



AIR QUALITY TECHNICAL MEMORANDUM

SR 9 / I-95 AT SR 80 / SOUTHERN BOULEVARD PROJECT DEVELOPMENT & ENVIRONMENT STUDY

(SR 80 MP 19.1 to 20.4 and I-95 MP 24.3 to 25.3)

ETDM No.: 14183/ FAP No.: TBD
Financial Project ID: 435516-1-22-02
Palm Beach County



Prepared For:
FDOT District Four
3400 W. Commercial Blvd.
Ft. Lauderdale, FL 33309

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. 327 and a memo of understanding dated December 14, 2016 and executed by FHWA and FDOT.

September 2017





Date: September 18, 2017

To: Florida Department of Transportation, District Four

Prepared by: Raina Cumby, Environmental Scientist
Jim Mykytka, Senior Environmental Scientist

Company: RS&H, Inc.

Subject: AIR QUALITY ANALYSIS

SR 9 / I-95 at SR 80/Southern Boulevard Project Development and Environment Study (SR 80 Milepost 19.1 to 20.4 and I-95 Milepost 24.3 to 25.3)

Financial Management Number: 435516-1-22-02

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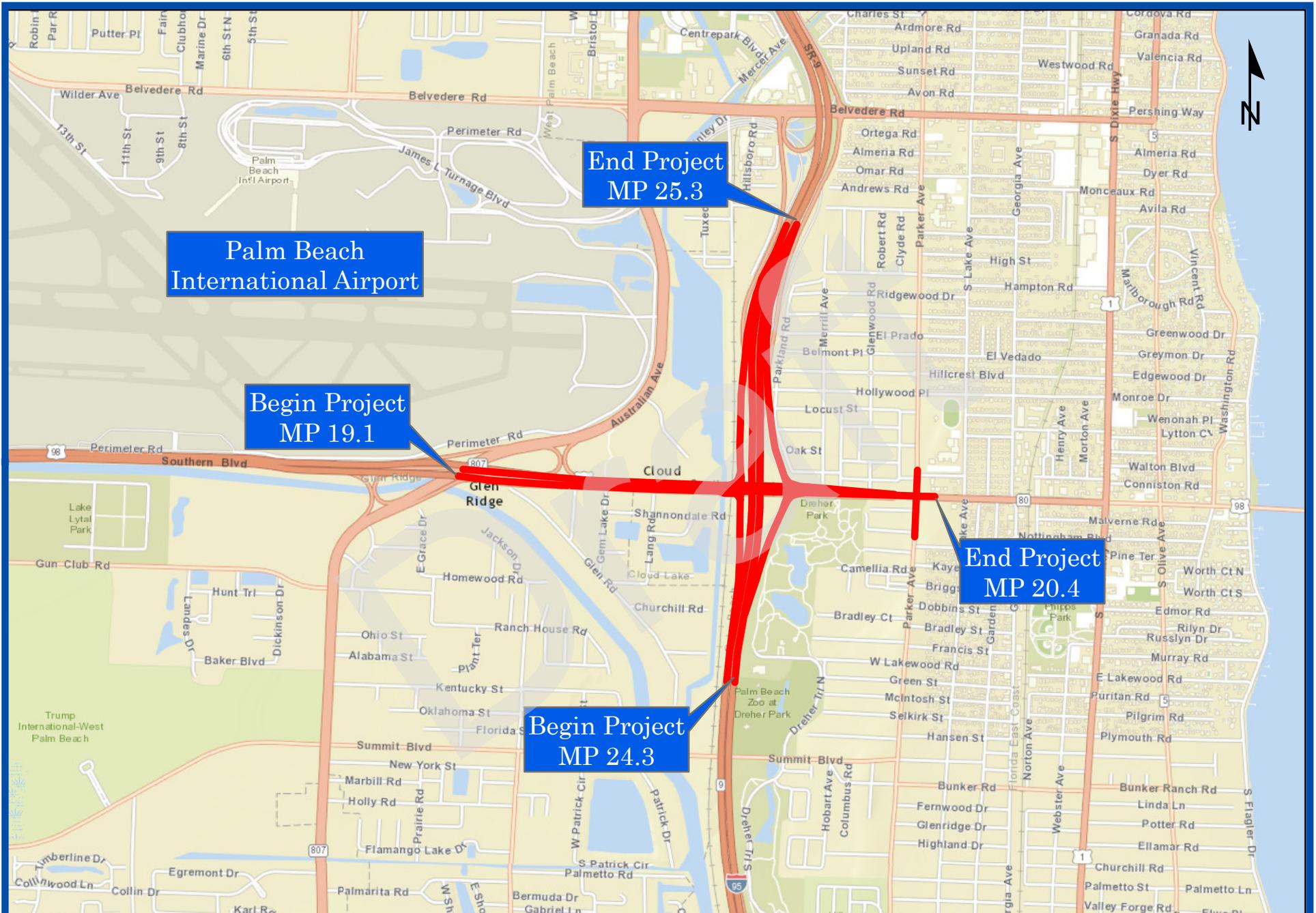
Palm Beach County, Florida

