



Florida Department of
Transportation
District Five

719 S. Woodland Boulevard,
DeLand, Florida 32720

AIR QUALITY IMPACT

Technical Memorandum

**State Road 40 (Granada Boulevard)
PD&E Study
From Breakaway Trail to Williamson
Boulevard**

Volusia County

Financial ID# 428947-1-22-01

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Prepared By:
Environmental Transportation Planning
Ponte Vedra Beach, FL
In Association With:
Kittelson & Associates, Inc.

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INTRODUCTION

The Florida Department of Transportation (FDOT) District Five is conducting a Project Development and Environmental (PD&E) Study for widening State Road (SR) 40 (Granada Boulevard) from four to six lanes. The limits of the proposed project are from Breakaway Trail to Williamson Boulevard, a distance of approximately 2 miles in Volusia County, Florida. Figure 1 below illustrates the project corridor limits within the City of Ormond Beach and Volusia County.



PROJECT IMPROVEMENTS

The proposed improvement is a capacity project that involves widening the existing facility from a four lane roadway to a six lane roadway. Because the FDOT right of way is typically 200 feet along the study corridor, the focus of the project was to widen the roadway within the existing limits. The study area was broken into two segments for this noise analysis based on the proposed typical sections. Segment 1 begins at Breakaway Trail and continues east to Tymber Creek Road. The proposed typical section for this segment is a rural design with a posted speed limit of 50 mph. Utilizing the existing 40-foot wide median, this typical section retains the current rural character through this segment with uncurbed, depressed median and flush outside shoulders. A 5-foot wide sidewalk is provided on the south side and a 12-foot wide shared use path provided on the north side. The 5-foot paved shoulders in each direction also serve as bicycle lanes as illustrated below in Figure 2a. Segment 2 continues the widening effort east to Williamson Boulevard with an urban typical section and posted speed limit of 45 mph. Figure 2b illustrates the urban typical. Further engineering detail is provided in the *Project Development Summary Report*.



Figure 2a
Segment 1 Proposed
Typical Section



Figure 2b
Segment 2 Proposed
Typical Section

NO-BUILD ALTERNATIVE

Consistent with FHWA guidelines, this analysis also considers an alternative that assesses what would happen to the environment in the future if the proposed SR 40 widening project was not built. This alternative, called the No-Build Alternative, consists not only of the existing roadways within the study area, but also includes the routine maintenance improvements to these facilities. Also included in the No-Build roadway network is the planned widening of Tymber Creek Road.

The majority of the segment to be studied is classified as a principal arterial with the section west of I-95 identified as a Scenic Byway. Existing SR 40 consists of four travel lanes (two lanes in each direction). From Breakaway Trail to Booth Road, SR 40 has paved shoulders adjacent to the outside travel lanes and is separated by a swale median that varies between 40 and 46 feet in width. From Booth Road to Williamson Boulevard, a raised median of varying width is provided, and curb and gutter with adjacent sidewalks are provided from I-95 to Williamson Boulevard. Figure 3 illustrates the existing roadway typical section along most of the corridor.



The existing posted speed limit 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 sidewalk runs on the north side of SR 40 between Breakaway Trail and Tymber Creek Road and a sidewalk is provided on both sides of SR 40 from I-95 through the eastern extents of the study area.

While the No-Build Alternative does not meet project needs, it provides a baseline condition to compare and measure the effects of the proposed corridor.

