Air Quality Technical Memorandum

Southport Connector Expressway
PROJECT DEVELOPMENT & ENVIRONMENT STUDY

CFX Contract Number: 001632
CFX Project Number: 599-233

Prepared for:
Central Florida Expressway Authority
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Date: June 26, 2025
To: Central Florida Expressway Authority
Prepared By: Mariano Berrios, Senior Transportation Specialist (RS&H, Inc.)
Project: CFX Project No. 599-233
Southport Connector Expressway
Polk and Osceola Counties, Florida
Subject: Air Quality Technical Memorandum

INTRODUCTION

The Southport Connector Expressway is a proposed limited-access east-west divided six-lane tolled expressway connecting Poinciana Parkway with Florida's Turnpike and Canoe Creek Road, a distance of approximately 15 miles. On the west side of the project, the proposed facility begins at Poinciana Parkway, an existing four-lane roadway which intersects with Cypress Parkway, an existing east-west suburban arterial roadway. The Southport Connector Expressway would be co-located within a widened Cypress Parkway for approximately 3.5 miles to Pleasant Hill Road. Three alternatives are being considered along the Cypress Parkway segment: a Wall option with the expressway elevated on fill dirt stabilized by walls, a Bridge option with the expressway elevated on a bridge structure, and a Hybrid option with part of the expressway elevated on wall and part on bridge.

Continuing east of Pleasant Hill Road, the northern study boundary generally proceeds south of Lake Tohopekaliga (aka Toho), crossing Florida's Turnpike east to the northeast edge of Lake Gentry. The southern boundary generally runs east of Lake Russell in a southeast direction along the north edge of the Southport Mitigation Bank, crossing Florida's Turnpike east to the southwestern edge of Lake Gentry. Three alternative corridors which run south of Lake Toho, an area containing the proposed South Lake Toho Mixed Use District, are being considered. The project location map can be found in **Figure 1**.

The goals of the Southport Connector Expressway are to provide a new limited-access expressway within the greater Poinciana area and create connectivity to interregional transportation systems such as Florida's Turnpike and Interstate-4. The expressway would also relieve congestion on local roads, support planned economic development, enhance safety and emergency efficiency, aid in evacuation efforts, and provide new multi-modal opportunities.

As part of this PD&E Study, the project has been reviewed for air quality impacts consistent with the guidance provided by the Federal Highway Administration (FHWA) as described in Part 2, Chapter 19 of the Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Manual entitled Air Quality (dated July 31, 2024). 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 Polk and Osceola Counties, Florida which are 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), carbon monoxide (CO); sulfur dioxide and lead.

The Build and No Build Alternatives were subjected to a 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 latest United States Environmental Protection Agency (USEPA) approved 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 (NAAQS) for CO that are 35 parts per million (ppm) and 9 ppm, respectively.

The highest approach traffic volumes for the Build and No Build Alternatives are associated with the Cypress Parkway at Old Pleasant Hill Road intersection (No Build PM) and the Southport Connector at Florida's Turnpike interchange (Build PM), respectively. Both the No Build and Build Alternatives were evaluated for the project's design year 2050. The traffic data used in this evaluation is provided in **Table 1**.

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-NAAQS for this pollutant with either the Build or No Build Alternatives. As such, the project "passes" the screening model.

Polk and Osceola Counties are in attainment for the Particulate Matter (PM) NAAQS, both PM2.5 and PM10, therefore no project level analysis is needed (FDOT Part 2 Chapter 19 PD&E Manual). Only particulate emissions associated with construction activities are considered. Project level impacts during construction are temporary in nature. PM emissions associated with construction activities include dust as well as products of combustion, roadway deposits from brake dust, tire particles, and roadway dirt. These impacts are minimized by adherence to applicable state regulations and to the FDOT Standard Specifications for Road and Bridge Construction.

