

FINAL AIR QUALITY TECHNICAL MEMORANDUM

SR 50 (CORTEZ BOULEVARD) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

**SR 50 (Cortez Boulevard)
from Lockhart Road to US 301 (SR 35/Treiman Boulevard)
Hernando County, Florida**

**ETDM Project Number: 3391
Work Program Item Segment Number: 416732-2
Federal-Aid Project Number: TBD**

Prepared for:



**Florida Department of Transportation
11201 North McKinley Drive
Tampa, Florida 33612**

January 2014

FINAL AIR QUALITY TECHNICAL MEMORANDUM

SR 50 (CORTEZ BOULEVARD) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

**SR 50 (Cortez Boulevard)
from Lockhart Road to US 301 (SR 35/Treiman Boulevard)
Hernando County, Florida**

**ETDM Project Number: 3391
Work Program Item Segment Number: 416732-2
Federal-Aid Project Number: TBD**

Prepared for:



**Florida Department of Transportation
11201 North McKinley Drive
Tampa, Florida 33612**

Prepared by:

**Atkins North America, Inc.
4030 West Boy Scout Boulevard
Suite 700
Tampa, Florida 33607**

January 2014

NOTE: CHANGE IN PROJECT TERMINI JANUARY 2014

The Florida Department of Transportation (FDOT), District Seven, conducted a Project Development and Environment (PD&E) Study to determine the engineering and environmental effects of the proposed improvement to State Road 50 (SR 50) [Cortez Boulevard] from Lockhart Road to US 301 (SR 35/Treiman Boulevard) in Hernando County, Florida. The Preferred Alternative involves widening SR 50 (Cortez Boulevard) from four to six lanes from west of I-75 to US 98 (SR 700/McKethan Road), and from two to four lanes from US 98 (SR 700/McKethan Road) to US 301 (SR 35/Treiman Boulevard).

Initially, there were no plans for federal funding of the project since it was developer-driven. The original project was to result in approval of a State Environmental Impact Report (SEIR) with study limits from Lockhart Road (west of I-75) to US 301 (SR 700/McKethan Road). However, the slowed economy has delayed the initiation of the planned developments, so developers will not be making roadway improvements. In addition, after the September 27, 2012 Public Hearing, the Hernando County Metropolitan Planning Organization (MPO) elevated this project in its list of priorities. As a result, FDOT is seeking approval from the Federal Highway Administration in order to qualify the project for federal funding. Therefore, in order to maintain logical termini, the western project limit was revised from Lockhart Road to west of I-75.

The portion of SR 50 (Cortez Boulevard) in the area of the I-75 interchange (from station 968+50 to station 1027+00) is exempt from this study, as it was evaluated under the I-75 PD&E Study (FPID 411014-1). The portion of SR 50 (Cortez Boulevard) west of I-75 that is not included in the I-75 PD&E Study will be evaluated under a future PD&E study from SR 50 from Brooksville Bypass/SR 50A (Eastern Intersection)/East Jefferson Street to I-75, currently programmed for fiscal year 2013/2014. Therefore, the proposed western study limit is now identified as west of I-75 (see Project Location Map).

Consequently, please note that supporting documents, including Traffic Report, Noise Study Report, Historic Resources Update Survey Technical Memorandum, Air Quality Technical Memorandum, Comments and Coordination Report, and Preliminary Stormwater Management Facility Report evaluated the original study limits.

An air quality analysis, specifically an analysis of carbon monoxide (CO) concentrations, was performed using methodology established in the Florida Department of Transportation (FDOT's) Project Development and Environment (PD&E) Manual, Part 2, Chapter 16. CO levels were predicted using FDOT's screening test *CO Florida 2004*.

ANALYSIS LOCATION

Motor vehicle emissions are typically highest at intersections where operating speeds are slower and vehicles are delayed at traffic signals. A review of traffic data documented in the *Final Traffic Report* showed the SR 50 (Cortez Boulevard)/Bronson Boulevard/Windmere Road signalized intersection as having the highest vehicle approach volumes on SR 50 (Cortez Boulevard). Therefore, the SR 50 (Cortez Boulevard)/Bronson Boulevard/Windmere Road signalized intersection was evaluated as a worst-case scenario for air quality.

