

*FINAL*  
*AIR QUALITY*  
*TECHNICAL MEMORANDUM*

# US 301 (SR 43)

from SR 60 (Adamo Drive) to I-4 (SR 400)

Project Development and Environment Study



WPI Segment No. 430050-1

March 2018

**Air Quality Technical Memorandum**  
**US 301 (SR 43)**  
**Project Development and Environment Study**  
**from State Road 60 (Adamo Drive) to I-4 (SR 400)**  
**Hillsborough County, Florida**

ETDM No. 3097  
WPI Segment No. 430050-1

This roadway capacity improvement project involves widening US 301 from the existing four-lane divided arterial roadway to a six-lane divided arterial roadway to accommodate future travel demand in the study area. The study limits extend from north of State Road 60 to south of the I-4/US 301 ramps in Hillsborough County. The total project length is 3.3 miles.

**Florida Department of Transportation**  
**District Seven**



Prepared By:  
**KB Environmental Sciences, Inc.**  
Tampa, Florida

March 2018

Date: April 24, 2015

To: Todd Bogner, Florida Department of Transportation (FDOT)

From: Carrol Fowler, KB Environmental Sciences, Inc.

**Subject: Air Quality Memorandum  
 Work Program Item Number: 430050-1  
 ETDM Number: 3097  
 US 301 (SR 43) from SR 60 to I-4 (SR 400)  
 Project Development and Environment Study  
 Hillsborough County, FL**

The referenced project is located in Hillsborough County, Florida, and since it is designed to 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. As required by FDOT, the project was subject to a localized carbon monoxide (CO) screening analysis. The results of the analysis are presented below.

**CO Screening Analysis**

The project Build and No-Build alternatives were evaluated for the opening year of the project (2020) and the project’s design year (2040) using the FDOT’s air quality screening model, CO Florida 2012 (approved by the 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 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 intersections forecast to have the highest approach traffic volume in the years 2020 and 2040 with the No-Build and Build alternatives are the SR 60 and SR 574 intersections, respectively. The peak-hour approach volumes, obtained from the project’s Final Design Traffic Technical Memorandum (July 2014), that were used in the screening analysis are presented in **Table 1**. For the purpose of the analysis, a nominal speed of 20 miles-per-hour (mph) was assumed for each intersection approach.

**Table 1  
 Intersection Peak-hour Highest Approach Volumes**

Year	Intersection	Peak-Hour Total Approach Volume/Volume on Highest Approach Leg (vph)	
		No-Build	Build
2020 (Opening Year)	US 301 and SR 60	7,252 / 2,155	7,511 / 2,294
2040 (Design Year)	US 301 and SR 574	9,856 / 2,847	10,757 / 2,867

Note: vph = volumes per hour.  
 Source: US 301 from SR 60 to I-4 Final Design Traffic Technical Memorandum (July 2014).

Estimates of CO were predicted at default receptor locations that the screening model assumes are located 10 feet from the edge of the nearest travel lane and extending 50 and 150 feet from the intersection cross street. In addition, default background levels of 3.3 ppm and 2.0 ppm for the one- and eight-hour, respectively, were added to the concentrations. The screening model assumes these background levels as defaults for suburban land use. Based on the results of the screening model (**Table 2**), the highest predicted CO one- and eight-hour concentrations would not exceed the NAAQS for this pollutant regardless of intersection, alternative, or year of analysis (because the intersection with the greatest approach volume passed the screening test). Therefore, the project also “passes” the screening test.

**Table 2**  
**Intersection CO Screening Results**

Year	Alternative	Maximum CO Levels (ppm)		Passes Screening Test?
		Project one-hour	Project eight-hour	
2020 (Opening Year)	No-Build	5.7	3.4	Yes
	Build	5.7	3.4	Yes
2040 (Design Year)	No-Build	5.5	3.3	Yes
	Build	5.5	3.3	Yes

Note: ppm = parts per million.

