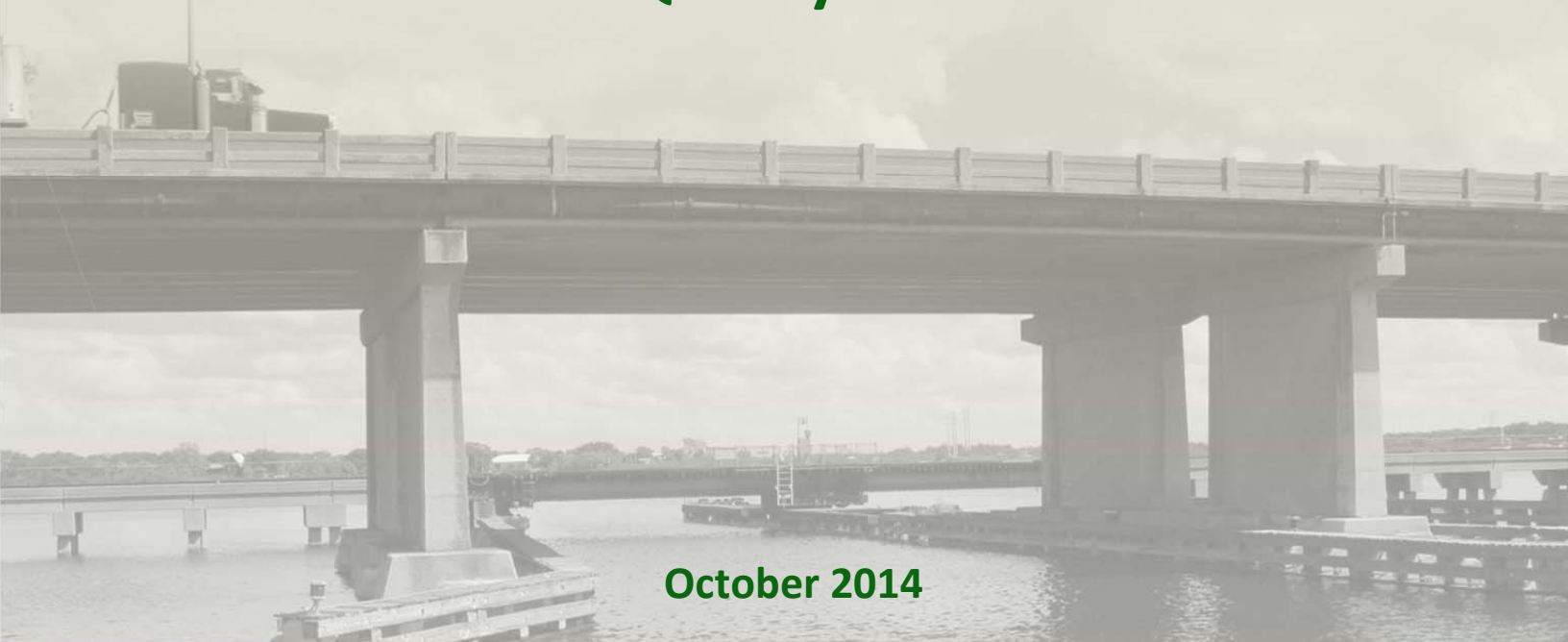


US 41 (SR 45)

From Kracker Avenue to South of SR 676 (Causeway Boulevard)
Project Development and Environment (PD&E) Study



Final Air Quality Memorandum



October 2014

Memorandum

Date: October 29, 2014

To: Stephanie Pierce, Florida Department of Transportation (FDOT) Project Manager

CC: Robin Rhinesmith, FDOT Environmental Administrator
Larry Weatherby, American Consulting Professionals, LLC

From: Wayne Arner, KB Environmental Sciences, Inc.

**Subject: Air Quality Memorandum
US 41 Project Development and Environment (PD&E) Study
From Kracker Avenue to South of Causeway Boulevard
FPID: 430056-1-22-01**

The referenced proposed improvement is located in Hillsborough 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 US 41 with Madison Avenue/Pendola Point Road. As previously stated, both the Build and No-Build Alternatives were subjected to the screening model. Additionally, both the opening year (2020) and the design year (2040) 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 US 41 with Madison Avenue/Pendola Point Road

Year	Alternative	Maximum CO Levels (ppm)		Passes Screening Test?
		NAAQS one-hr/ Project one-hr	NAAQS eight-hr/ Project eight-hr	
2020	No-Build	35 / 7	9 / 4	Yes
	Build	35 / 6	9 / 4	Yes
2040	No-Build	35 / 7	9 / 4	Yes
	Build	35 / 7	9 / 4	Yes

Notably, because the US 41 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: 25-Apr-14
PREPARED BY: American (AG)

Financial Project Number(s): _____
Work Program Item No.: 430056-1
Federal Aid Numbers (s): _____
Project Description: US 41 PD&E Study from Kracker Avenue to South of SR 676 (Causeway Boulevard)

NOTE: The most congested 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: 2020 PM

