

Date: April 12, 2016

To: Lilliam Escalera (Florida Department of Transportation)

Cc: Todd Bogner (Florida Department of Transportation)

From: Lindsay Baumaister, KB Environmental Sciences, Inc.

**Subject: Air Quality Memorandum
State Road (SR 50) Project Development and Environment (PD&E) Study
From Brooksville Bypass to Interstate 75 (I-75)
Financial Project ID # 430051-1-22-01**

The referenced proposed improvement is located in Hernando County, Florida, an area currently designated by the U.S. Environmental Protection Agency (EPA) as being 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 Florida Department of Transportation's (FDOT's) air quality screening model, CO Florida 2012 (released January 9, 2012). CO Florida 2012 uses the EPA's MOBILE6 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. The NAAQS for CO are 35 and 9 parts per million (ppm), respectively.

In the opening year (2020), the intersection forecast to have the highest approach traffic volume with the Build and No-Build alternatives is the SR 50/Spring Lake Highway-Mondon Hill Road intersection. In the design year (2040), the intersection forecast to have the highest approach traffic volume with the alternatives is the SR 50/Lockhart Road intersection.

Estimates of CO were predicted at default receptor locations in all quadrants of the SR 50/Spring Lake Highway-Mondon Hill Road and SR 50/Lockhart Road intersections. Based on the results from the screening model, shown in **Table 1**, the highest predicted CO one- and eight-hour concentrations would not exceed the NAAQS for this pollutant 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
Intersection CO Screening Results

Year	Alternative	Maximum CO Levels (ppm)*		Passes Screening Test?
		NAAQS one-hr/ Project one-hr	NAAQS eight-hr/ Project eight-hr	
2020 (Opening Year)	Build	35/4	9/2	Yes
	No-Build	35/5	9/3	Yes
2040 (Design Year)	Build	35/7	9/4	Yes
	No-Build	35/5	9/3	Yes

* Maximum results for the year 2020 are for the SR 50/Spring Lake Highway-Mondon Hill Road intersection and maximum results for the year 2040 are for the SR 50/Lockhart Road intersection.

Notably, because the SR 50 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**

Draft

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

DATE: 16-Mar-15
 PREPARED BY: American (AG)

Financial Project Number(s): 430051-1-22-01
 Work Program Item No.: _____
 Federal Aid Numbers (s): _____
 Project Description: SR 50 from Brooksville Bypass to I-75

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

"Build"

Most Congested Intersection:
SR 50 @ Spring Lake Hwy/Mondon Hill Rd

Peak Hour Traffic
 for most congested approach leg: 1326 vph
 Specify leg (NB, SB, EB, WB): EB
 Cruise Speed: 60 mph

"No-Build"

Most Congested Intersection:
SR 50 @ Spring Lake Hwy/Mondon Hill Rd

Peak Hour Traffic
 for most congested approach leg: 1326 vph
 Specify leg (NB, SB, EB, WB): EB
 Cruise Speed: 55 mph

DESIGN YEAR: 2040 PM

"Build"

Most Congested Intersection:
SR 50 @ Lockhart Rd

Peak Hour Traffic
 for most congested approach leg: 2774 vph
 Specify leg (NB, SB, EB, WB): EB
 Cruise Speed: 60 mph

"No-Build"

Most Congested Intersection:
SR 50 @ Lockhart Rd

Peak Hour Traffic
 for most congested approach leg: 2774 vph
 Specify leg (NB, SB, EB, WB): EB
 Cruise Speed: 60 mph

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

DATE: 16-Mar-15
 PREPARED BY: American (AG)

Financial Project Number(s): 430051-1-22-01
 Work Program Item No.: _____
 Federal Aid Numbers (s): _____
 Project Description: SR 50 from Brooksville Bypass to I-75

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 AM

<u>"Build"</u>		<u>"No-Build"</u>	
Most Congested Intersection:		Most Congested Intersection:	
<u>SR 50 @ Spring Lake Hwy/Mondon Hill Rd</u>		<u>SR 50 @ Spring Lake Hwy/Mondon Hill Rd</u>	
Peak Hour Traffic		Peak Hour Traffic	
for most congested approach leg:	<u>1301 vph</u>	for most congested approach leg:	<u>1301 vph</u>
Specify leg (NB, SB, EB, WB):	<u>WB</u>	Specify leg (NB, SB, EB, WB):	<u>WB</u>
Cruise Speed:	<u>60 mph</u>	Cruise Speed:	<u>55 mph</u>

DESIGN YEAR: 2040 AM

<u>"Build"</u>		<u>"No-Build"</u>	
Most Congested Intersection:		Most Congested Intersection:	
<u>SR 50 @ Lockhart Rd</u>		<u>SR 50 @ Lockhart Rd</u>	
Peak Hour Traffic		Peak Hour Traffic	
for most congested approach leg:	<u>3046 vph</u>	for most congested approach leg:	<u>3046 vph</u>
Specify leg (NB, SB, EB, WB):	<u>WB</u>	Specify leg (NB, SB, EB, WB):	<u>WB</u>
Cruise Speed:	<u>45 mph</u>	Cruise Speed:	<u>60 mph</u>