1.0 Introduction

The Florida Department of Transportation (FDOT) District Four is conducting a Project Development and Environment (PD&E) Study to evaluate alternatives for the ultimate improvements of the State Road (SR) 9/I-95 and SR 80/Southern Boulevard Interchange in Palm Beach County, Florida. The SR 9 / I-95 at SR 80 / Southern Boulevard interchange is located between the Forest Hill Boulevard interchange (1.45 miles to the south), and the Belvedere Road interchange (1.01 miles to the north), and in proximity to multiple municipalities including the City of West Palm Beach, Town of Cloud Lake, Town of Glen Ridge, and unincorporated Palm Beach County. Figure 1.1 depicts the project location.

As part of this PD&E Study, the project was reviewed for air quality impacts consistent with the guidance provided by Federal Highway Administration as described in Chapter 16, Part 2 of the FDOT PD&E Manual entitled Air Quality Analysis (dated June 14, 2017). The purpose of this Technical Memorandum is to document the findings of the air quality analysis.





**SR 9/I-95 at SR 80/Southern Boulevard Interchange
 Project Development and Environment Study
 Financial Project ID: 435516-1-22-02, ETDM No: 14183**

**Figure 1.1
 Project Location Map**



2.0 Air Quality Analysis

The proposed project is located in Palm Beach County which is currently designated as being in attainment for the following criteria air pollutants: ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide, and lead.

The No Build and Recommended Build Alternatives were subjected to a carbon monoxide (CO) screening model that makes various conservative worst-case assumptions related to site conditions, meteorology and traffic. The FDOT's screening model, CO Florida 2012, uses the United States Environmental Protection Agency (USEPA) software [Motor Vehicle Emission Simulator (MOVES) version 2010a and CAL3QHC2] to produce estimates of one-hour and eight-hour CO concentrations at default air quality receptor locations. The one-hour and eight-hour estimates can be directly compared to the one- and eight-hour National Ambient Air Quality Standards for CO that are 35 parts per million (ppm) and 9 ppm, respectively.

The highest total approach traffic volume for the No Build and Recommended Build Alternative was associated with the I-95 and SR 80/Southern Boulevard interchange. Both the No Build and Recommended Build Alternatives were evaluated for both the opening year 2020 and the design year 2040. The traffic data used in this evaluation is provided in Table 2.1 which was developed from the Interchange Modification Report (dated February 2017).

Estimates of CO were predicted for the default receptors which are located 10 feet to 150 feet from the edge of the roadway. The results of the screening test are summarized in Table 2.2. Only the maximum one-hour and eight-hour CO concentrations are presented in this table. The results of the screening model are attached to this memorandum. Based on the results from the screening model, the highest project-related CO one- and eight-hour levels are not predicted to meet or exceed the one- or eight-hour National Ambient Air Quality Standards for this pollutant with either the No Build or Recommended Build Alternatives. As such, the project "passes" the screening model.





The project is located in an area which is designated in attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to all applicable State and local regulations and to the FDOT Standard Specifications for Road and Bridge Construction.

Table 2.1: Traffic Data for Air Quality Analysis (I-95 at SR 80/Southern Boulevard PD&E Study)

Roadway Type	Roadway Name	Roadway Segment	2020		2040	
			Vehicles per Hour	Cruise Speed (mph)	Vehicles per Hour	Cruise Speed (mph)
No Build Alternative						
East/West Arterial	SR 80/Southern Boulevard	Westbound Approach Traffic	1,326	35	1,539	35
		On-Ramps to I-95 Northbound	1,910	---	2,178	---
		Eastbound Approach Traffic	3,757	45	4,419	45
		On-Ramps to I-95 Southbound	1,708	---	2,163	---
North/South Freeway	I-95	Southbound Approach Traffic	7,594	65	7,943	65
		Southbound Off-Ramp to SR 80/Southern Boulevard	1,239	---	1,358	---
		Northbound Approach Traffic	11,595	65	12,336	65
		Northbound Off-Ramp to SR 80/Southern Boulevard	1,333	---	1,796	---
Recommended Build Alternative						
East/West Arterial	SR 80/Southern Boulevard	Westbound Approach Traffic	1,326	35	1,539	35
		On-Ramp to I-95 Northbound	742	---	852	---
		Eastbound Approach Traffic	2,589	45	3,093	45
		On-Ramp to I-95 Southbound	1,708	---	2,163	---
North/South Freeway	I-95	Southbound Approach Traffic	7,594	65	7,943	65
		Southbound Off-Ramp to SR 80/Southern Boulevard	1,239	---	1,358	---
		Northbound Approach Traffic	11,595	65	12,336	65
		Northbound Off-Ramp to SR 80/Southern Boulevard	753	---	1,024	---





