AIR QUALITY TECHNICAL MEMORANDUM

Date: November 22, 2013

To: Florida Department of Transportation, District Three

From: Kathleen Hale, Environmental Management & Design, Inc.

Subject: **AIR QUALITY SCREENING TEST**
Project Development and Environment (PD&E) Study
SR 87 Connector Project from US 90 to SR 87N in Milton
Santa Rosa County, Florida
Financial Project ID Nos. 416748-3-22-01, 416748-3-22-02, 416748-4-22-01, & 416748-4-22-02

The Florida Department of Transportation is planning to provide a new roadway facility (SR 87 Connector) linking SR 87S with SR 87N. The primary objectives in the extension of SR 87S is to facilitate north/south traffic movement to more effectively serve freight movement and to provide for a more direct hurricane evacuation route from the coast to areas north in Alabama. It also is the intent to reduce congestion in the City of Milton and to alleviate travel demand on the section of US 90 currently shared by SR 87. Current land uses within the project area include commercial, industrial, institutional (criminal justice facility, sheriffs training complex, and juvenile residential facility), recreational, and residences (including vacant lands zoned for residential).

SR 87 is located in Santa Rosa County, an area currently designated as being in attainment for all of the ***National Ambient Air Quality Standards*** (NAAQS) under the criteria provided in the ***Clean Air Act***. Therefore, the ***Clean Air Act*** conformity requirements do not apply to the project.

The project alternatives were subjected to a carbon monoxide (CO) screening model that makes various conservative worst-case assumptions related to site conditions, meteorology, traffic, and receptor locations. This analysis was based on Part 2, Chapter 16 Air Quality Analysis of the Florida Department of Transportation's (FDOT) PD&E manual. The FDOT's screening model, COFlorida 2012 (version 1.01 January 9, 2012), uses the latest versions of the U.S. Environmental Protection Agency-approved software for detailed mobile source air quality modeling (**MOVES2010a**) for emissions and **CAL3QHC2** for dispersion 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 **NAAQS** for CO which are 35 parts per million (ppm) and 9 parts per million (ppm), respectively.

The roadway intersection forecasted to have the highest total approach traffic volumes was SR 87 at US 90. This intersection was evaluated as a worst-case scenario. The Build and No Build alternatives for both the opening year (2015) and the design year (2035) were evaluated. The traffic data input used in the evaluation is attached to this memorandum.

The default environmental data for north Florida was used for the screening test. The land use was evaluated as urban and all predicted CO concentrations included a background of 5.0 ppm for a one-hour averaging time and 3.0 ppm for an eight-hour averaging time.

Estimates of CO were predicted for 20 default receptors that are located very close to the intersection and that provide a comprehensive 360º representation of potential near-road CO concentrations. Based on the results from the screening model, the highest project-related CO one- and eight-hour levels are not predicted to exceed the one- or eight-hour NAAQS for this pollutant with either the No Build or Build alternative (Table 1). As such, the project "passes" the screening model. The results of the screening model are attached to this memorandum.

Table 1: Air Quality Screening Test Summary

Year	Project Alternative	Maximum 1-hour CO Concentration (ppm)		Maximum 8-hour CO Concentration (ppm)	
		projected	***NAAQS Criteria***	***projected***	***NAAQS Criteria***
Opening Year (2015)	No Build	5.5-6.1	35	3.3-3.7	9
	Build (Alternative 1)	5.7-6.4	35	3.4-3.8	9
	Build (Alternative 2)	5.7-6.4	35	3.4-3.8	9
Design Year (2035)	No Build	5.5-5.8	35	3.3-3.5	9
	Build (Alternative 1)	5.9-6.4	35	3.5-3.8	9
	Build (Alternative 2)	5.9-6.4	35	3.5-3.8	9

Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. The impacts will be minimized by adherence to all applicable State and local regulations and to the ***FDOT Standard Specifications for Road and Bridge Construction***.