Project Description

Project Title SR 50 PD&E
Facility Name SR 50 from Brooksville Bypass to I-75
User's Name L. Baumaister
Run Name Opening Year Build
FDOT District 7
Year 2020
Intersection Type 6 X 4
Speed Arterial 60 mph
Approach Traffic Arterial 1326 vph

Environmental Data

Temperature 48.8 °F
Reid Vapor Pressure 13.3 psi
Land Use Rural
Stability Class E
Surface Roughness 10 cm
1 Hr. Background Concentration 1.7 ppm
8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)		
Receptor	Max 1-Hr	Max 8-Hr
1	3.1	1.9
2	3.3	2.0
3	3.8	2.3
4	3.1	1.9
5	3.0	1.8
6	2.8	1.7
7	3.1	1.9
8	3.5	2.1
9	3.3	2.0
10	3.1	1.9
11	3.1	1.9
12	3.3	2.0
13	3.8	2.3
14	3.1	1.9
15	3.0	1.8
16	2.8	1.7
17	3.1	1.9
18	3.5	2.1
19	3.3	2.0
20	3.1	1.9

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

CO Florida 2012 - Results
 Monday, January 04, 2016

Project Description

Project Title SR 50 PD&E
 Facility Name SR 50 from Brooksville Bypass to I-75
 User's Name L. Baumaister
 Run Name Opening Year No Build
 FDOT District 7
 Year 2020
 Intersection Type 4 X 4
 Speed Arterial 55 mph
 Approach Traffic Arterial 1326 vph

Environmental Data

Temperature 48.8 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Rural
 Stability Class E
 Surface Roughness 10 cm
 1 Hr. Background Concentration 1.7 ppm
 8 Hr. Background Concentration 1.0 ppm

Receptor	Results (ppm, including background CO)	
	Max 1-Hr	Max 8-Hr
1	3.9	2.3
2	4.2	2.5
3	4.6	2.8
4	4.2	2.5
5	3.7	2.2
6	3.9	2.3
7	4.2	2.5
8	4.5	2.7
9	4.1	2.5
10	3.6	2.2
11	3.9	2.3
12	4.2	2.5
13	4.6	2.8
14	4.1	2.5
15	3.6	2.2
16	4.0	2.4
17	4.2	2.5
18	4.6	2.8
19	4.2	2.5
20	3.6	2.2

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

CO Florida 2012 - Results
Monday, January 04, 2016

Project Description

Project Title SR 50 PD&E
Facility Name SR 50 from Brooksville Bypass to I-75 at Lockhart
User's Name L. Baumaister
Run Name Design Year Build
FDOT District 7
Year 2040
Intersection Type 6 X 4
Speed Arterial 45 mph
Approach Traffic Arterial 3046 vph

Environmental Data

Temperature 48.8 °F
Reid Vapor Pressure 13.3 psi
Land Use Rural
Stability Class E
Surface Roughness 10 cm
1 Hr. Background Concentration 1.7 ppm
8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.4	3.8
2	6.3	3.8
3	6.7	4.0
4	5.8	3.5
5	5.2	3.1
6	5.9	3.5
7	5.9	3.5
8	6.7	4.0
9	5.8	3.5
10	5.4	3.2
11	6.4	3.8
12	6.3	3.8
13	6.7	4.0
14	5.8	3.5
15	5.2	3.1
16	5.9	3.5
17	5.9	3.5
18	6.7	4.0
19	5.8	3.5
20	5.4	3.2

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

Project Description

Project Title SR 50 PD&E
Facility Name SR 50 from Brooksville Bypass to I-75 at Lockhart
User's Name L. Baumaister
Run Name Design Year No Build
FDOT District 7
Year 2040
Intersection Type 4 X 4
Speed Arterial 60 mph
Approach Traffic Arterial 3046 vph

Environmental Data

Temperature 48.8 °F
Reid Vapor Pressure 13.3 psi
Land Use Rural
Stability Class E
Surface Roughness 10 cm
1 Hr. Background Concentration 1.7 ppm
8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)
Receptor Max 1-Hr Max 8-Hr

Receptor	Max 1-Hr	Max 8-Hr
1	3.9	2.3
2	4.1	2.5
3	4.5	2.7
4	4.1	2.5
5	3.9	2.3
6	3.9	2.3
7	4.2	2.5
8	4.5	2.7
9	4.0	2.4
10	3.9	2.3
11	3.9	2.3
12	4.1	2.5
13	4.5	2.7
14	4.0	2.4
15	3.9	2.3
16	3.9	2.3
17	4.2	2.5
18	4.5	2.7
19	4.0	2.4
20	3.9	2.3

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