description | Value |
|------------------------|-------|
| Total Median Width | 22.00 |
| Performance Turf Width | 5.34 |

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------------------------|--------------------------------|---------------|------------|--------------------|
| 520-1-7 | CONCRETE CURB & GUTTER, TYPE E | 1,100.35 LF | \$13.59 | \$14,953.76 |
| Median Component Total | | | | \$14,953.76 |

DRAINAGE COMPONENT**Pay Items**

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|-------------|-------------------------------------|---------------|------------|-----------------|
| 400-2-2 | CONC CLASS II, ENDWALLS | 1.88 CY | \$1,354.57 | \$2,546.59 |
| 425-1-351 | INLETS, CURB, TYPE P-5, <10' | 4.00 EA | \$4,209.69 | \$16,838.76 |
| 425-1-451 | INLETS, CURB, TYPE J-5, <10' | 2.00 EA | \$6,728.11 | \$13,456.22 |
| 430-175-124 | PIPE CULV, OPT MATL, ROUND, 24"S/CD | 64.00 LF | \$62.80 | \$4,019.20 |

| | | | | |
|---------------------------------|--|----------|---------|--------------------|
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 16.00 LF | \$94.81 | \$1,516.96 |
| 570-1-1 | PERFORMANCE TURF | 31.68 SY | \$0.64 | \$20.28 |
| Drainage Component Total | | | | \$38,398.01 |

SIGNING COMPONENT

Pay Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 700-1-11 | SINGLE POST SIGN, F&I GM, <12 SF | 3.00 AS | \$334.09 | \$1,002.27 |
| 700-1-12 | SINGLE POST SIGN, F&I GM, 12-20 SF | 1.00 AS | \$920.39 | \$920.39 |
| 700-1-50 | SINGLE POST SIGN, RELOCATE | 1.00 AS | \$202.86 | \$202.86 |
| 700-1-60 | SINGLE POST SIGN, REMOVE | 3.00 AS | \$18.20 | \$54.60 |
| 700-2-60 | MULTI- POST SIGN, REMOVE | 1.00 AS | \$452.81 | \$452.81 |

X-Items

| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
|----------|---------------------------------------|---------------|------------|-----------------|
| 700-2-13 | MULTI- POST SIGN, F&I GM, 21-30 SF | 1.00 AS | \$3,368.34 | \$3,368.34 |

Signing Component Total

\$6,001.27

Sequence 7 Total

\$223,741.69

Sequence: 8 MIS - Miscellaneous Construction**Net Length:** 0.068 MI
360 LF**Description:** Tomoka River Bridge Widening**BRIDGES COMPONENT****Bridge 790027**

| Description | Value |
|-------------------------------------|---|
| Estimate Type | SF Estimate |
| Primary Estimate | YES |
| Length (LF) | 360.00 |
| Width (LF) | 20.54 |
| Type | Overpass Widening |
| Cost Factor | 1.00 |
| Structure No. | 790027 |
| Removal of Existing Structures area | 0.00 |
| Default Cost per SF | \$130.00 |
| Factored Cost per SF | \$130.00 |
| Final Cost per SF | \$133.37 |
| Basic Bridge Cost | \$961,272.00 |
| Description | WESTBOUND TOMOKA RIVER BRIDGE - WIDENING BOTH SIDES FOR TYPICAL SECTION 4 (URBAN CROSS-SECTION) |

Bridge Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------------------------|-------------------------------|----------|------|------------|---------------------|
| 400-2-10 | CONC CLASS II, APPROACH SLABS | 45.64 | CY | \$369.74 | \$16,874.93 |
| 415-1-9 | REINF STEEL- APPROACH SLABS | 7,987.00 | LB | \$1.01 | \$8,066.87 |
| Bridge 790027 Total | | | | | \$986,213.80 |

Bridge 790163

| Description | Value |
|-------------------------------------|---|
| Estimate Type | SF Estimate |
| Primary Estimate | YES |
| Length (LF) | 360.00 |
| Width (LF) | 17.04 |
| Type | Overpass Widening |
| Cost Factor | 1.00 |
| Structure No. | 790163 |
| Removal of Existing Structures area | 0.00 |
| Default Cost per SF | \$130.00 |
| Factored Cost per SF | \$130.00 |
| Final Cost per SF | \$133.37 |
| Basic Bridge Cost | \$797,472.00 |
| Description | EASTBOUND BRIDGE OVER TOMOKA RIVER - WIDEN BOTH SIDES FOR URBAN TYPICAL SECTION (TYPICAL SECTION 4) |

Bridge Pay Items

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|-------------------------------|----------|------|------------|-----------------|
| 400-2-10 | CONC CLASS II, APPROACH SLABS | 37.87 | CY | \$369.74 | \$14,002.05 |
| 415-1-9 | REINF STEEL- APPROACH SLABS | 6,627.25 | LB | \$1.01 | \$6,693.52 |

| | |
|--------------------------------|----------------|
| Bridge 790163 Total | \$818,167.57 |
| Bridges Component Total | \$1,804,381.37 |
| <hr/> | |
| Sequence 8 Total | \$1,804,381.37 |
| <hr/> | |

Date: 10/9/2014 10:47:01 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 428947-1-52-01

Letting Date: 01/2099

Description: SR 40 FROM BREAKAWAY TRAIL TO WILLIAMSON BLVD

District: 05 County: 79 VOLUSIA

Market Area: 06 Units: English

Contract Class: 1 Lump Sum Project: N

Design/Build: N Project Length: 2.420 MI

Project Manager: MIM

Version 11 Project Grand Total

\$16,209,253.82

Description: Preferred Alternative B, updated with revised bridge cross-section and 2014 bid item costs.

