



FLORIDA DEPARTMENT OF TRANSPORTATION



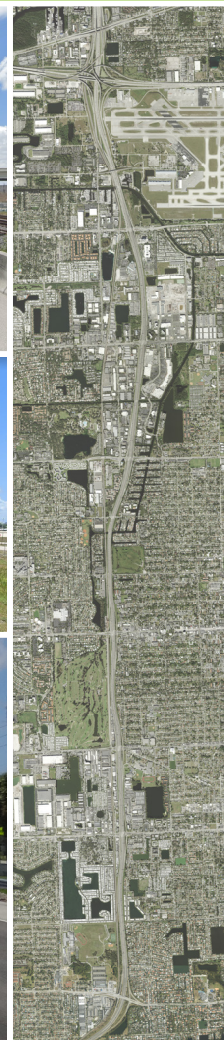
PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY

Interstate 95 (I-95/SR 9) • From South of Hallandale Beach Boulevard (SR 858) to North of Hollywood Boulevard (SR 820)
Broward County, FL • FPID No.: 436903-I-22-02 • ETDM No.: 14254

AIR QUALITY TECHNICAL MEMORANDUM

DRAFT

JULY 2021



AIR QUALITY TECHNICAL MEMORANDUM

Interstate 95 (I-95) / State Road 9 (SR 9) Project Development and Environment Study

Project Study Limits:

From South of Hallandale Beach Boulevard (SR 858) to
North of Hollywood Boulevard (SR 820), Broward County
Mileposts 0.0 – 3.1
ETDM Number 14254

Broward County
FPID Number 436903-1-22-02

Prepared for:

Florida Department of Transportation – District 4
3400 West Commercial Boulevard
Fort 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 Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

Prepared By:

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JULY 2021

DRAFT



Date: June 22, 2021

To: Florida Department of Transportation, District Four

Prepared By: Timothy W.A. Ogle, Mark Clark, CECOS

Reference: **Air Quality Technical Memorandum – Interstate 95 (I-95)/State Road 9 (SR 9) PD&E Study (FPID# 436903-1-22-02; ETDM#14254)**

The purpose of this report is to present the findings of the project's air quality screening analysis. The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for improvements along Interstate 95 (I-95) from south of Hallandale Beach Boulevard (SR 858) to north of Hollywood Boulevard (SR 820) from Milepost 0.0 to Milepost 3.1, a distance of approximately three miles (see **Figure 1**). The PD&E Study is proposing improvements to the State Road 9 (SR 9)/Interstate 95 (I-95) interchanges at Hallandale Beach Boulevard, Pembroke Road, and Hollywood Boulevard. The project is located in Broward County, Florida and is contained within the municipalities of Hallandale Beach, Pembroke Park, and Hollywood. This Air Quality Technical Memorandum (AOTM) has been prepared in accordance with *Chapter 19 Air Quality of Part 2 of the FDOT PD&E Manual (dated July 1, 2020)*.

I-95 is the primary north-south interstate facility that links all major cities along the Atlantic Seaboard and is one of the most important transportation systems in southeast Florida. I-95 is one of the two major expressways, Florida's Turnpike being the other, that connect major employment centers and residential areas within the South Florida tri-county area. I-95 is part of the State's Strategic Intermodal System and the National Highway System. In addition, I-95 is designated as an evacuation route along the east coast of Florida.

I-95, within the project limits, currently consists of eight general use lanes (four in each direction) and four dynamically tolled express lanes (two in each direction). This segment of I-95 is functionally classified as a Divided Urban Principal Arterial Interstate and has a posted speed limit of 65 miles per hour (MPH). The access management classification for this corridor is Class 1.2, Freeway in an existing urbanized area with limited access.