AIR QUALITY SCREENING TEST

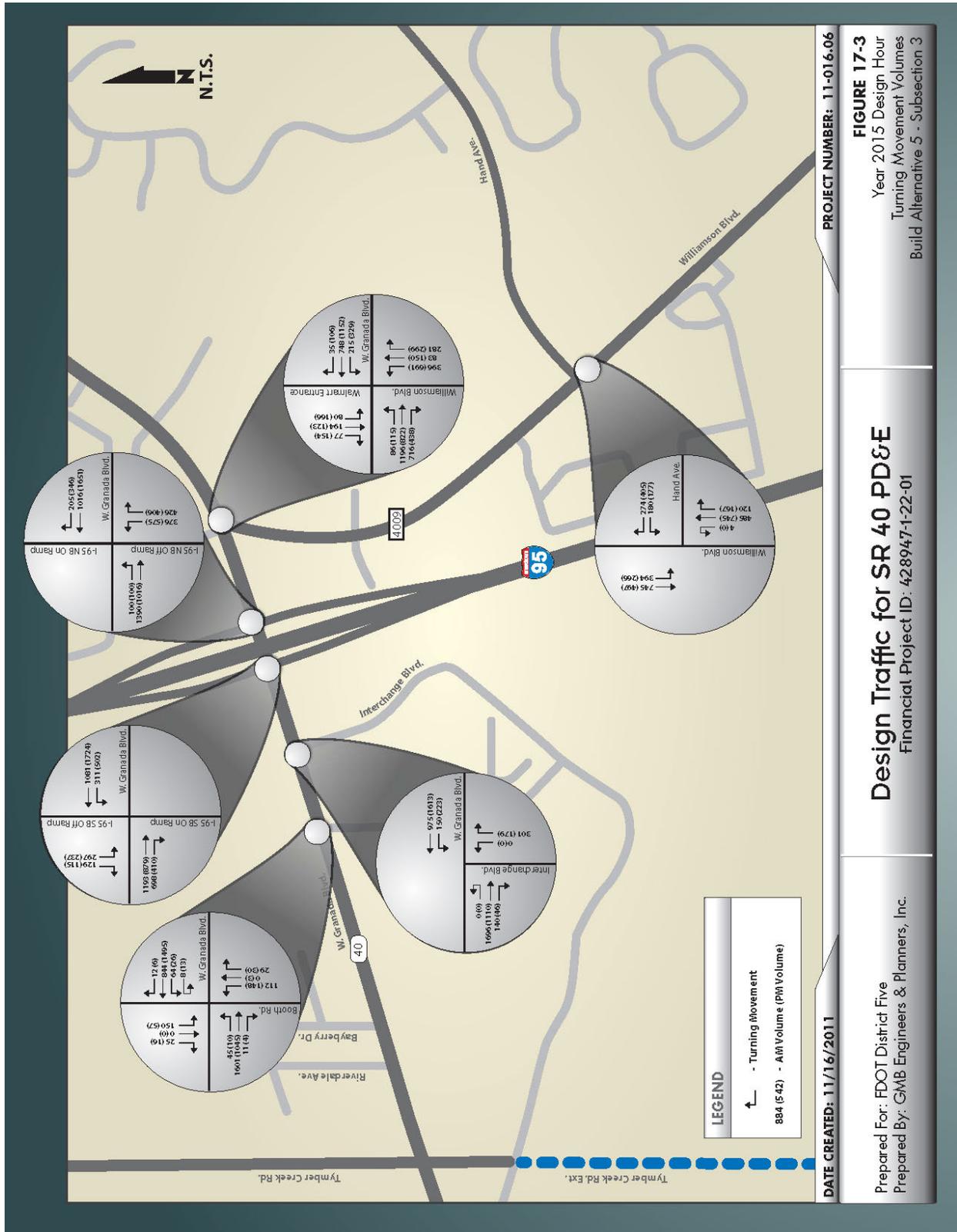
The proposed project is located in Volusia County, an area designated as being in attainment for the following Clean Air Act National Ambient Air Quality Standards (NAAQS): ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide (CO), and lead. Because the County is in attainment, the Clean Air Act conformity requirements do not apply to the project.