Project level Mobile Source Air Toxics (MSATs) is only required for federally funded projects. The U.S. Environmental Protection Agency (USEPA) regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends, the USEPA forecasts a combined reduction of over 76 percent in the total annual emissions rate for the priority MSAT from 2020 to 2060 while vehicle-miles of travel are

projected to increase by 31 percent. An MSAT analysis is not required for this project.

This project is not expected to create adverse impacts on air quality because the project area is in attainment for all NAAQS. Therefore, the Clean Air Act conformity requirements do not apply to the project. Additionally, the project is expected to improve the Level of Service (LOS) and reduce delays and congestion on all facilities within the study area.

Figure 1: Project Location Map

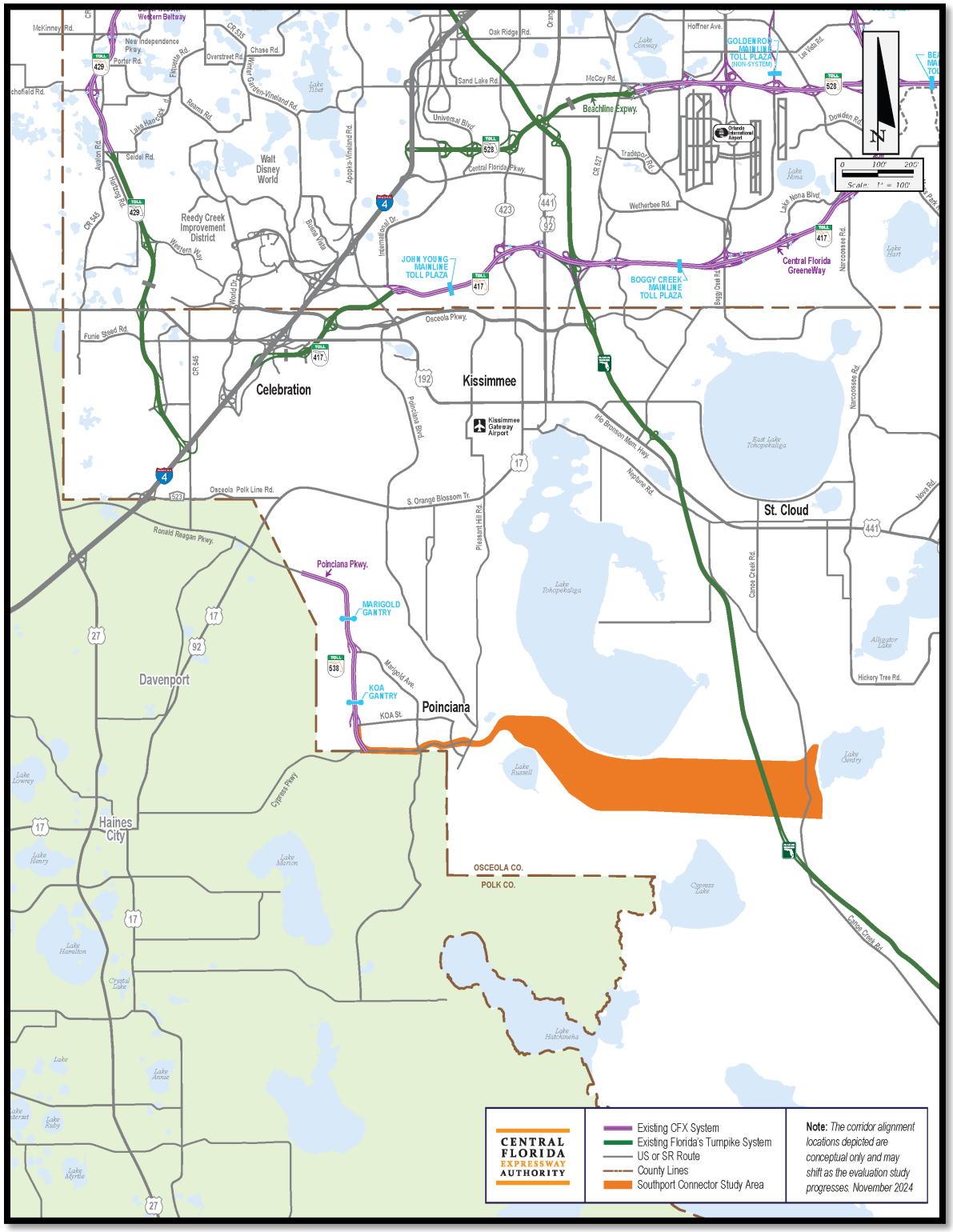

Table 1: Traffic Data for Air Quality Analysis

Roadway Type	Roadway Name	Roadway Segment	2050	
			Vehicles Per Hour	Cruise Speed (mph)
No Build Alternative				
North/South Minor Arterial	Old Pleasant Hill Road	Northbound Approach	480	45
		Southbound Approach	230	45
East/West Principal Arterial	Cypress Parkway	Eastbound Approach	2,800	45
		Westbound Approach	3,730	45
Build Alternative				
North/South Freeway	Florida's Turnpike	Northbound Approach	3,560	70
		Southbound Approach	3,190	70
East/West Freeway	Southport Connector Expressway	Eastbound Approach	4,170	70
		Westbound Approach	620	70

Table 2: Predicted CO Concentrations

Alternative	Design Year	Receptor Site Number(s)	Maximum One-Hour CO Concentration (ppm)	Maximum Eight-Hour CO Concentration (ppm)
Southport Connector Expressway				
No Build	2050	3, 8, 13, 18	9.0	5.4
Build	2050	1, 11	8.6	5.2

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, May 1, 2025

Project Description

