

SR 45 (US 41) at SR 54 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

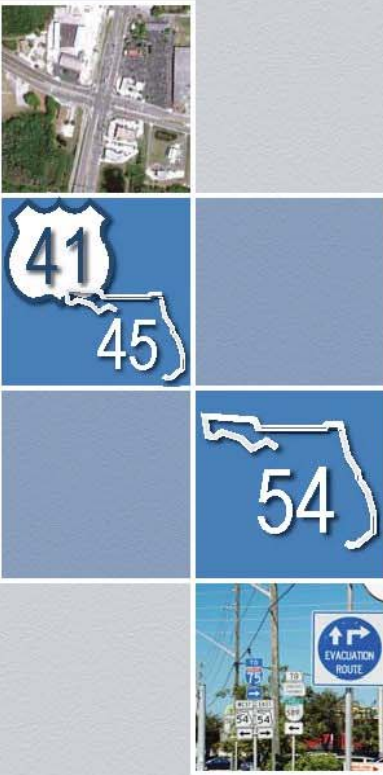
AIR QUALITY TECHNICAL MEMORANDUM

March 2014

Financial Project ID No: 419182-1-22-01
Work Program Item No: 419182-1



Florida Department of Transportation, District Seven



AIR QUALITY TECHNICAL MEMORANDUM

Date: March 28, 2014
To: Florida Department of Transportation, District Seven
Prepared by: Michelle Dachsteiner Cevallos, Environmental Specialist
Jim Mykytka, Senior Environmental Scientist
Company: RS&H, Inc.
Subject: AIR QUALITY SCREENING TEST
SR 45 (US41) at SR 54 Project Development and Environment Study (PD&E)
SR 54 from West of US 41 to East of US 41
FPID: 419182-1-22-01
Pasco County, Florida

The referenced proposed project is located in Pasco County which is currently designated as being 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 project 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, CO Florida 2012 uses the latest United States Environmental Protection Agency (USEPA)-approved software (Motor Vehicle Emission Simulator 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.

For the No-Build and Build Alternatives 3A and 3C, the roadway intersection/interchange forecasted to have the highest total intersection approach traffic volumes was SR 54 and US 41. The No-Build and Build Alternatives were evaluated for both the opening year 2020 and the design year 2040. The traffic data used in this evaluation is provided in Table 1 which was developed from the Traffic Technical Memorandum for the PD&E Study.

Estimates of CO were predicted for the default receptors which are located 10 feet to 150 feet from the edge of the roadway. 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 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 located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements 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.

Table 1 Traffic Data for Air Quality Analysis
 SR 45 (US 41) at SR 54 PD&E Study
 US 41 and SR 54 Intersection/Proposed Interchange

Roadway Type	Roadway Name	Roadway Segment	2020		2040	
			Vehicles per Hour	Cruise Speed (mph)	Vehicles per Hour	Cruise Speed (mph)
No Build Alternative (Intersection)						
Arterial	SR 45 (US 41) Southbound	Approach Traffic	2,365	50	3,198	50
	SR 45 (US 41) Northbound	Approach Traffic	2,704	50	4,208	50
Arterial	SR 54 Westbound	Approach Traffic	4,045	45	5,632	45
	SR 54 Eastbound	Approach Traffic	3,860	45	5,705	45
Build Alternatives 3A and 3C (Proposed Interchange)						
Arterial	SR 45 (US 41) Southbound	Approach Traffic	2,365	45	3,198	45
		On-Ramps to SR 54	965	45	1,285	45
	SR 45 (US 41) Northbound	Approach Traffic	2,704	45	4,208	45
		On-Ramps to SR 54	1,364	45	2,408	45
East - West Freeway	SR 54 Westbound	Approach Traffic	4,045	45	5,632	45
		Off-Ramp to US 41	1,084	45	1,230	45
	SR 54 Eastbound	Approach Traffic	3,860	45	5,705	45
		Off-Ramp to US 41	905	45	1,290	45