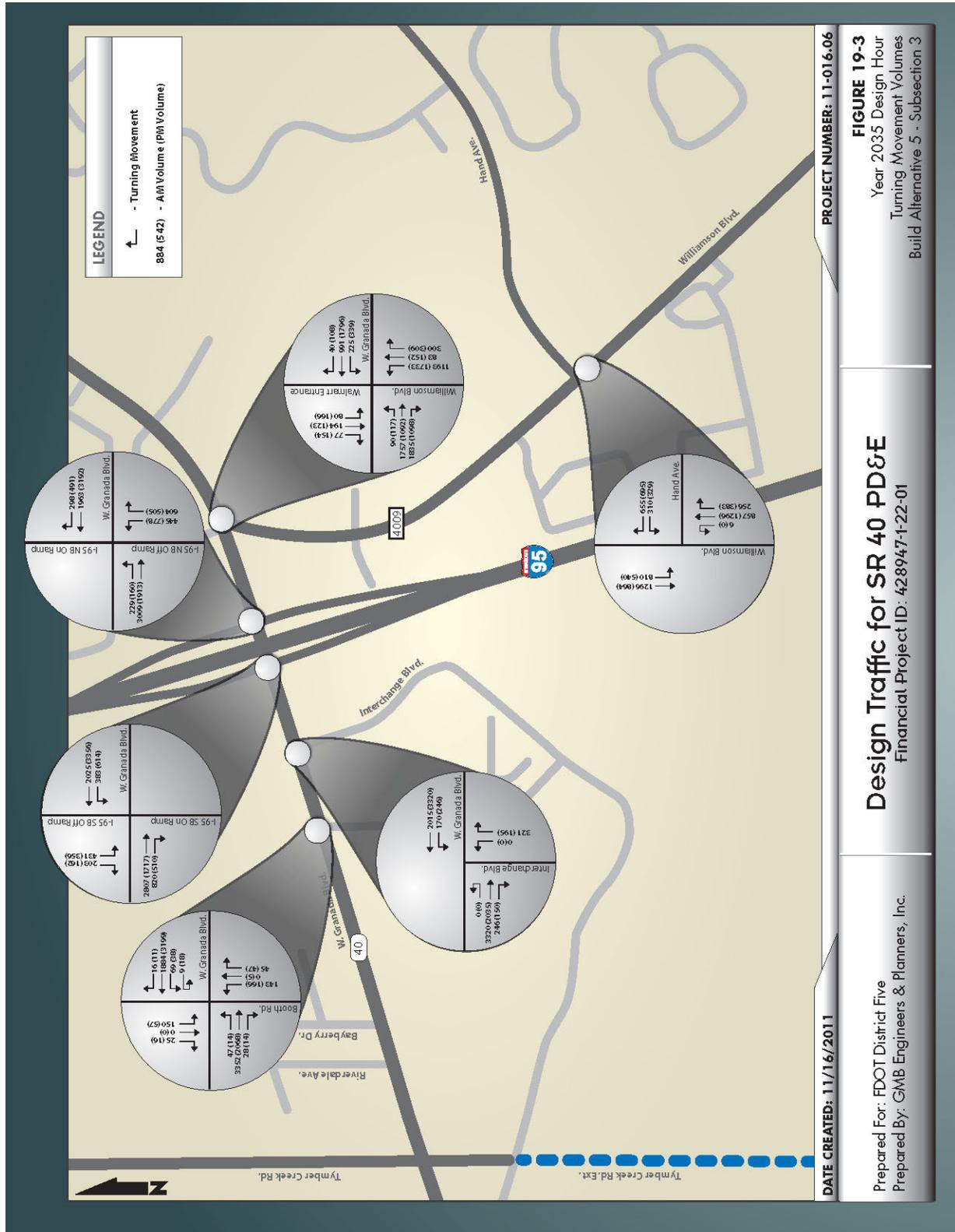
In accordance with Chapter 16 of the FDOT PD&E Manual, both the No-Build and the viable Build Alternatives were analyzed for potential air quality impacts using FDOT's most current air quality screening model, CO Florida 2012. CO Florida 2012 incorporates the U.S. Environmental Protection Agency's latest software, MOVES, to evaluate intersections. The screening model predicts CO concentrations at varying distances using conservative, worst-case assumptions about the meteorology, traffic and site conditions. Estimates are made of one-hour and eight-hour CO concentrations at default air quality receptor locations, and if the CO concentrations exceed 35 parts per million (ppm) for a one-hour average period, or 9 ppm for an eight-hour average period, the project exceeds the NAAQS for CO. Should this occur, the project must then undergo a more thorough air quality analysis using the complete MOVES model.

SCREENING TEST RESULTS

The No-Build and Build Alternatives were analyzed for the opening year (2015) and the design year (2035) at the intersection with the highest volume of traffic. That intersection is in Project Segment 2 where SR 40 intersects with Williamson Boulevard. Directional design hour traffic volumes were obtained from the project's traffic report and are included in this Technical Memorandum as Appendix A.

The CO Florida 2012 model was run using the default receptors located 10 to 150 feet from the edge of the intersecting roadways. These distances are representative of the various air receptors throughout the study corridor and were deemed suitable for use in this analysis. Results from the screening test (included as Appendix B) indicate that the highest project-related CO 1-hour and CO 8-hour levels are not predicted to meet or exceed the NAAQS for this pollutant under either of the analyzed alternatives. As such, the project passes the screening model for the No-Build Alternative and the Build Alternative. No further air quality impact analysis is required.





