



Florida Department of
TRANSPORTATION

Clearlake Road (SR 501) PD&E Study: Air Quality Memorandum

From Michigan Avenue to Industry Road

FPID: 433605-1-22-01

ETDM #: 13120

January 2016

Memorandum

Date: December 10, 2015

To: Jazlyn Heywood, Florida Department of Transportation (FDOT) Project Manager

CC: John Scarlatos, Scalar Consulting Group
Rudy Gotmare, Scalar Consulting Group

From: Wayne Arner, KB Environmental Sciences, Inc.

**Subject: Air Quality Memorandum
Clearlake Road (SR 501) Project Development and Environment (PD&E) Study
From Michigan Avenue to Industry Road
FPID: 433605-1**

The referenced proposed improvement is located in Brevard County, Florida, an area currently designated by the US Environmental Protection Agency (EPA) as being in attainment for all of the criteria air pollutants. Because the project is in an attainment area and the project would reduce congestion, it is not likely that the proposed improvements will have an impact on local or regional air pollutant/pollutant precursor emissions or concentrations.

The project Build and No-Build alternatives were analyzed using the FDOT's air quality screening model, CO Florida 2012 (approved by the Federal Highway Administration (FHWA) on April 12, 2013). CO Florida 2012 uses the EPA's MOVES and CAL3QHC emission rate and dispersion models to produce estimates of one- and eight-hour concentrations of carbon monoxide (CO) at default air quality receptor locations. These concentrations can be directly compared to the one- and eight-hour National Ambient Air Quality Standards (NAAQS) for CO (35 and 9 parts per million [ppm], respectively).

The intersection forecast to have the highest approach traffic volume for the Build and No-Build Alternatives is the intersection of Clearlake Road with Industry Road. As previously stated, both the Build and No-Build Alternatives were subjected to the screening model. Additionally, both the opening year (2023) and the design year (2043) were evaluated.

Estimates of CO were predicted at worst-case receptor locations that provide a comprehensive 360 degree representation of potential near-road CO concentrations. Based on the results from the screening model, the highest predicted CO one- and eight-hour concentrations would not exceed the NAAQS regardless of alternative or year of analysis. Therefore, the project "passes" the screening test. The CO Florida 2012 output files are attached to this memorandum.

**Table 1
CO Screening Results for the No-Build and Build Alternatives
For the Intersection of Clearlake Road with Industry Road**

Year	Alternative	Maximum CO Levels (ppm)		Passes Screening Test?
		NAAQS one-hr/ Project one-hr	NAAQS eight-hr/ Project eight-hr	
2023	No-Build	35 / 5	9 / 3	Yes
	Build	35 / 5	9 / 3	Yes
2043	No-Build	35 / 5	9 / 3	Yes
	Build	35 / 5	9 / 3	Yes

Notably, because the Clearlake Road project is in an area that is designated attainment for all the NAAQS, the conformity requirements of the Clean Air Act do not apply.

Attachments

- 1. Traffic Data for Air Study Screening Test**
- 2. Carbon Monoxide Screening Test Results**

**PD&E
TRAFFIC DATA FOR AIR STUDY SCREENING TEST**

DATE: 28-Sep-15
PREPARED BY: Learned

Financial Project Number(s): 433605-1
 Work Program Item No.: N/A
 Federal Aid Numbers (s): N/A
 Project Description: SR 501 Michigan Avenue to Industry Road

NOTE: The most congested signalized intersection is the intersection with the highest total volume and lowest departure speeds and it could be two different intersections based on the "Build" vs. "No-Build" alternatives. The traffic volumes are to be the vph of the most congested leg approaching the intersection. The speeds are to be the cruise speed, also known as mid-block speed, for the most congested leg. If cruise speed is unknown, use the speed limit.

OPENING YEAR: 2023

<u>"Build"</u>	<u>"No-Build"</u>
Most Congested Signalized Intersection: <u>Industry Rd</u>	Most Congested Signalized Intersection: <u>Industry Rd</u>
Peak hour traffic for	Peak hour traffic for
most congested approach leg: <u>1160</u> vph	most congested approach leg: <u>1159</u> vph
Specify leg (NB, SB, EB, WB): <u>WB</u>	Specify leg (NB, SB, EB, WB): <u>WB</u>
Cruise Speed: <u>45</u> mph	Cruise Speed: <u>45</u> mph

DESIGN YEAR: 2043

<u>"Build"</u>	<u>"No-Build"</u>
Most Congested Signalized Intersection: <u>Industry Rd</u>	Most Congested Signalized Intersection: <u>Industry Rd</u>
Peak hour traffic for	Peak hour traffic for
most congested approach leg: <u>1352</u> vph	most congested approach leg: <u>1352</u> vph
Specify leg (NB, SB, EB, WB): <u>WB</u>	Specify leg (NB, SB, EB, WB): <u>WB</u>
Cruise Speed: <u>45</u> mph	Cruise Speed: <u>45</u> mph

CO Florida 2012 - Results
Thursday, December 10, 2015

Project Description

Project Title Clearlake Road (SR 501) 433605-1
Facility Name Intersection at Industry Road
User's Name Wayne Arner
Run Name No-Build - Opening Year 2023
FDOT District 5
Year 2023
Intersection Type E-W Freeway 4 X 4
Arterial Speed 45 mph
Max Approach Traffic 1159 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	4.6	2.8
2	4.7	2.8
3	4.9	2.9
4	4.5	2.7
5	4.4	2.6
6	4.6	2.8
7	4.7	2.8
8	4.9	2.9
9	4.5	2.7
10	4.4	2.6
11	4.6	2.8
12	4.7	2.8
13	5.0	3.0
14	4.5	2.7
15	4.4	2.6
16	4.6	2.8
17	4.8	2.9
18	4.9	2.9
19	4.5	2.7
20	4.4	2.6

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

CO Florida 2012 - Results
Thursday, December 10, 2015

Project Description

Project Title Clearlake Road (SR 501) 433605-1
Facility Name Intersection at Industry Road
User's Name Wayne Arner
Run Name Build - Opening Year 2023
FDOT District 5
Year 2023
Intersection Type E-W Freeway 4 X 4
Arterial Speed 45 mph
Max Approach Traffic 1160 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	4.6	2.8
2	4.7	2.8
3	4.9	2.9
4	4.5	2.7
5	4.4	2.6
6	4.6	2.8
7	4.7	2.8
8	4.9	2.9
9	4.5	2.7
10	4.4	2.6
11	4.6	2.8
12	4.7	2.8
13	5.0	3.0
14	4.5	2.7
15	4.4	2.6
16	4.6	2.8
17	4.8	2.9
18	4.9	2.9
19	4.5	2.7
20	4.4	2.6

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

CO Florida 2012 - Results
Thursday, December 10, 2015

Project Description

Project Title Clearlake Road (SR 501) 433605-1
Facility Name Intersection at Industry Road
User's Name Wayne Arner
Run Name Build & No-Build - Design Year 2043
FDOT District 5
Year 2043
Intersection Type E-W Freeway 4 X 4
Arterial Speed 45 mph
Max Approach Traffic 1352 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	4.6	2.8
2	4.7	2.8
3	5.1	3.1
4	4.4	2.6
5	4.3	2.6
6	4.6	2.8
7	4.7	2.8
8	5.0	3.0
9	4.4	2.6
10	4.4	2.6
11	4.7	2.8
12	4.7	2.8
13	5.0	3.0
14	4.4	2.6
15	4.3	2.6
16	4.6	2.8
17	4.8	2.9
18	5.0	3.0
19	4.5	2.7
20	4.3	2.6

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