



- **MEMO** -

Date: December 15, 2009

To: Rick Adair, HDR, Inc.

From: Wayne Arner, KB Environmental Sciences, Inc.

Subject: Air Quality Memorandum for Lithia Pinecrest Road from State Road (SR) 60 to County Road (CR) 39
Hillsborough County Capital Improvement Program No. 69125
Florida Department of Transportation Work Program Item Segment No. 421550-1
Federal Aid No. TBD

The objective of this Air Quality Memorandum is to determine whether project-related motor vehicle emissions associated with the proposed improvements to Lithia Pinecrest Road from SR 60 to CR 39 in Hillsborough County will cause, or contribute to, a violation of the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), the most prevalent air pollutant emission from motor vehicles.

The proposed project has the potential to alter traffic conditions and influence the air quality within the project study area. The pollutants of primary concern with roadway traffic are ozone (O₃), oxides of nitrogen (NO_x), hydrocarbons (HC), small particulate matter (PM₁₀) and carbon monoxide (CO). Because CO is a localized pollutant that is emitted directly into the atmosphere by vehicles, it is analyzed for individual roadway projects where substantial changes to the traffic conditions are anticipated.

Methodology

In accordance with the Florida Department of Transportation (FDOT), Project Development and Environment (PD&E) Manual (Part 2, Chapter 16 - Air Quality Analysis, September 13, 2006), the project was subjected to a Screening Test. The computerized version of the Screening Test (CO Florida 2004) contains conservative, worst-case assumptions about meteorology, traffic, and other site conditions. CO Florida 2004 uses the worst-case assumptions in the MOBILE6 emission and CAL3QHC models to predict maximum CO concentrations at receptors near a roadway intersection. The results are then compared to the NAAQS maximum one-hour and eight-hour concentrations for this pollutant. The premise of this approach is that CO concentrations elsewhere along the project corridor will be lower than these worst-case screening values.

A receptor site is a place where people can reasonably be expected to spend a significant amount of time, such as the backyard of a residence. Especially sensitive receptor sites include hospitals, nursing homes, schools, and day care centers. A roadway project passes the Screening Test if the CO concentration at all receptors is less than the NAAQS.

The intersection chosen for the Screening Test is the one with the combination of highest traffic volumes, lowest vehicular speeds, and closest receptors. Traffic data were obtained from the project’s Traffic Technical Memorandum for the opening year (2018) and the design year (2038).

Based on these criteria and information, the intersection selected for the Screening Test for this project was the Lithia Pinecrest Road/Lumsden Road intersection. The intersection contains the "worst-case" leg of all signalized intersections within the project corridor for the design year. The screening test for “suburban areas” was used.

Results

CO Florida 2004 calculates the maximum one-hour and eight-hour CO concentration in parts per million (ppm). The NAAQS are 35 ppm for 1-hour and nine ppm for eight-hours. The analysis results are summarized in **Table 1**. The results indicate that the project passes the screening process and no further analysis is required. **Appendix A** contains the CO Florida 2004 output files supporting these findings

Table 1 CO Screening Results			
Year	Maximum CO Levels (ppm)		Passes Screening Test?
	NAAQS 1-hr / Project 1-hr	NAAQS 8-hour / Project 8-hr	
2018	35 / 8.9	9 / 5.4	Yes
2038	35 / 9.4	9 / 5.7	Yes

The Lithia Pinecrest Road project is in an area that is currently designated as attainment for all the NAAQS under the criteria provided in the Clean Air Act Amendments of 1990, therefore, conformity does not apply.

Appendix
Carbon Monoxide Screening Test Results

06-22-2009

CO Florida 2004

Project: Opening Year 2018
Facility: Lithia Pinecrest Road from SR 60 to CR 39
Analyst: Wayne Arner

Environmental Data:

Temperature: 50 F
Reid Vapor Pressure: 11.5 psi
Land Use: Suburban
Stability Class: D
Surface Roughness: 108
Background Concentration: 1-hr = 3.3 ppm 8-hr = 2.0 ppm

Project Data:

Region: 4: Hillsborough / Pinellas
Year: 2018
Intersection Type: 4 x 4 Intersection
Max Approach Traffic Volume: 2780 veh/hour
Speed: 45

Receptor Data (all distances are in feet):

Table with 4 columns: Receptor Name, East-West Distance from Intersection, North-South Distance from Intersection, Receptor Height. Lists 10 default receptors with their respective distances and heights.

RESULTS (including background CO):

Table with 3 columns: Receptor Name, Max 1-Hr Conc (ppm), Max 8-Hr Conc (ppm). Shows predicted CO concentrations for each of the 10 receptors.

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED

06-22-2009

CO Florida 2004

Project: Design Year 2038
Facility: Lithia Pinecrest Road from SR 60 to CR 39
Analyst: Wayne Arner

Environmental Data:

Temperature: 50 F
Reid Vapor Pressure: 11.5 psi
Land Use: Suburban
Stability Class: D
Surface Roughness: 108
Background Concentration: 1-hr = 3.3 ppm 8-hr = 2.0 ppm

Project Data:

Region: 4: Hillsborough / Pinellas
Year: 2038
Intersection Type: 4 x 4 Intersection
Max Approach Traffic Volume: 3620 veh/hour
Speed: 45

Receptor Data (all distances are in feet):

Table with 4 columns: Receptor Name, East-West Distance from Intersection, North-South Distance from Intersection, Receptor Height. Lists 10 default receptors with their respective distances and heights.

RESULTS (including background CO):

Table with 3 columns: Receptor Name, Max 1-Hr Conc (ppm), Max 8-Hr Conc (ppm). Shows predicted CO concentrations for each of the 10 receptors.

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED