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AIR QUALITY SCREENING MODEL RESULTS
CO FLORIDA 2012

CO Florida 2012 - Results
 Friday, March 28, 2014

Project Description

Project Title SR 45 (US 41) at SR 54 PD&E Study
 Facility Name SR 45 (US 41) and SR 54
 User's Name Michelle Dachsteiner Cevallos
 Run Name No Build 2020
 FDOT District 7
 Year 2020
 Intersection Type 6 X 6
 Speed Arterial 45 mph
 Approach Traffic Arterial 4045 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	7.6	4.6
2	7.9	4.7
3	8.6	5.2
4	7.7	4.6
5	6.8	4.1
6	7.7	4.6
7	8.0	4.8
8	8.6	5.2
9	7.8	4.7
10	6.9	4.1
11	7.7	4.6
12	7.9	4.7
13	8.5	5.1
14	7.7	4.6
15	6.8	4.1
16	7.7	4.6
17	7.9	4.7
18	8.6	5.2
19	7.7	4.6
20	6.8	4.1

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

CO Florida 2012 - Results
 Friday, March 28, 2014

Project Description

Project Title SR 45 (US 41) at SR 54 PD&E Study
 Facility Name SR 45 (US 41) and SR 54
 User's Name Michelle Dachsteiner Cevallos
 Run Name No Build 2040
 FDOT District 7
 Year 2040
 Intersection Type 6 X 6
 Speed Arterial 45 mph
 Approach Traffic Arterial 5705 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	8.5	5.1
2	8.5	5.1
3	9.2	5.5
4	8.0	4.8
5	7.0	4.2
6	8.6	5.2
7	8.6	5.2
8	9.2	5.5
9	8.1	4.9
10	7.1	4.3
11	8.5	5.1
12	8.5	5.1
13	9.2	5.5
14	8.0	4.8
15	7.0	4.2
16	8.6	5.2
17	8.5	5.1
18	9.2	5.5
19	8.0	4.8
20	7.0	4.2

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

CO Florida 2012 - Results
 Friday, March 28, 2014

Project Description

Project Title SR 45 (US 41) at SR 54 PD&E Study
 Facility Name SR 45 (US 41) and SR 54
 User's Name Michelle Dachsteiner Cevallos
 Run Name Build 2020 Alternatives 3A and 3C
 FDOT District 7
 Year 2020
 Intersection Type E-W Diamond
 Speed Arterial 45 mph Freeway 45 mph
 Approach Traffic Arterial 2704 vph Freeway 4045 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	6.8	4.1
3	6.9	4.1
4	4.7	2.8
5	6.1	3.7
6	7.4	4.4
7	6.6	4.0
8	7.3	4.4
9	6.6	4.0
10	5.9	3.5
11	6.4	3.8
12	7.1	4.3
13	6.9	4.1
14	4.6	2.8
15	5.9	3.5
16	7.4	4.4
17	6.6	4.0
18	6.9	4.1
19	6.8	4.1
20	5.8	3.5

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

CO Florida 2012 - Results
 Friday, March 28, 2014

Project Description

Project Title SR 45 (US 41) at SR 54 PD&E Study
 Facility Name SR 45 (US 41) and SR 54
 User's Name Michelle Dachsteiner Cevallos
 Run Name Build 2040 Alternatives 3A and 3C
 FDOT District 7
 Year 2040
 Intersection Type E-W Diamond
 Speed Arterial 45 mph Freeway 45 mph
 Approach Traffic Arterial 4208 vph Freeway 5705 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	6.7	4.0
2	8.0	4.8
3	8.0	4.8
4	5.1	3.1
5	7.2	4.3
6	9.7	5.8
7	8.3	5.0
8	8.9	5.3
9	7.0	4.2
10	6.5	3.9
11	6.9	4.1
12	8.2	4.9
13	7.9	4.7
14	5.1	3.1
15	7.2	4.3
16	9.7	5.8
17	8.3	5.0
18	8.9	5.3
19	7.2	4.3
20	6.4	3.8

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