Date: February 5, 2018

To: CFX SR 408 East Extension PD&E Project File

From: Metric Engineering, Inc.

Subject: CFX Project Number: 408-254

Air Quality Screening Test

SR 408 East Extension from SR 50 to SR 520

Orange County

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, USEPA Regulation 40 CFR Part 93B, and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

The Central Florida Expressway (CFX) is conducting a Project Development and Environment (PD&E) Study for the proposed eastern extension of SR 408 from its current eastern terminus at SR 50, locally known as East Colonial Drive, to the vicinity of the SR 50 and SR 520 interchange. The proposed project is located in Orange County, an area 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/lead.

The projects 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 Florida Department of Transportation's (FDOT's) screening model for CO uses the latest United States Environmental Protection Agency (EPA)-approved software (CO Florida 2012, Version 1.01) to produce estimates of one-hour and eight-hour CO at default air quality receptor locations. The one-hour and eight-hour estimates can be directly compared to the current one-and eight-hour National Ambient Air Quality Standards (NAAQS) for CO.

The roadway intersection along the proposed project forecast to have the highest total approach traffic volume is Avalon Park Boulevard. The Build and No-Build scenarios for both the opening year (2025) and the design year (2045) were considered. Data used in this evaluation is attached to this memorandum. The No-Build scenario would result in the retainage of the existing SR 408 facility without providing an eastern extension. Therefore, under the No-Build scenario there is no intersection of SR 408 and Avalon Park Boulevard. The traffic data used in this air quality evaluation are attached to this memorandum.

Estimates of CO were predicted for the default receptors which are located 10 feet to 150 feet from the edge of the roadway and include default CO background levels. 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 NAAQS for this pollutant under either the No-Build or Build alternatives. As such, the project "passes" the screening model. The results of the screening model are attached to this memorandum.

The project is expected to improve traffic flow in the surrounding area by providing a new roadway corridor to reduce congestion and improve mobility, which should reduce operational greenhouse gas emissions.

TRAFFIC DATA
SR 408 Ext at Avalon Park Blvd

Approach Volumes

Approach	Build				
	Speed	2025 AM	2025 PM	2045 AM	2045 PM
NB	45	1170	910	1495	1090
SB	45	715	720	785	930
EB	70	885	1355	1565	2345
WB	70	575	380	1565	1045
Total		3345	3365	5410	5410

Ramp Volumes

Ramps	Build				
	Speed	2025 AM	2025 PM	2045 AM	2045 PM
SB On	45	310	205	355	235
NB On	45	80	125	150	225
WB Off	70	135	85	685	1025
EB Off	70	590	895	245	165
Total		725	980	930	1190

No Build - Avalon Park Blvd					
Approach	Speed	2025 AM	2025 PM	2045 AM	2045 PM
SB	45	920	1100	1155	1370
NB	45	1100	920	1370	1155

CO Florida 2012 - Results
Monday, December 11, 2017

Project Description

Project Title	SR 408 EXTENSION			
Facility Name	SR 408			
User's Name	CAITLIN HILL			
Run Name	SR 408 AT AVALON PARK BLVD - BUILD			
FDOT District	5			
Year	2025			
Intersection Type	E-W Diamond			
Speed	Arterial	45 mph	Freeway	65 mph
Approach Traffic	Arterial	1170 vph	Freeway	1355 vph

Environmental Data

Temperature	47.8 °F
Reid Vapor Pressure	13.3 psi
Land Use	Suburban
Stability Class	D
Surface Roughness	108 cm
1 Hr. Background Concentration	3.3 ppm
8 Hr. Background Concentration	2.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	4.7	2.8
2	4.8	2.9
3	4.6	2.8
4	3.8	2.3
5	4.1	2.5
6	4.0	2.4
7	3.7	2.2
8	4.8	2.9
9	4.6	2.8
10	4.6	2.8
11	5.1	3.1
12	5.1	3.1
13	4.9	2.9
14	3.7	2.2
15	3.9	2.3
16	4.0	2.4
17	3.7	2.2
18	4.5	2.7
19	4.4	2.6
20	4.2	2.5

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

CO Florida 2012 - Results
Monday, December 11, 2017

Project Description

Project Title	SR 408 EXTENSION			
Facility Name	SR 408			
User's Name	CAITLIN HILL			
Run Name	SR 408 AT AVALON PARK BLVD - BUILD			
FDOT District	5			
Year	2025			
Intersection Type	E-W Diamond			
Speed	Arterial	45 mph	Freeway	65 mph
Approach Traffic	Arterial	1170 vph	Freeway	1355 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 Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.4	3.8
2	6.4	3.8
3	6.2	3.7
4	5.4	3.2
5	5.8	3.5
6	5.7	3.4
7	5.4	3.2
8	6.4	3.8
9	6.3	3.8
10	6.3	3.8
11	6.7	4.0
12	6.7	4.0
13	6.5	3.9
14	5.4	3.2
15	5.6	3.4
16	5.7	3.4
17	5.4	3.2
18	6.2	3.7
19	6.1	3.7
20	5.9	3.5

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NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
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CO Florida 2012 - Results
Monday, December 11, 2017

Project Description

Project Title	SR 408 EXTENSION
Facility Name	SR 408
User's Name	CAITLIN HILL
Run Name	SR 408 AND AVALON PARK BLVD - NO BUILD
FDOT District	5
Year	2025
Intersection Type	East Tee
Speed	Arterial 45 mph
Approach Traffic	Arterial 1100 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 Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.3	3.8
2	6.3	3.8
3	6.3	3.8
4	5.9	3.5
5	5.6	3.4
6	5.6	3.4
7	5.9	3.5
8	6.2	3.7
9	5.9	3.5
10	5.9	3.5
11	6.3	3.8
12	6.3	3.8
13	6.3	3.8
14	6.3	3.8
15	6.0	3.6
16	6.0	3.6
17	5.9	3.5

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CO Florida 2012 - Results
Monday, December 11, 2017

Project Description

Project Title	SR 408 EXTENSION			
Facility Name	SR 408			
User's Name	CAITLIN HILL			
Run Name	SR 408 AT AVALON PARK BLVD - BUILD			
FDOT District	5			
Year	2045			
Intersection Type	E-W Diamond			
Speed	Arterial	45 mph	Freeway	65 mph
Approach Traffic	Arterial	1495 vph	Freeway	2345 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 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	6.5	3.9
4	5.5	3.3
5	6.0	3.6
6	5.8	3.5
7	5.5	3.3
8	6.5	3.9
9	6.5	3.9
10	6.5	3.9
11	7.0	4.2
12	7.0	4.2
13	6.8	4.1
14	5.5	3.3
15	5.9	3.5
16	5.8	3.5
17	5.5	3.3
18	6.3	3.8
19	6.1	3.7
20	6.1	3.7

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CO Florida 2012 - Results
Monday, December 11, 2017

Project Description

Project Title	SR 408 EXTENSION
Facility Name	SR 408
User's Name	CAITLIN HILL
Run Name	SR 408 AND AVALON PARK BLVD - NO BUILD
FDOT District	5
Year	2045
Intersection Type	East Tee
Speed	Arterial 45 mph
Approach Traffic	Arterial 1370 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 Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.4	3.8
2	6.4	3.8
3	6.4	3.8
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7	6.1	3.7
8	6.3	3.8
9	6.0	3.6
10	6.0	3.6
11	6.4	3.8
12	6.4	3.8
13	6.4	3.8
14	6.4	3.8
15	6.2	3.7
16	6.0	3.6
17	6.0	3.6

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