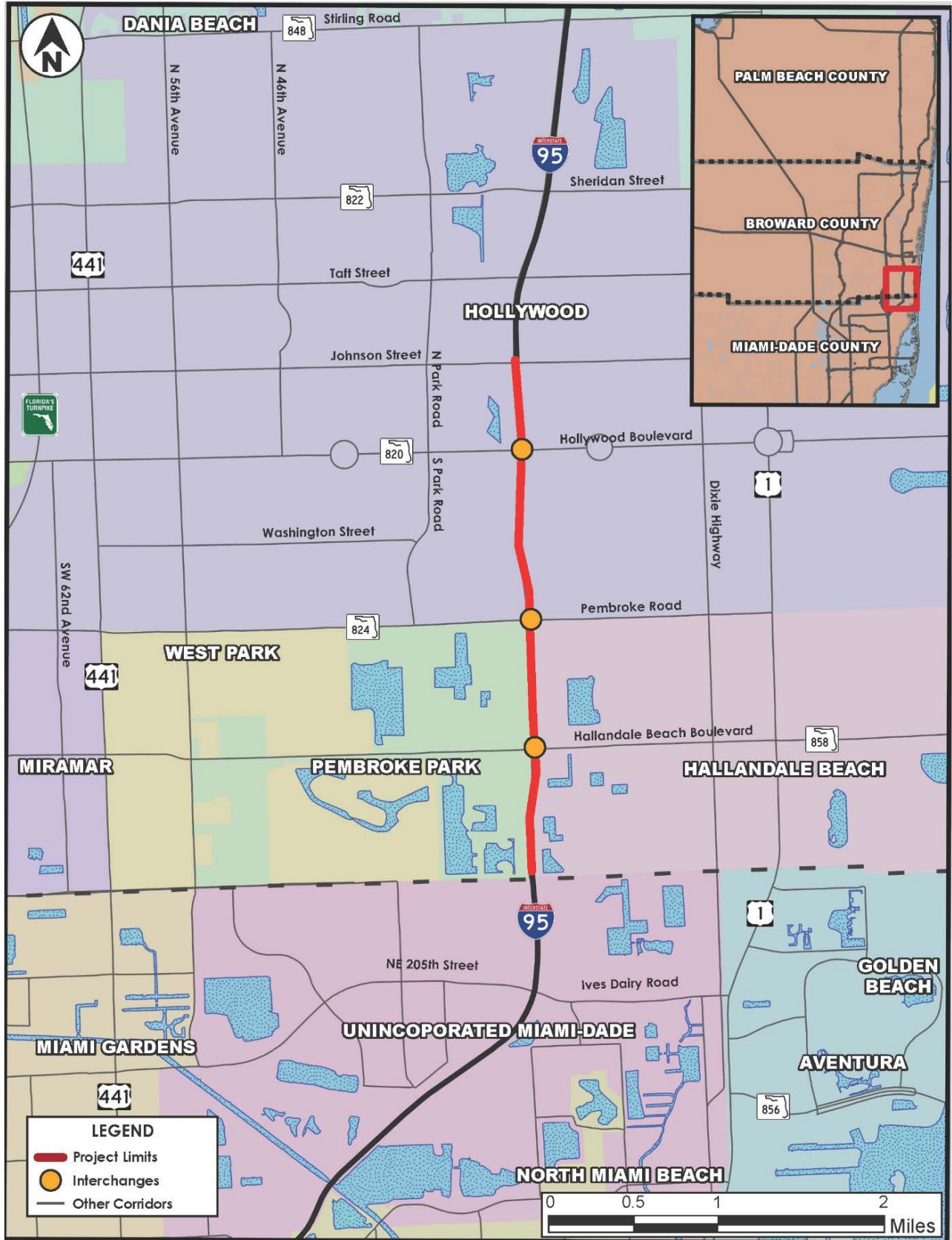


Figure 1 - Project Location Map



There are three existing full interchanges within the project limits located at Hallandale Beach Boulevard, Pembroke Road, and Hollywood Boulevard. All three roadways are classified as Divided Urban Principal Arterials. Hallandale Beach Boulevard consists of four lanes west of I-95 and six lanes east of I-95. Pembroke Road and Hollywood Boulevard each have six lanes west of I-95 and four lanes east of I-95.

This PD&E Study is proposing a collector distributor roadway system within the I-95 mainline project area. The collector distributor roadway system will remove the Pembroke Road interchange from directly interacting with the I-95 mainline. In the northbound direction, all exiting traffic to Pembroke Road and Hollywood Boulevard will utilize a new collector distributor off-ramp just south of Hallandale Beach Boulevard. The collector distributor roadway system will extend to just north of Hollywood Boulevard serving the exit traffic to Pembroke Road, entry traffic from Pembroke Road and entry traffic from Hollywood Boulevard. In the southbound direction, the new collector distributor roadway system will not be continuous, it will end and begin at Pembroke Road. The first section combines the off-ramps to Hollywood Boulevard and Pembroke Road and the second section combines the on-ramps from Pembroke Road and Hallandale Beach Boulevard. This PD&E Study is evaluating the potential modification of existing entrance and exit ramps serving the three interchanges within the project limits. Widening and turn lane modifications at the ramp terminals were evaluated to facilitate the ramp modifications and improve the access and operation of the interchanges.

For a more detailed description of the planned improvements, please see the project's Preliminary Engineering Report (PER).

The primary land uses adjacent to the project corridor comprise developed properties, such as commercial, light industrial, residential, institutional facilities, and recreation/open space (e.g. golf courses).

The project is located in an area currently designated as being in attainment for the following criteria air pollutant(s): ozone/nitrogen dioxide/particulate matter (2.5 microns in size and 10 microns in size)/sulfur dioxide/carbon monoxide/lead. The No-Build and Preferred 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 for CO uses the latest United States Environmental Protection Agency (USEPA)-approved software to produce estimates of one-hour and eight-hour CO at default air quality



receptor locations. The predicted CO levels can then be directly compared to the current National Ambient Air Quality Standards (NAAQS) for CO to determine if the project “passes” the screening model, or if exceedances are predicted to occur.

The cross street with the highest forecast volume traffic was selected for this air quality analysis. Hallandale Beach Boulevard is the corridor with the highest forecast traffic. The No-Build and Preferred Alternatives were evaluated for both the opening year (2030) and the design year (2045). The traffic data input used in the evaluation are the same for the No-Build and Preferred Alternatives and shown in **Table 1**.

