



# Air Quality Technical Memorandum

**SR-9/I-95 @ SR 842/Broward Boulevard (Broward Boulevard from West of SW 24th Avenue to East of NW/SW 18th Avenue)  
Project Development & Environment (PD&E) Study**

**Efficient Transportation Decision Making (ETDM) No.: 14226**

**Broward County, Florida  
Financial Project ID Number: 435513-1-22-02**

**Prepared for:  
Florida Department of Transportation, District Four  
3400 West Commercial Boulevard  
Fort Lauderdale, FL 33309**

**April 2019**

*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 Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.*

AIR QUALITY TECHNICAL MEMORANDUM

Florida Department of Transportation

District Four

SR-9/I-95 (MP 9.310 to MP 11.282) @ SR 842/Broward Boulevard from West of SW 24th Avenue to East of NW/SW 18th Avenue (MP 4.886 to MP 5.392) Project Development & Environment (PD&E) Study

Limits of Project: SR-9/I-95 (MP 9.310 to MP 11.282) @ SR 842/Broward Boulevard from West of SW 24th Avenue to East of NW/SW 18th Avenue (MP 4.886 to MP 5.392)

Broward County, Florida

Financial Management Number: 435513-1-22-02

ETDM Number: 14226

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 Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

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Authorized Signature

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Print/Type Name

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Title

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Address

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Address



Date: February 21, 2019

To: Florida Department of Transportation, District Four

Prepared by: Lindsay Brendis, Environmental Scientist  
Jim Mykytka, Senior Environmental Scientist

Company: RS&H, Inc.

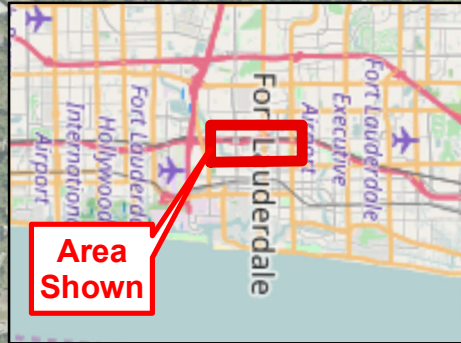
Subject: AIR QUALITY ANALYSIS  
SR-9/I-95 (MP 9.310 to MP 11.282) @ SR 842/Broward Boulevard from West of SW 24th Avenue to East of NW/SW 18th Avenue (MP 4.886 to MP 5.392) Project Development & Environment (PD&E) Study  
Financial Management Number: 435513-1-22-02  
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## 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 842 / Broward Boulevard Interchange in Broward County, Florida in the city of Fort Lauderdale. The SR 9 / I-95 at SR 842 / Broward Boulevard Interchange study limits extend along SR 9 / I-95, from just south of Davie Boulevard to just south of Sunrise Boulevard (MP 9.310 to MP 11.282), a distance of approximately two miles, and along SR 842 / Broward Boulevard from NW 24<sup>th</sup> Avenue to SW 18<sup>th</sup> Avenue (MP 4.886 to MP 5.392), a distance of approximately one half mile. The study area includes the median ramp connections to the Park & Ride lots from I-95 north and south of Broward Boulevard. Land use within the study area consists of primarily commercial use, but also includes institutional and residential land use. Figure 1 depicts the project location.

