FINAL - November 2022

Air Quality Technical Memorandum

Project Development and Environment (PD&E) Study to Widen Florida's Turnpike (SR 91) from South of I-595 to Wiles Road

Broward County

Financial Project ID No. 442212-1-22-01

ETDM No. 14350

November 2022

Date: November 8, 2022
To: Jazlyn Heywood, PE, FTE Project Manager
Prepared By: Mariano Berrios, Senior Transportation Specialist (RS&H, Inc.)
Project: Widen Florida's Turnpike (SR 91) from South of I-595 to Wiles Road
Financial Project ID No.442212-1-22-01
Broward County, Florida
Subject: Air Quality Technical Memorandum

INTRODUCTION

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), is evaluating alternatives to widen the Florida's Turnpike Mainline from South of I-595 (milepost (MP) 53) to Wiles Road (MP 70), approximately 17 miles. The project is located in Broward County, Florida and is contained within the following eleven municipalities Coconut Creek, Davie, Deerfield Beach, Fort Lauderdale, Lauderdale Lakes, Lauderhill, Margate, North Lauderdale, Plantation, Pompano Beach, and Tamarac. **Figure 1** Project Location Map shows the limits of the Project Development and Environment (PD&E) Study.

Land use adjacent to the Turnpike Mainline within the project limits is predominately residential with areas of commercial and industrial land uses toward the northern end of the project.

In addition to widening, improvements being evaluated also include milling and resurfacing, bridge re-construction and existing interchange improvements. The existing interchanges within the limits of the study include I-595, Sunrise Boulevard, Commercial Boulevard, Atlantic Boulevard, Coconut Creek Parkway and Sample Road. The evaluation for two potential new reliever interchanges, one at Cypress Creek Road/McNab Road and one at Oakland Park Boulevard, is also part of the PD&E Study.

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 July 1, 2020). The purpose of this Technical Memorandum is to document the findings of the air quality analysis.

Air Quality Analysis

The proposed project is located in Broward County, Florida 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), and carbon monoxide.

The Build and No 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 CAL3QHC] 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 traffic volumes for the Build and No Build Alternatives are associated with the Florida's Turnpike and Sunrise Boulevard (SR 838) interchange. Both the Build and No Build Alternatives were evaluated for the project's design year 2045. The traffic data used in this evaluation is provided in **Table 1**, which was developed from the Preliminary Project Traffic Forecast Memorandum (PTFM) dated October 2022.

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**. Only the maximum one-hour and eight-hour CO concentrations are presented in this table. The results of the screening model are included as an attachment 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 Build or No Build Alternatives. As such, the project "passes" the screening model.

The project is located in an area which is designated in attainment for CO Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements as related to transportation improvements 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.

Figure 1: Project Location Map

Table 1: Traffic Data for Air Quality Analysis

Roadway Type	Roadway Name	Roadway Segment	2045	
			Vehicles Per Hour	Cruise Speed (mph)
No Build Alternative				
North/South Freeway	Florida's Turnpike (SR 91)	Northbound Approach	10,220	65
		Southbound Approach	9,670	65
East/West Principal Arterial	Sunrise Boulevard (SR 838)	Eastbound Approach	3,490	45
		Westbound Approach	3,770	45
Build Alternative				
North/South Freeway	Florida's Turnpike (SR 91)	Northbound Approach	10,770	65
		Southbound Approach	10,180	65
East/West Principal Arterial	Sunrise Boulevard (SR 838)	Eastbound Approach	2,750	45
		Westbound Approach	3,300	45

Source: Preliminary Project Traffic Forecast Memorandum (October 2022)

Table 2: Predicted CO Concentrations

Alternative	Design Year	Receptor Site Number(s)	Maximum One-Hour CO Concentration (ppm)	Maximum Eight-Hour CO Concentration (ppm)
Florida's Turnpike (SR 91) and Sunrise Boulevard Interchange				
No Build	2045	1, 11	9.5	5.7
Build	2045	1, 11	9.1	5.5

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

ATTACHMENTS

Air Quality Screening Results

CO Florida 2012

CO Florida 2012 - Results
Thursday, October 13, 2022

Project Description

Project Title	Turnpike Widening - I-595 to Wiles Rd.			
Facility Name	Florida's Turnpike			
User's Name	Mariano Berrios			
Run Name	Turnpike at Sunrise Blvd. 2045 PM NoBuild			
FDOT District	4			
Year	2045			
Intersection Type	N-S Diamond			
Speed	Arterial	45 mph	Freeway	65 mph
Approach Traffic	Arterial	3770 vph	Freeway	10220 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	9.5	5.7
2	7.5	4.5
3	7.9	4.7
4	7.8	4.7
5	7.5	4.5
6	8.3	5.0
7	8.3	5.0
8	7.8	4.7
9	6.6	4.0
10	8.9	5.3
11	9.5	5.7
12	7.5	4.5
13	7.8	4.7
14	7.7	4.6
15	7.5	4.5
16	8.3	5.0
17	8.3	5.0
18	7.9	4.7
19	6.6	4.0
20	8.9	5.3

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

CO Florida 2012 - Results
Wednesday, November 2, 2022

Project Description

Project Title	Turnpike Widening - I-595 to Wiles Rd.			
Facility Name	Florida's Turnpike			
User's Name	Mariano Berrios			
Run Name	Turnpike at Sunrise Blvd. 2045 AM Build			
FDOT District	4			
Year	2045			
Intersection Type	N-S Diamond			
Speed	Arterial	45 mph	Freeway	65 mph
Approach Traffic	Arterial	3300 vph	Freeway	10770 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	7.5	4.5
4	7.4	4.4
5	7.2	4.3
6	7.9	4.7
7	8.0	4.8
8	7.6	4.6
9	6.6	4.0
10	8.9	5.3
11	9.1	5.5
12	7.1	4.3
13	7.5	4.5
14	7.4	4.4
15	7.2	4.3
16	8.0	4.8
17	8.0	4.8
18	7.6	4.6
19	6.6	4.0
20	8.9	5.3

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