# **Carbon Monoxide Screening Test Results**

CO Florida 2012 - Results  
Tuesday, March 17, 2015

Project Description

Project Title US 301 (SR 43) from SR 60 to 1-4 (SR 400)  
Facility Name US 301/SR 60 Intersection  
User's Name KB Environmental Sciences/LCF  
Run Name No-Build Alternative  
FDOT District 7  
Year 2020  
Intersection Type 4 X 4  
Speed Arterial 20 mph  
Approach Traffic Arterial 2155 vph

Environmental Data

Temperature 48.8 °F  
Reid Vapor Pressure 13.3 psi  
Land Use Suburban  
Stability Class  
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	4.8	2.9
2	5.0	3.0
3	5.6	3.4
4	5.1	3.1
5	4.9	2.9
6	4.7	2.8
7	5.0	3.0
8	5.6	3.4
9	5.1	3.1
10	4.9	2.9
11	4.7	2.8
12	5.0	3.0
13	5.7	3.4
14	5.0	3.0
15	4.9	2.9
16	4.7	2.8
17	5.1	3.1
18	5.6	3.4
19	5.0	3.0
20	4.9	2.9

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

CO Florida 2012 - Results  
Tuesday, March 17, 2015

Project Description

Project Title US 301 (SR 43) from SR 60 to 1-4 (SR 400)  
Facility Name US 301/SR 60 Intersection  
User's Name KB Environmental Sciences/LCF  
Run Name Build Alternative  
FDOT District 7  
Year 2020  
Intersection Type 4 X 4  
Speed Arterial 20 mph  
Approach Traffic Arterial 2294 vph

Environmental Data

Temperature 48.8 °F  
Reid Vapor Pressure 13.3 psi  
Land Use Suburban  
Stability Class  
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	5.0	3.0
2	5.1	3.1
3	5.6	3.4
4	5.2	3.1
5	5.1	3.1
6	4.9	2.9
7	5.1	3.1
8	5.6	3.4
9	5.2	3.1
10	5.1	3.1
11	4.9	2.9
12	5.1	3.1
13	5.7	3.4
14	5.1	3.1
15	5.1	3.1
16	4.9	2.9
17	5.2	3.1
18	5.6	3.4
19	5.1	3.1
20	5.1	3.1

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\*\*\*\*\*PROJECT PASSES\*\*\*\*\*  
\*\*\*\*\*NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED\*\*\*\*\*  
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CO Florida 2012 - Results  
Tuesday, March 17, 2015

Project Description

Project Title US 301 (SR 43) from SR 60 to 1-4 (SR 400)  
Facility Name US 301/SR 60 Intersection  
User's Name KB Environmental Sciences/LCF  
Run Name No-Build Alternative  
FDOT District 7  
Year 2040  
Intersection Type 4 X 4  
Speed Arterial 20 mph  
Approach Traffic Arterial 2847 vph

Environmental Data

Temperature 48.8 °F  
Reid Vapor Pressure 13.3 psi  
Land Use Suburban  
Stability Class  
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	4.8	2.9
2	5.0	3.0
3	5.4	3.2
4	5.0	3.0
5	4.9	2.9
6	4.8	2.9
7	5.0	3.0
8	5.4	3.2
9	5.0	3.0
10	4.9	2.9
11	4.8	2.9
12	5.0	3.0
13	5.5	3.3
14	5.0	3.0
15	4.9	2.9
16	4.8	2.9
17	5.1	3.1
18	5.4	3.2
19	5.1	3.1
20	4.9	2.9

\*\*\*\*\*PROJECT PASSES\*\*\*\*\*  
\*NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED\*  
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CO Florida 2012 - Results  
Tuesday, March 17, 2015

Project Description

Project Title US 301 (SR 43) from SR 60 to 1-4 (SR 400)  
Facility Name US 301/SR 60 Intersection  
User's Name KB Environmental Sciences/LCF  
Run Name Build Alternative  
FDOT District 7  
Year 2040  
Intersection Type 4 X 4  
Speed Arterial 20 mph  
Approach Traffic Arterial 2867 vph

Environmental Data

Temperature 48.8 °F  
Reid Vapor Pressure 13.3 psi  
Land Use Suburban  
Stability Class  
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	4.8	2.9
2	5.0	3.0
3	5.4	3.2
4	5.0	3.0
5	4.9	2.9
6	4.8	2.9
7	5.0	3.0
8	5.4	3.2
9	5.0	3.0
10	4.9	2.9
11	4.8	2.9
12	5.0	3.0
13	5.5	3.3
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16	4.8	2.9
17	5.1	3.1
18	5.4	3.2
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