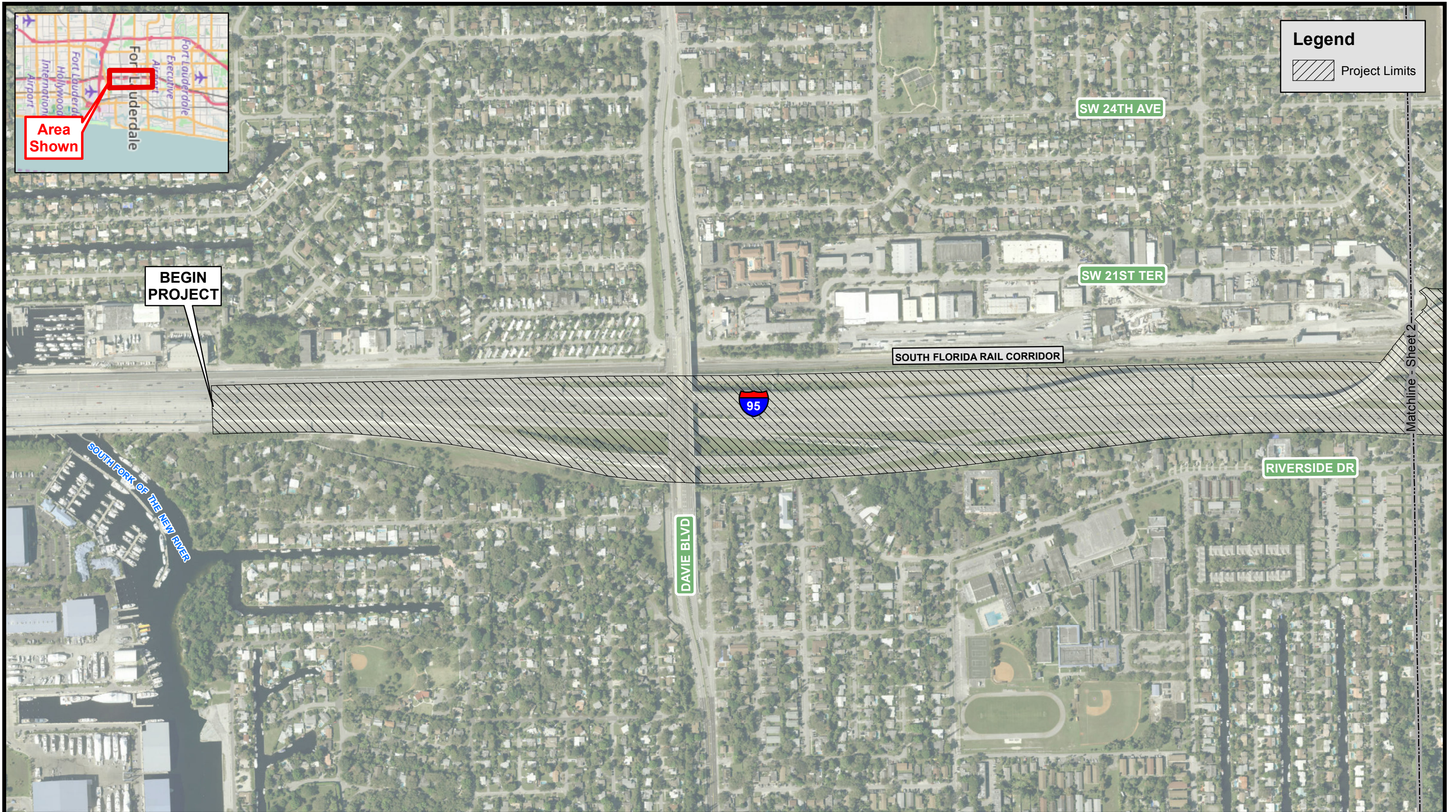
As part of this PD&E Study, the project has been reviewed for air quality impacts consistent with the guidance provided by Federal Highway Administration (FHWA) as described in Part 2, Chapter 19 of the FDOT PD&E Manual entitled Air Quality (dated January 14, 2019). The purpose of this Technical Memorandum is to document the findings of the air quality analysis.





**Legend**

 Project Limits



Florida Department of Transportation  
 I-95 at Broward Blvd PD&E Study  
 ETDM # 14226  
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 Broward County, Florida