SITE CONDITIONS

CO Florida 2004 provides default meteorological conditions for different areas of Florida. The meteorological data for the central Florida region was selected. *CO Florida 2004* also provides various land use options to simulate the effects of atmospheric conditions and account for background CO levels in the project area. A suburban land use was selected. The suburban land use includes a background CO concentration of 3.3 ppm for a 1-hour averaging time and 2.0 ppm for an 8-hour averaging time. The background concentration is added to the predicted CO emissions from vehicles operating at the SR 50 (Cortez Boulevard)/Bronson Boulevard/Windmere Road signalized intersection.

TRAFFIC DATA

Traffic data used in the analysis are provided in **Table 1**. The traffic data represent peak-hour conditions. As indicated, the analysis was performed for opening year (2015) and design year (2035) No-Build and Build conditions. As a worst-case condition, vehicle approach speeds were set at the lowest speed accepted by *CO Florida 2004* (16 mph).

RECEPTOR LOCATIONS

CO levels are highest near travel lanes where pollutants are emitted with concentrations decreasing as the distance from the road increases. As a worst-case scenario, *CO Florida 2004* default receptors located 10 feet from the edge of roadway were used.

RESULTS

Carbon monoxide (CO) concentrations were predicted for opening year (2015) and design (2035) peak-hour traffic conditions at the SR 50 (Cortez Boulevard)/Bronson

Boulevard/Windmere Road signalized intersection. Both the No-Build and Build conditions were analyzed.

The predicted CO concentrations are provided in **Table 2**. The highest predicted CO concentrations of 10.7 parts per million (ppm) for a 1-hour averaging time and 6.4 ppm for an 8-hour averaging time occurs at receptors R3 and R7 for the 2035 No-Build condition. All predicted CO concentrations for the No-Build and Build conditions in the opening year and design year are below the 1-hour National Ambient Air Quality Standards (NAAQS) of 35 ppm and the 8-hour NAAQS of 9 ppm. The predicted 1-hour and 8-hour concentrations include a background CO level of 3.3 ppm and 2.0 ppm, respectively.

STATE IMPLEMENTATION PLAN (SIP) CONFORMITY

The project is in an area that has been designated as attainment for all of the NAAQS established by the Clean Air Act and subsequent amendments. Therefore, demonstration of conformity with a SIP is not required for this project.

Table 1: Traffic Data

Scenario	Intersection Approach	Peak-Hour Traffic Volume
2015 No-Build	SR 50 EB	1,544
	SR 50 WB	1,007
	Windmere SB	117
	Bronson NB	263
2015 Build	SR 50 EB	1,544
	SR 50 WB	1,007
	Windmere SB	117
	Bronson NB	263
2035 No-Build	SR 50 EB	3,882
	SR 50 WB	2,992
	Windmere SB	435
	Bronson NB	471
2030 Build	SR 50 EB	3,731
	SR 50 WB	2,880
	Windmere SB	474
	Bronson NB	522

Table 2: Predicted CO Concentrations

Receptor Identification	Scenario							
	2015 No-Build		2015 Build		2035 No-Build		2035 Build	
	1-Hour ¹ (ppm)	8-Hour ² (ppm)	1-Hour ¹ (ppm)	8-Hour ² (ppm)	1-Hour ¹ (ppm)	8-Hour ² (ppm)	1-Hour ¹ (ppm)	8-Hour ² (ppm)
R1	7.2	4.3	6.7	4.0	9.7	5.8	9.5	5.7
R2	7.7	4.6	7.2	4.3	10.5	6.3	10.6	6.4
R3	7.6	4.6	7.9	4.8	10.7	6.4	10.5	6.3
R4	7.7	4.6	7.9	4.8	9.9	6.0	10.2	6.1
R5	6.6	4.0	6.8	4.1	8.5	5.1	9.0	5.4
R6	7.7	4.6	7.8	4.7	9.9	6.0	10.2	6.1
R7	7.6	4.6	7.9	4.8	10.7	6.4	10.5	6.3
R8	7.7	4.6	7.2	4.3	10.5	6.3	10.6	6.4
R9	7.2	4.3	6.7	4.0	9.7	5.8	9.5	5.7
R10	6.6	4.0	6.8	4.1	8.5	5.1	9.0	5.4

¹ Includes a background CO concentration of 3.3 ppm

² Includes a background CO concentration of 2.0 ppm