TRAFFIC DATA FOR AIR QUALITY ANALYSIS

Financial Project ID Nos.: 416748-3-22-01, 416748-3-22-02, 416748-4-22-01, 416748-4-22-02
Project Description: Project Development and Environment (PD&E) Study
SR 87 Connector Project from US 90 to SR 87N in Milton
Santa Rosa County, Florida

Traffic Data for SR 87 Connector

Year	Project Alternative	Roadway Segment (# of through lanes)	Design Hour Intersection Approach Volume (PM)	Intersection Approach Speed (miles per hour)
Opening Year (2015)	No Build	SR 87S Northbound (1 lane)	509	35
		SR 87S Southbound (1 lane)	259	35
		US 90 Eastbound (1 lane)	603	35
		US 90 Westbound (1 lane)	316	35
	Build (Alternative 1)	SR 87S (Connector) Northbound (2 lanes)	640	45
		SR 87S (Connector) Southbound (2 lanes)	429	45
		US 90 Eastbound (2 lanes)	436	45
		US 90 Westbound (2 lanes)	323	45
	Build (Alternative 2)	SR 87S (Connector) Northbound (2 lanes)	645	45
		SR 87S (Connector) Southbound (2 lanes)	421	45
		US 90 Eastbound (2 lanes)	453	45
		US 90 Westbound (2 lanes)	323	45
Design Year (2035)	No Build	SR 87S Northbound (1 lane)	683	35
		SR 87S Southbound (1 lane)	346	35
		US 90 Eastbound (1 lane)	833	35
		US 90 Westbound (1 lane)	386	35
	Build (Alternative 1)	SR 87S (Connector) Northbound (2 lanes)	1,123	45
		SR 87S (Connector) Southbound (2 lanes)	837	45
		US 90 Eastbound (2 lanes)	671	45
		US 90 Westbound (2 lanes)	413	45
	Build (Alternative 2)	SR 87S (Connector) Northbound (2 lanes)	1,129	45
		SR 87S (Connector) Southbound (2 lanes)	836	45
		US 90 Eastbound (2 lanes)	691	45
		US 90 Westbound (2 lanes)	416	45

Source: SR 87 Connector PD&E Study, Design Traffic Technical Memorandum (Draft), Advanced Transportation Engineering Consultants (August 2012)

AIR QUALITY SCREENING MODEL RESULTS
COFlorida 2012

CO Florida 2012 - Results
Tuesday, September 17, 2013

Project Description

Project Title	SR 87 Connector Project
Facility Name	SR 87S & US 90 Intersection
User's Name	Kathy Hale
Run Name	Opening Year 2015 No Build
FDOT District	3
Year	2015
Intersection Type	4 X 4
Speed	Arterial 35 mph
Approach Traffic	Arterial 603 vph

Environmental Data

Temperature	39.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.6	3.4
2	5.8	3.5
3	6.0	3.6
4	5.9	3.5
5	5.6	3.4
6	5.6	3.4
7	5.8	3.5
8	6.0	3.6
9	5.9	3.5
10	5.6	3.4
11	5.6	3.4
12	5.8	3.5
13	6.1	3.7
14	5.9	3.5
15	5.6	3.4
16	5.6	3.4
17	5.8	3.5
18	6.1	3.7
19	5.9	3.5
20	5.5	3.3

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

CO Florida 2012 - Results
Tuesday, September 17, 2013

Project Description

Project Title	SR 87 Connector Project (Alternative 1)
Facility Name	SR 87S & US 90 Intersection
User's Name	Kathy Hale
Run Name	Opening Year 2015 Build
FDOT District	3
Year	2015
Intersection Type	4 X 4
Speed	Arterial 45 mph
Approach Traffic	Arterial 640 vph

Environmental Data

Temperature	39.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.8	3.5
2	5.9	3.5
3	6.3	3.8
4	6.1	3.7
5	5.8	3.5
6	5.8	3.5
7	5.9	3.5
8	6.3	3.8
9	6.1	3.7
10	5.8	3.5
11	5.8	3.5
12	5.9	3.5
13	6.4	3.8
14	6.1	3.7
15	5.8	3.5
16	5.9	3.5
17	5.9	3.5
18	6.4	3.8
19	6.1	3.7
20	5.7	3.4