<u>"Build"</u>	<u>"No-Build"</u>
Most Congested Intersection: <u>US 41 @ CR 676A (Madison Ave/Pendola Point Rd)</u>	Most Congested Intersection: <u>US 41 @ CR 676A (Madison Ave/Pendola Point Rd)</u>
Peak Hour Traffic	Peak Hour Traffic
for most congested approach leg: <u>2250 vph</u>	for most congested approach leg: <u>2250 vph</u>
Specify leg (NB, SB, EB, WB): <u>SB</u>	Specify leg (NB, SB, EB, WB): <u>SB</u>
Cruise Speed: <u>45 mph</u>	Cruise Speed: <u>50 mph</u>

DESIGN YEAR: 2040 PM

<u>"Build"</u>	<u>"No-Build"</u>
Most Congested Intersection: <u>US 41 @ CR 676A (Madison Ave/Pendola Point Rd)</u>	Most Congested Intersection: <u>US 41 @ CR 676A (Madison Ave/Pendola Point Rd)</u>
Peak Hour Traffic	Peak Hour Traffic
for most congested approach leg: <u>3333 vph</u>	for most congested approach leg: <u>3333 vph</u>
Specify leg (NB, SB, EB, WB): <u>SB</u>	Specify leg (NB, SB, EB, WB): <u>SB</u>
Cruise Speed: <u>45 mph</u>	Cruise Speed: <u>50 mph</u>

CO Florida 2012 - Results
Tuesday, October 28, 2014

Project Description

Project Title US 41 at Madison/Pendola Point.
Facility Name US 41 from Kracker Ave to S. of Causeway Blvd
User's Name WHA
Run Name Opening Year No-Build
FDOT District 7
Year 2020
Intersection Type E-W Freeway 6 X 6
Arterial Speed 50 mph
Max Approach Traffic 2250 vph

Environmental Data

Temperature 48.8 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	5.9	3.5
2	6.1	3.7
3	6.6	4.0
4	5.9	3.5
5	5.4	3.2
6	5.9	3.5
7	6.0	3.6
8	6.6	4.0
9	5.9	3.5
10	5.5	3.3
11	5.9	3.5
12	6.0	3.6
13	6.6	4.0
14	5.9	3.5
15	5.4	3.2
16	5.9	3.5
17	6.0	3.6
18	6.5	3.9
19	5.9	3.5
20	5.4	3.2

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

CO Florida 2012 - Results
Tuesday, October 28, 2014

Project Description

Project Title US 41 at Madison Ave/Pendola Point
Facility Name US 41 from Kracker Ave to S. of Causeway Blvd
User's Name WHA
Run Name Opening Year Build
FDOT District 7
Year 2020
Intersection Type E-W Freeway 6 X 6
Arterial Speed 45 mph
Max Approach Traffic 2250 vph

Environmental Data

Temperature 48.8 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	5.7	3.4
2	6.0	3.6
3	6.4	3.8
4	5.7	3.4
5	5.3	3.2
6	5.7	3.4
7	5.9	3.5
8	6.4	3.8
9	5.7	3.4
10	5.4	3.2
11	5.7	3.4
12	5.9	3.5
13	6.4	3.8
14	5.7	3.4
15	5.3	3.2
16	5.7	3.4
17	5.9	3.5
18	6.4	3.8
19	5.7	3.4
20	5.3	3.2

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

CO Florida 2012 - Results
Tuesday, October 28, 2014

Project Description

Project Title US 41 at Madison Ave/Pendola Point
Facility Name US 41 from Kracker Ave to S. of Causeway Blvd
User's Name WHA
Run Name Design Year No-Build
FDOT District 7
Year 2040
Intersection Type E-W Freeway 6 X 6
Arterial Speed 50 mph
Max Approach Traffic 3333 vph

Environmental Data

Temperature 48.8 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	6.6	4.0
2	6.7	4.0
3	7.1	4.3
4	6.3	3.8
5	5.8	3.5
6	6.6	4.0
7	6.7	4.0
8	7.1	4.3
9	6.4	3.8
10	5.9	3.5
11	6.6	4.0
12	6.7	4.0
13	7.1	4.3
14	6.3	3.8
15	5.8	3.5
16	6.6	4.0
17	6.7	4.0
18	7.0	4.2
19	6.2	3.7
20	5.8	3.5

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

CO Florida 2012 - Results
Tuesday, October 28, 2014

Project Description

Project Title US 41 at Madison Ave/Pendola Point
Facility Name US 41 from Kracker Ave to S. of Causeway Blvd
User's Name WHA
Run Name Design Year Build
FDOT District 7
Year 2040
Intersection Type E-W Freeway 6 X 6
Arterial Speed 45 mph
Max Approach Traffic 3333 vph

Environmental Data

Temperature 48.8 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	6.3	3.8
2	6.4	3.8
3	6.9	4.1
4	6.2	3.7
5	5.6	3.4
6	6.3	3.8
7	6.4	3.8
8	6.9	4.1
9	6.3	3.8
10	5.7	3.4
11	6.3	3.8
12	6.4	3.8
13	6.9	4.1
14	6.2	3.7
15	5.6	3.4
16	6.3	3.8
17	6.4	3.8
18	6.8	4.1
19	6.1	3.7
20	5.6	3.4

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