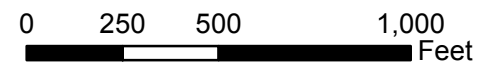
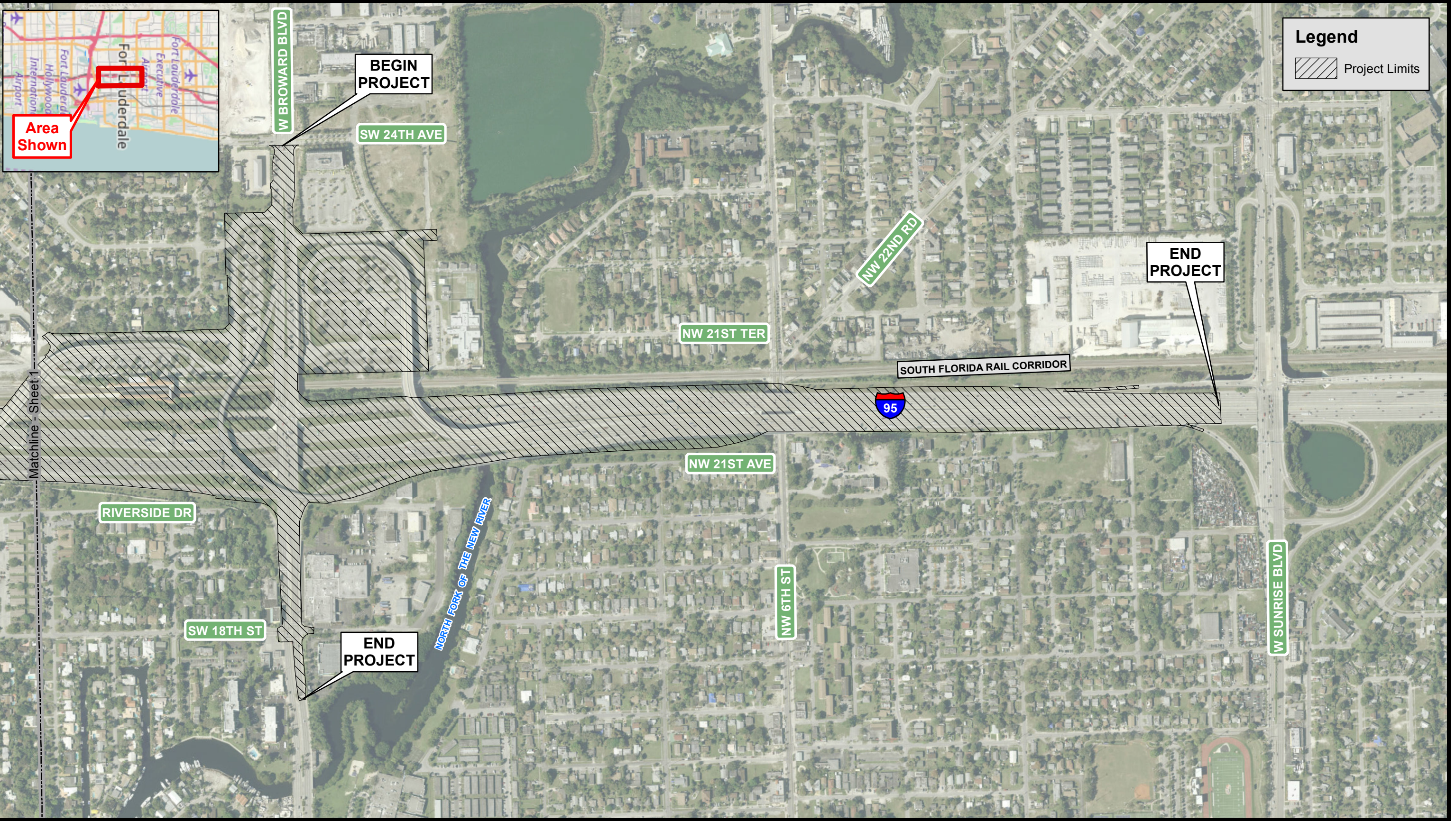
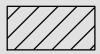


Figure 1  
 Project Location Map



**Legend**

 Project Limits

Matchline - Sheet 1



Florida Department of Transportation  
 I-95 at Broward Blvd PD&E Study  
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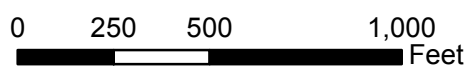


Figure 1  
 Project Location Map



## 2.0 Air Quality Analysis

The proposed project is located in Broward 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 Action and 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 Action and Build Alternatives was associated with the I-95 and SR 842 / Broward Boulevard interchange. Both the No Action and 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 Traffic Data Collection and Traffic Projections report (dated August 2017).