Table 1 - I-95/Hallandale Beach Boulevard Interchange Peak-Hour Volumes

Year	Location	Approach Direction	Peak-Hour Directional Volume*	Speed (MPH)
Opening (2030)	I-95	Southbound	9,007	65
		Southbound Off-Ramp	1,177	N/A
		Northbound	9,004	65
		Northbound Off-Ramp	1,233	N/A
	Hallandale Beach Boulevard	Eastbound	1,849	40
		Southbound On-Ramp	1,054	N/A
		Westbound	2,414	35
		Northbound On-Ramp	1,488	N/A
Design (2045)	I-95	Southbound	10,154	65
		Southbound Off-Ramp	1,225	N/A
		Northbound	10,201	65
		Northbound Off-Ramp	1,460	N/A
	Hallandale Beach Boulevard	Eastbound	1,938	40
		Southbound On-Ramp	1,461	N/A
		Westbound	2,758	35
		Northbound On-Ramp	1,498	N/A

Notes: * N/A = Not Assigned. Speed for all ramps developed by the CO Florida 2012 Screening Model.

Estimates of CO were predicted for the default receptors, which are located between 10 and 150 feet from the edge of the roadway. The results of the CO Screening Analysis are presented in **Table 2** and also in the attached CO Florida 2012 output data. Based on the results from the screening model, the highest project-related CO one-hour and eight-hour levels are not predicted to meet or exceed the one-hour or eight-hour NAAQS for this pollutant with either the No-Build or Preferred Alternatives. As such, the project passes the screening model.



Table 2 - Predicted Carbon Monoxide Levels

Year	Maximum CO Levels (PPM)	
	One-Hour (NAAQS – 35 PPM)	Eight-Hour (NAAQS – 9 PPM)
Opening (2030)	8.9	5.3
Design (2045)	9.1	5.5

Notes: CO = Carbon Monoxide, PPM = Parts per million, NAAQS = National Ambient Air Quality Standard. No Build and Preferred Alternatives Maximum CO levels are the same.

Agency coordination to obtain air quality related information occurred through the Efficient Transportation Decision Making (ETDM) Planning and Programming Screens (ETDM #14254) and the Advance Notification (AN) process. The FDOT ETDM and AN package were distributed during the Programming Screening event on November 6, 2015. The ETDM review was completed on December 21, 2015, and the most recent ETDM Programming Screen Summary Report was published on July 11, 2016. The USEPA reviewed the project and commented that the project study area is currently in attainment with the NAAQS Standards and the project will likely have a moderate impact on air quality. The USEPA also recommended that the project follow the Florida State Implementation Plan to ensure consistency with the state's emissions levels. The project is located in an attainment area, so criteria pollutants under NAAQS are considered to be at an acceptable level. The summary degree of effect for air quality for all build alternatives was also listed as 'Moderate' in the ETDM Programming Screen Summary Report.

The construction of the planned improvements could cause short-term impacts to air quality through airborne dust and other ambient air pollutants. These impacts will be minimized by adherence to all applicable State and local regulations and to the FDOT's Standard Specifications for Road and Bridge Construction.



CO Florida 2012 Screening Model Output Data



CO Florida 2012 - Results
Sunday, January 10, 2021

Project Description

Project Title	I-95 Hallandale to Hollywood		
Facility Name	I-95		
User's Name	CECOS		
Run Name	Opening Year No Build/Build		
FDOT District	4		
Year	2030		
Intersection Type	E-W Freeway N-S Diamond		
Speed	Arterial 35 mph	Freeway	65 mph
Approach Traffic	Arterial 2414 vph	Freeway	9007 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
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1	8.9	5.3
2	7.0	4.2
3	7.2	4.3
4	7.1	4.3
5	7.0	4.2
6	6.8	4.1
7	7.3	4.4
8	7.3	4.4
9	6.3	3.8
10	8.5	5.1
11	8.9	5.3
12	7.0	4.2
13	7.1	4.3
14	7.0	4.2
15	6.9	4.1
16	6.8	4.1
17	7.3	4.4
18	7.4	4.4
19	6.4	3.8
20	8.5	5.1

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



CO Florida 2012 - Results
Sunday, January 10, 2021

Project Description

Project Title	I-95 Hallandale to Hollywood		
Facility Name	I-95		
User's Name	CECOS		
Run Name	Design Year No Build/Build		
FDOT District	4		
Year	2045		
Intersection Type	E-W Freeway N-S Diamond		
Speed	Arterial 35 mph	Freeway	65 mph
Approach Traffic	Arterial 2758 vph	Freeway	10201 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	9.1	5.5
2	7.1	4.3
3	7.2	4.3
4	7.2	4.3
5	7.0	4.2
6	7.0	4.2
7	7.4	4.4
8	7.4	4.4
9	6.5	3.9
10	8.7	5.2
11	9.1	5.5
12	7.1	4.3
13	7.1	4.3
14	7.2	4.3
15	7.0	4.2
16	7.0	4.2
17	7.4	4.4
18	7.4	4.4
19	6.5	3.9
20	8.7	5.2

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