Project Title	Southport Connector Expressway	
Facility Name	CFX Southport Connector	
User's Name	Mariano Berrios	
Run Name	No-Build PM-Cypress Pkwy/Old Pleasant Hill	
FDOT District	5	
Year	2050	
Intersection Type	6 X 4	
Speed	Arterial	45 mph
Approach Traffic	Arterial	3730 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	5.0 ppm
8 Hr. Background	3.0 ppm

Results

(ppm, inlcuding background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	8.5	5.1
2	8.7	5.2
3	9.0	5.4
4	8.0	4.8
5	7.4	4.4
6	8.3	5.0
7	8.4	5.0
8	9.0	5.4
9	8.1	4.9
10	7.4	4.4
11	8.5	5.1
12	8.7	5.2
13	9.0	5.4
14	8.0	4.8
15	7.4	4.4
16	8.3	5.0
17	8.4	5.0
18	9.0	5.4
19	8.1	4.9
20	7.4	4.4

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

CO Florida 2012 - Results

Tuesday, May 6, 2025

Project Description

Project Title	Southport Connector Expressway			
Facility Name	CFX Southport Connector			
User's Name	Mariano Berrios			
Run Name	Build PM - Southport Connector at Fl. Tpk.			
FDOT District	5			
Year	2050			
Intersection Type	N-S Diamond			
Speed	Arterial	65 mph	Freeway	65 mph
Approach Traffic	Arterial	4170 vph	Freeway	3560 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	5.0 ppm
8 Hr. Background	3.0 ppm

Results

(ppm, inlcuding background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	8.6	5.2
2	7.8	4.7
3	8.2	4.9
4	7.7	4.6
5	7.5	4.5
6	6.9	4.1
7	7.6	4.6
8	8.1	4.9
9	6.2	3.7
10	7.4	4.4
11	8.6	5.2
12	7.8	4.7
13	8.2	4.9
14	7.7	4.6
15	7.5	4.5
16	6.9	4.1
17	7.6	4.6
18	8.1	4.9
19	6.2	3.7
20	7.4	4.4

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

Note: The model labels the diamond interchange type as freeway-to-arterial even though it is a freeway-to-freeway type interchange. Results are not affected since the approach volumes and speeds are accurate.

The maximum approach speed used is 65 mph since it is the maximum accepted by the model.