CO Florida 2012 - Results
 Tuesday, June 18, 2013

Project Description

Project Title Segment 2 No-Build
 Facility Name SR 40 at Williamson Blvd
 User's Name R. Ossi, AICP - ETP
 Run Name Year Open
 FDOT District 5
 Year 2015
 Intersection Type 4 X 4
 Speed Arterial 40 mph
 Approach Traffic Arterial 1589 vph

Environmental Data

Temperature 47.8 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
 8 Hr. Background Concentration 3.0 ppm

Results

(ppm, including background CO)		
Receptor	Max 1-Hr	Max 8-Hr
1	7.1	4.3
2	7.2	4.3
3	7.5	4.5
4	7.0	4.2
5	6.7	4.0
6	7.0	4.2
7	7.2	4.3
8	7.5	4.5
9	6.9	4.1
10	6.7	4.0
11	7.0	4.2
12	7.2	4.3
13	7.5	4.5
14	6.9	4.1
15	6.7	4.0
16	7.0	4.2
17	7.2	4.3
18	7.6	4.6
19	7.0	4.2
20	6.7	4.0

 *****PROJECT PASSES*****
 NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED

CO Florida 2012 - Results
 Tuesday, June 18, 2013

Project Description

Project Title Segment 2 Build
 Facility Name SR 40 at Williamson Blvd
 User's Name R. Ossi, AICP - ETP
 Run Name Year Open
 FDOT District 5
 Year 2015
 Intersection Type 4 X 4
 Speed Arterial 40 mph
 Approach Traffic Arterial 1587 vph

Environmental Data

Temperature 47.8 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
 8 Hr. Background Concentration 3.0 ppm

Results
 (ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	7.1	4.3
2	7.1	4.3
3	7.5	4.5
4	7.0	4.2
5	6.7	4.0
6	7.0	4.2
7	7.1	4.3
8	7.5	4.5
9	6.9	4.1
10	6.7	4.0
11	7.0	4.2
12	7.1	4.3
13	7.5	4.5
14	6.9	4.1
15	6.7	4.0
16	7.0	4.2
17	7.1	4.3
18	7.6	4.6
19	7.0	4.2
20	6.7	4.0

 *****PROJECT PASSES*****
 NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED

CO Florida 2012 - Results
 Tuesday, June 18, 2013

Project Description

Project Title Segment 2 No-Build
 Facility Name SR 40 at Williamson Blvd.
 User's Name R. Ossi, AICP - ETP
 Run Name Design Year
 FDOT District 5
 Year 2035
 Intersection Type 4 X 4
 Speed Arterial 40 mph
 Approach Traffic Arterial 2005 vph

Environmental Data

Temperature 47.8 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
 8 Hr. Background Concentration 3.0 ppm

Results
 (ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.7	4.0
2	6.8	4.1
3	7.1	4.3
4	6.7	4.0
5	6.3	3.8
6	6.7	4.0
7	6.8	4.1
8	7.0	4.2
9	6.7	4.0
10	6.3	3.8
11	6.7	4.0
12	6.8	4.1
13	7.1	4.3
14	6.7	4.0
15	6.3	3.8
16	6.7	4.0
17	6.9	4.1
18	7.0	4.2
19	6.8	4.1
20	6.3	3.8

 *****PROJECT PASSES*****
 NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED

CO Florida 2012 - Results
 Tuesday, June 18, 2013

Project Description

Project Title Segment 2 Build
 Facility Name SR 40 at Williamson Blvd.
 User's Name R. Ossi, AICP - ETP
 Run Name Design Year
 FDOT District 5
 Year 2035
 Intersection Type 4 X 4
 Speed Arterial 40 mph
 Approach Traffic Arterial 2485 vph

Environmental Data

Temperature 47.8 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
 8 Hr. Background Concentration 3.0 ppm

Results
 (ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	7.0	4.2
2	7.1	4.3
3	7.5	4.5
4	6.9	4.1
5	6.5	3.9
6	7.0	4.2
7	7.1	4.3
8	7.4	4.4
9	6.9	4.1
10	6.5	3.9
11	7.0	4.2
12	7.1	4.3
13	7.5	4.5
14	6.9	4.1
15	6.5	3.9
16	7.0	4.2
17	7.2	4.3
18	7.4	4.4
19	7.0	4.2
20	6.5	3.9

 *****PROJECT PASSES*****
 NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
