

# **ATTACHMENT 4**

## **Air Quality Analysis**



February 10, 2015

Mr. Church Roberts  
Johnson Engineering, Inc.  
2122 Johnson Street  
Fort Myers, FL 33091

**RE: *Coral Reef Commons – Air Quality Screening Test***

Dear Mr. Roberts:

The referenced proposed project is located in Miami-Dade County, an area currently designated as being in attainment for the following criteria air pollutant(s): ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and lead (Pb).

Based on the Florida Department of Transportation's (FDOT) Project Development and Environment Manual (PDE) project-level analyses are not required for ozone, nitrogen dioxide, particulate matter, sulfur dioxide, and lead for attainment areas. To analyze carbon monoxide, the project alternatives were subjected to a CO screening model that assumes conservative worst-case parameters related to site conditions, meteorology, and traffic volumes using FDOT's screening model, CO Florida 2004. This model uses the United States Environmental Protection Agency (USEPA)-approved software (MOBILE6 and CAL3QHC) to produce estimates of one-hour and eight-hour CO at default air quality receptor locations. The one-hour and eight-hour estimates can be directly compared to the one- and eight-hour National Ambient Air Quality Standards (NAAQS) for CO which are 35 parts per million (ppm) and 9 parts per million (ppm), respectively.

The signalized intersection forecast to have the highest total approach traffic volumes in the study area was SW 152 Street at SW 127 Avenue. The No Build and Build scenarios were analyzed for both the opening year (2016) and the design year (2025). The traffic data input used in the evaluation is attached to this memorandum.

Estimates of CO were predicted for the default receptors which are located 10 feet to 150 feet from the edge of the roadway. Based on the results from CO Florida 2004, the highest project-related CO one- and eight-hour levels are not predicted to meet or exceed the one- or eight-hour NAAQS for CO in both the No-Build and Build scenarios. Thus, the project "passes" the screening model and no further analysis is required. The screening model results are attached to this memorandum.

SW 152 Street at SW 127 Avenue Traffic Volumes				
	2016 No-Build	2016 Build	2025 No-Build	2025 Build
Northbound Approach	38	742	382	850
Eastbound Approach	1,758	2,196	2,711	3,002
Southbound Approach	211	287	307	337
Westbound Approach	3,024	3,358	2,614	2,762

Traffic volumes for this analysis were obtained from the following reports:

*Project Access Operational Analysis and Design, Coral Reef Commons UM South Campus Property (February 2012)*

*CDMP Amendment Transportation Analysis, Coral Reef Commons UM South Campus Property (November 2011)*

CO Florida 2004

Project: Coral Reef Commons  
Facility: SW 152 St at SW 127 Ave - No Build  
Analyst: Kimeley-Horn

Environmental Data:  
Temperature: 58 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: 6: Palm Beach / Broward / Dade  
Year: 2016  
Intersection Type: 6 x 4 Intersection  
Max 4-Lane Traffic: 211 veh/hour  
Max 6-Lane Traffic: 3024 veh/hour  
4-Lane Speed: 30  
6-Lane Speed: 40

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	10	150	6
Default Rec 2	10	50	6
Default Rec 3	50	10	6
Default Rec 4	150	10	6
Default Rec 5	50	50	6
Default Rec 6	10	-150	6
Default Rec 7	10	-50	6
Default Rec 8	50	-10	6
Default Rec 9	150	-10	6
Default Rec 10	50	-50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	5.4	3.3
Default Rec 2	6.9	4.2
Default Rec 3	9.5	5.7
Default Rec 4	9.5	5.7
Default Rec 5	6.8	4.1
Default Rec 6	5.6	3.4
Default Rec 7	7.3	4.4
Default Rec 8	8.9	5.4
Default Rec 9	8.2	4.9
Default Rec 10	7.0	4.2

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

CO Florida 2004

Project: Coral Reef Commons  
Facility: SW 152 St at SW 127 Ave - Build  
Analyst: Kimeley-Horn

Environmental Data:  
Temperature: 58 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: 6: Palm Beach / Broward / Dade  
Year: 2016  
Intersection Type: 6 x 4 Intersection  
Max 4-Lane Traffic: 742 veh/hour  
Max 6-Lane Traffic: 3358 veh/hour  
4-Lane Speed: 30  
6-Lane Speed: 40

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	10	150	6
Default Rec 2	10	50	6
Default Rec 3	50	10	6
Default Rec 4	150	10	6
Default Rec 5	50	50	6
Default Rec 6	10	-150	6
Default Rec 7	10	-50	6
Default Rec 8	50	-10	6
Default Rec 9	150	-10	6
Default Rec 10	50	-50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	6.3	3.8
Default Rec 2	8.0	4.8
Default Rec 3	9.9	6.0
Default Rec 4	9.9	6.0
Default Rec 5	7.5	4.5
Default Rec 6	6.6	4.0
Default Rec 7	8.7	5.2
Default Rec 8	9.5	5.7
Default Rec 9	8.6	5.2
Default Rec 10	7.9	4.8

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

CO Florida 2004

Project: Coral Reef Commons  
Facility: SW 152 St at SW 127 Ave - No Build  
Analyst: Kimeley-Horn

Environmental Data:  
Temperature: 58 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: 6: Palm Beach / Broward / Dade  
Year: 2025  
Intersection Type: 6 x 4 Intersection  
Max 4-Lane Traffic: 382 veh/hour  
Max 6-Lane Traffic: 2711 veh/hour  
4-Lane Speed: 30  
6-Lane Speed: 40

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	10	150	6
Default Rec 2	10	50	6
Default Rec 3	50	10	6
Default Rec 4	150	10	6
Default Rec 5	50	50	6
Default Rec 6	10	-150	6
Default Rec 7	10	-50	6
Default Rec 8	50	-10	6
Default Rec 9	150	-10	6
Default Rec 10	50	-50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	5.2	3.1
Default Rec 2	6.7	4.0
Default Rec 3	8.4	5.1
Default Rec 4	8.4	5.1
Default Rec 5	6.4	3.9
Default Rec 6	5.2	3.1
Default Rec 7	7.4	4.5
Default Rec 8	7.9	4.8
Default Rec 9	7.2	4.3
Default Rec 10	6.8	4.1

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

CO Florida 2004

Project: Coral Reef Commons  
Facility: SW 152 St at SW 127 Ave - Build  
Analyst: Kimeley-Horn

Environmental Data:  
Temperature: 58 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: 6: Palm Beach / Broward / Dade  
Year: 2025  
Intersection Type: 6 x 4 Intersection  
Max 4-Lane Traffic: 850 veh/hour  
Max 6-Lane Traffic: 3002 veh/hour  
4-Lane Speed: 30  
6-Lane Speed: 40

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	10	150	6
Default Rec 2	10	50	6
Default Rec 3	50	10	6
Default Rec 4	150	10	6
Default Rec 5	50	50	6
Default Rec 6	10	-150	6
Default Rec 7	10	-50	6
Default Rec 8	50	-10	6
Default Rec 9	150	-10	6
Default Rec 10	50	-50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	6.1	3.7
Default Rec 2	7.4	4.5
Default Rec 3	8.7	5.2
Default Rec 4	8.7	5.2
Default Rec 5	6.8	4.1
Default Rec 6	6.5	3.9
Default Rec 7	7.9	4.8
Default Rec 8	8.5	5.1
Default Rec 9	7.7	4.6
Default Rec 10	7.1	4.3

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