Estimates of CO were predicted for the default receptors that 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 Action or 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 Broward Blvd. PD&E Study)**

Roadway Type	Roadway Name	Roadway Segment	2020		2040	
			Vehicles Per Hour	Cruise Speed (mph)	Vehicles Per Hour	Cruise Speed (mph)
No Action Alternative						
Northbound off-ramp	I-95 off-ramp	Northbound Approach Traffic	1,441	45	1,724	45
East/West Arterial	Broward Blvd.	Eastbound Approach Traffic	1,564	40	1,985	40
		Westbound Approach Traffic	1,652		2,133	
Build Alternative						
Northbound off-ramp	I-95 off-ramp	Northbound Approach Traffic	1,441	45	1,724	45
East/West Arterial	Broward Blvd.	Eastbound Approach Traffic	1,564	40	1,985	40
		Westbound Approach Traffic	1,652		2,133	

**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 off-ramp to Broward Boulevard*				
No Action	First Year Open (2020)	8, 9, 10	6.8	4.1
	Design Year (2040)	9	7.0	4.2
Build	First Year Open (2020)	8, 9, 10	6.8	4.1
	Design Year (2040)	9	7.0	4.2

Note: \* The predicted worst-case one-hour and eight-hour CO concentrations for the No Action and 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 and relieve congestion to and from the mainline of SR 9 / I-95 through the conversion of general purpose lanes to tolled express lanes as well as improve intermodal services within the interchange area, 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



CO Florida 2012 - Results  
 Wednesday, December 20, 2017

Project Description

Project Title I-95 at Broward Blvd PD&E Study  
 Facility Name FDOT  
 User's Name Lindsay Brendis  
 Run Name No Action 2020 Broward Blvd  
 FDOT District 4  
 Year 2020  
 Intersection Type South Tee  
 Speed Arterial 40 mph  
 Approach Traffic Arterial 1652 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	6.7	4.0
2	6.7	4.0
3	6.7	4.0
4	6.7	4.0
5	6.5	3.9
6	6.3	3.8
7	6.3	3.8
8	6.8	4.1
9	6.8	4.1
10	6.8	4.1
11	6.1	3.7
12	5.9	3.5
13	6.0	3.6
14	6.3	3.8
15	6.6	4.0
16	6.4	3.8
17	6.3	3.8

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

CO Florida 2012 - Results  
 Wednesday, December 20, 2017

Project Description

Project Title I-95 at Broward Blvd PD&E Study  
 Facility Name FDOT  
 User's Name Lindsay Brendis  
 Run Name Build 2020 Broward Blvd  
 FDOT District 4  
 Year 2020  
 Intersection Type South Tee  
 Speed Arterial 40 mph  
 Approach Traffic Arterial 1652 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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 (ppm, including background CO)

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7	6.3	3.8
8	6.8	4.1
9	6.8	4.1
10	6.8	4.1
11	6.1	3.7
12	5.9	3.5
13	6.0	3.6
14	6.3	3.8
15	6.6	4.0
16	6.4	3.8
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\*\*\*\*\*  
 \*\*\*\*\*PROJECT PASSES\*\*\*\*\*  
 \*NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED\*  
 \*\*\*\*\*

CO Florida 2012 - Results  
 Wednesday, December 20, 2017

Project Description

Project Title I-95 at Broward Blvd PD&E Study  
 Facility Name FDOT  
 User's Name Lindsay Brendis  
 Run Name No Action 2040 Broward Blvd  
 FDOT District 4  
 Year 2040  
 Intersection Type South Tee  
 Speed Arterial 40 mph  
 Approach Traffic Arterial 2133 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

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 (ppm, including background CO)

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6	6.3	3.8
7	6.3	3.8
8	6.9	4.1
9	7.0	4.2
10	6.8	4.1
11	6.2	3.7
12	5.9	3.5
13	5.9	3.5
14	6.3	3.8
15	6.7	4.0
16	6.3	3.8
17	6.3	3.8

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

CO Florida 2012 - Results  
Wednesday, December 20, 2017

Project Description

Project Title I-95 at Broward Blvd PD&E Study  
Facility Name FDOT  
User's Name Lindsay Brendis  
Run Name Build 2040 Broward Blvd  
FDOT District 4  
Year 2040  
Intersection Type South Tee  
Speed Arterial 40 mph  
Approach Traffic Arterial 2133 vph

Environmental Data

Temperature 53.9 °F  
Reid Vapor Pressure 13.3 psi  
Land Use Urban  
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\*\*\*\*\*PROJECT PASSES\*\*\*\*\*  
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