Table 2.2: Predicted CO Concentrations

Alternative	Year	Receptor Site Number(s)	Maximum One-Hour CO Concentration (ppm)	Maximum Eight-Hour CO Concentration (ppm)
I-95 at SR 80/Southern Boulevard*				
No Build	First Year Open (2020)	1, 11	10.5	6.3
	Design Year (2040)	11, 11	10.3	6.2
Build (Recommended)	First Year Open (2020)	1, 11	10.5	6.3
	Design Year (2040)	1, 11	10.3	6.2

Note:

* The predicted worst-case one-hour and eight-hour CO concentrations for the No Build and Recommended Build Alternatives are below the NAAQS of 35 ppm for one-hour concentrations and 9 ppm for eight-hour concentrations.

2.1 Green House Gas Emissions

The project is expected to improve traffic flow through the addition of direct connect ramps that will relieve congestion to and from the mainline of SR 9/I-95, leading to an enhancement in operational capacity and overall traffic operations, which should reduce operational greenhouse gas emissions.



ATTACHMENTS

Air Quality Screening Results

CO Florida 2012

Draft



CO Florida 2012 - Results
 Friday, March 31, 2017

Project Description

Project Title I-95 at SR 80 PD&E Study 3-31-2017
 Facility Name I-95 & SR 80 FPID: 435516-1-22-02
 User's Name Raina Cumby
 Run Name No Build Alternative
 FDOT District 4
 Year 2020
 Intersection Type N-S Diamond
 Speed Arterial 35 mph Freeway 65 mph
 Approach Traffic Arterial 3757 vph Freeway 11595 vph

Environmental Data

Temperature 53.9 °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	10.5	6.3
2	7.8	4.7
3	8.3	5.0
4	8.5	5.1
5	8.3	5.0
6	8.0	4.8
7	8.3	5.0
8	8.2	4.9
9	7.1	4.3
10	10.0	6.0
11	10.5	6.3
12	7.8	4.7
13	8.3	5.0
14	8.5	5.1
15	8.3	5.0
16	8.1	4.9
17	8.3	5.0
18	8.2	4.9
19	7.1	4.3
20	10.1	6.1

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

CO Florida 2012 - Results
 Friday, March 31, 2017

Project Description

Project Title I-95 at SR 80 PD&E Study 3-31-2017
 Facility Name I-95 & SR 80 FPID: 435516-1-22-02
 User's Name Raina Cumby
 Run Name Build Alternative
 FDOT District 4
 Year 2020
 Intersection Type N-S Diamond
 Speed Arterial 35 mph Freeway 65 mph
 Approach Traffic Arterial 2589 vph Freeway 11595 vph

Environmental Data

Temperature 53.9 °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)

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1	10.5	6.3
2	7.8	4.7
3	7.9	4.7
4	8.0	4.8
5	7.7	4.6
6	7.4	4.4
7	8.0	4.8
8	8.0	4.8
9	7.0	4.2
10	10.0	6.0
11	10.5	6.3
12	7.8	4.7
13	7.9	4.7
14	8.0	4.8
15	7.7	4.6
16	7.5	4.5
17	8.0	4.8
18	8.0	4.8
19	7.0	4.2
20	10.1	6.1

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 Facility Name I-95 & SR 80 FPID: 435516-1-22-02
 User's Name Raina Cumby
 Run Name No Build Alternative
 FDOT District 4
 Year 2040
 Intersection Type N-S Diamond
 Speed Arterial 35 mph Freeway 65 mph
 Approach Traffic Arterial 4419 vph Freeway 12336 vph

Environmental Data

Temperature 53.9 °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	10.3	6.2
2	7.9	4.7
3	8.1	4.9
4	8.3	5.0
5	7.8	4.7
6	8.0	4.8
7	8.4	5.0
8	8.1	4.9
9	6.8	4.1
10	9.6	5.8
11	10.3	6.2
12	7.9	4.7
13	8.0	4.8
14	8.2	4.9
15	7.8	4.7
16	8.0	4.8
17	8.4	5.0
18	8.2	4.9
19	6.9	4.1
20	9.6	5.8

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

CO Florida 2012 - Results
 Friday, March 31, 2017

Project Description

Project Title I-95 at SR 80 PD&E Study 3-31-2017
 Facility Name I-95 & SR 80 FPID: 435516-1-22-02
 User's Name Raina Cumby
 Run Name Build Alternative
 FDOT District 4
 Year 2040
 Intersection Type N-S Diamond
 Speed Arterial 35 mph Freeway 65 mph
 Approach Traffic Arterial 3093 vph Freeway 12336 vph

Environmental Data

Temperature 53.9 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
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8	8.0	4.8
9	6.8	4.1
10	9.6	5.8
11	10.3	6.2
12	7.9	4.7
13	7.8	4.7
14	7.7	4.6
15	7.3	4.4
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18	8.0	4.8
19	6.9	4.1
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