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**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
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CO Florida 2012 - Results
Tuesday, September 17, 2013

Project Description

Project Title	SR 87 Connector Project (Alternative 2)
Facility Name	SR 87S & US 90 Intersection
User's Name	Kathy Hale
Run Name	Opening Year 2015 Build
FDOT District	3
Year	2015
Intersection Type	4 X 4
Speed	Arterial 45 mph
Approach Traffic	Arterial 645 vph

Environmental Data

Temperature	39.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.8	3.5
2	5.9	3.5
3	6.3	3.8
4	6.1	3.7
5	5.8	3.5
6	5.8	3.5
7	5.9	3.5
8	6.3	3.8
9	6.1	3.7
10	5.8	3.5
11	5.8	3.5
12	5.9	3.5
13	6.4	3.8
14	6.1	3.7
15	5.8	3.5
16	5.9	3.5
17	5.9	3.5
18	6.4	3.8
19	6.1	3.7
20	5.7	3.4

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**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
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CO Florida 2012 - Results
Tuesday, September 17, 2013

Project Description

Project Title	SR 87 Connector Project
Facility Name	SR 87S & US 90 Intersection
User's Name	Kathy Hale
Run Name	Design Year 2035 No Build
FDOT District	3
Year	2035
Intersection Type	4 X 4
Speed	Arterial 35 mph
Approach Traffic	Arterial 833 vph

Environmental Data

Temperature	39.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.6	3.4
2	5.7	3.4
3	5.8	3.5
4	5.6	3.4
5	5.5	3.3
6	5.6	3.4
7	5.7	3.4
8	5.8	3.5
9	5.6	3.4
10	5.5	3.3
11	5.6	3.4
12	5.7	3.4
13	5.8	3.5
14	5.6	3.4
15	5.5	3.3
16	5.6	3.4
17	5.7	3.4
18	5.8	3.5
19	5.6	3.4
20	5.5	3.3

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**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
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CO Florida 2012 - Results
Tuesday, September 17, 2013

Project Description

Project Title	SR 87 Connector Project (Alternative 1)
Facility Name	SR 87S & US 90 Intersection
User's Name	Kathy Hale
Run Name	Design Year 2035 Build
FDOT District	3
Year	2035
Intersection Type	4 X 4
Speed	Arterial 45 mph
Approach Traffic	Arterial 1123 vph

Environmental Data

Temperature	39.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.0	3.6
2	6.1	3.7
3	6.4	3.8
4	5.9	3.5
5	5.9	3.5
6	6.0	3.6
7	6.1	3.7
8	6.3	3.8
9	6.0	3.6
10	5.9	3.5
11	6.0	3.6
12	6.1	3.7
13	6.3	3.8
14	5.9	3.5
15	5.9	3.5
16	6.0	3.6
17	6.2	3.7
18	6.3	3.8
19	5.9	3.5
20	5.9	3.5

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**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
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CO Florida 2012 - Results
Tuesday, September 17, 2013

Project Description

Project Title	SR 87 Connector Project (Alternative 2)
Facility Name	SR 87S & US 90 Intersection
User's Name	Kathy Hale
Run Name	Design Year 2035 Build
FDOT District	3
Year	2035
Intersection Type	4 X 4
Speed	Arterial 45 mph
Approach Traffic	Arterial 1129 vph

Environmental Data

Temperature	39.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.0	3.6
2	6.2	3.7
3	6.4	3.8
4	5.9	3.5
5	6.0	3.6
6	6.0	3.6
7	6.2	3.7
8	6.3	3.8
9	6.0	3.6
10	6.0	3.6
11	6.0	3.6
12	6.2	3.7
13	6.3	3.8
14	5.9	3.5
15	6.0	3.6
16	6.0	3.6
17	6.3	3.8
18	6.3	3.8
19	5.9	3.5
20	6.0	3.6

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NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
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