Project Sequences Subtotal **\$12,640,105.33**

| | | | |
|-------|------------------------|---------|----------------|
| 102-1 | Maintenance of Traffic | 10.00 % | \$1,264,010.53 |
| 101-1 | Mobilization | 10.00 % | \$1,390,411.59 |

Project Sequences Total **\$15,294,527.45**

| | | |
|------------------|--------|--------------|
| Project Unknowns | 5.00 % | \$764,726.37 |
| Design/Build | 0.00 % | \$0.00 |

Non-Bid Components:

| Pay item | Description | Quantity | Unit | Unit Price | Extended Amount |
|----------|--|----------|------|--------------|-----------------|
| 999-25 | INITIAL CONTINGENCY AMOUNT (DO NOT BID) | | LS | \$150,000.00 | \$150,000.00 |

Project Non-Bid Subtotal **\$150,000.00**
Version 11 Project Grand Total **\$16,209,253.82**

Appendix E
Water Quality Impact
Evaluation Checklist

Exhibit A

WQIE CHECK LIST

Project Name: SR 40 PD&E Study from Breakaway Trail to Williamson Blvd

County: Volusia

FIN (Financial Number): 428947-1-22-01

Federal Aid Project No: _____

Short project description: Widening of SR 40 from 4 to 6 lanes between Breakaway Trail and Williamson Blvd. in Volusia County, Florida

PART 1: DETERMINATION OF WQIE SCOPE

Does project increase impervious surface area? Yes No

Does project alter the drainage system? Yes No

If the answer to both questions is no, complete the WQIE by checking Box A in Part 4.

Do environmental regulatory requirements apply? Yes No

PART 2: PROJECT CHARACTERISTICS

20-year design ADT: _____ Expected speed limit: 60 Rural 45 Urban _____ mi/hr

Drainage area: 114.3 acres 51 % Impervious 49 % Pervious

Land Use: 4 % Residential 1 % Commercial 0 % Industrial

0 % Agricultural 0 % Wetlands 4.5 % Other Natural

Potential large sources of pollution (identify): N/A

Groundwater receptor (name of aquifer or N/A): N/A

Designated well head protection area? Yes No Name: _____

Sole source aquifer Yes No Name: _____

Groundwater recharge mechanism:

None

(Notify District Drainage Engineer if karst conditions expected)

WQIE CHECK LIST (Contd.)

Surface water receptor (name or N/A): Little Tomoka River & Tomoka River

Classification I II III IV V

Special designation (check all that apply):

- ONRW OFW Aquatic Preserve Wild & Scenic River
 Special Water SWIM Area Local Comp Plan MS4 Area
 Other (specify): _____

Conceptual storm water conveyances & system (check all that apply):

- Swales Curb and Gutter Scuppers Pipe French Drains
 Retention/Detention Ponds Other _____

PART 3: ENVIRONMENTAL REGULATORY REQUIREMENTS

| Regulatory Agency (Check all that apply) | Reference citation for regulatory criteria (attach copy of pertinent pages) | Most stringent criteria (Check all that apply) |
|---|---|---|
| USEPA <input type="checkbox"/> | | <input type="checkbox"/> |
| FDEP <input checked="" type="checkbox"/> | TMDLs (See Attached) | <input checked="" type="checkbox"/> |
| WMD <input checked="" type="checkbox"/> (Specify) SJRWMD | Water Quality (See Attached) | <input checked="" type="checkbox"/> |
| OTHER <input checked="" type="checkbox"/> (Specify) USACOE | Wetlands (See Attached) | <input type="checkbox"/> |

Proceed to Part 4 and check Box C.

WQIE CHECK LIST (Contd.)

PART 4: WQIE DOCUMENTATION

- Water quality is not an issue.
- No regulatory requirements apply to water quality issues
(Document by checking the "none" box for water quality in Section 6.C.3 of the *Environmental Determination Form* or Section 5.C.3 of the SEIR.)
- Regulatory requirements apply to water quality issues. Water quality issues will be mitigated through compliance with the quantity design requirements placed by St. Johns River Water Management District, an authorized regulatory agency.
(Document by checking the "none" box for water quality in Section 6.C.3 of the Environmental Determination Form or Section 5.C.3 of the SEIR.)

Evaluator Name (print):

Renato E. Chuw

Office:

Inwood Consulting Engineers, INC.

Signature:



Date: 3/28/13