

Date: November 14, 2017

To: CR 510/ 85 Street PD&E Project File

From: Metric Engineering, Inc.

Subject: FM No.: 405606-2-22-02  
Air Quality Screening Test  
CR 510/85 Street from CR 512 to 58 Avenue  
Indian River County

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

The proposed project is located in Indian River County, an area currently designated as being in attainment for all criteria air pollutants. The project area predominantly contains residential and agricultural land uses, along with the two public schools and several parks/preserves.

The project was reviewed for air quality impacts consistent with the *FHWA Discussion Paper: Appropriate Level of Highway Air Quality Analysis for a CE, EA/FONSI, and EIS*. The project alternatives were subjected to a carbon monoxide (CO) screening model that makes various conservative worst-case assumptions related to site conditions, meteorology and traffic. The Florida Department of Transportation's (FDOT's) screening model for CO uses the latest United States Environmental Protection Agency (EPA)-approved software 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 current one-and eight-hour National Ambient Air Quality Standards (NAAQS) for CO.

The roadway intersections forecast to have the highest total approach traffic volumes are where CR 510 intersects 66 Avenue and CR 512. The Build and No-Build scenarios for both the opening year (2020) and the design year (2040) were evaluated. 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 the screening model, the highest project-related CO one- and eight-hour levels are not predicted to meet or exceed the one- or eight-hour NAAQS for this pollutant with either the No-Build or Build alternatives. As such, the project "passes" the screening model. The results of the screening model are attached to this memorandum.

The project is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

The project is expected to improve traffic flow by adding lanes to relieve congestion, which should reduce operational greenhouse gas emissions.

CO Florida 2012 - Results  
 Tuesday, November 14, 2017

Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and 66 Ave  
 FDOT District 4  
 Year 2020  
 Intersection Type 4 X 4  
 Speed Arterial 35 mph  
 Approach Traffic Arterial 861 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	2.8	1.7
2	3.1	1.9
3	3.2	1.9
4	2.8	1.7
5	2.8	1.7
6	2.8	1.7
7	3.1	1.9
8	3.2	1.9
9	2.8	1.7
10	2.8	1.7
11	2.8	1.7
12	3.1	1.9
13	3.3	2.0
14	2.8	1.7
15	2.8	1.7
16	2.9	1.7
17	3.1	1.9
18	3.2	1.9
19	2.8	1.7
20	2.8	1.7

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 \*\*\*\*\*PROJECT PASSES\*\*\*\*\*  
 \*NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED\*  
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CO Florida 2012 - Results  
 Tuesday, November 14, 2017

Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and 66 Ave - Build  
 FDOT District 4  
 Year 2020  
 Intersection Type 4 X 4  
 Speed Arterial 35 mph  
 Approach Traffic Arterial 926 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	2.9	1.7
2	3.1	1.9
3	3.4	2.0
4	3.0	1.8
5	2.9	1.7
6	2.9	1.7
7	3.1	1.9
8	3.4	2.0
9	2.9	1.7
10	2.9	1.7
11	2.9	1.7
12	3.1	1.9
13	3.4	2.0
14	2.9	1.7
15	2.9	1.7
16	3.0	1.8
17	3.1	1.9
18	3.4	2.0
19	3.0	1.8
20	2.9	1.7

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CO Florida 2012 - Results  
 Tuesday, November 14, 2017

Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and 66 Ave  
 FDOT District 4  
 Year 2040  
 Intersection Type 4 X 4  
 Speed Arterial 35 mph  
 Approach Traffic Arterial 1352 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	3.2	1.9
2	3.3	2.0
3	3.5	2.1
4	3.3	2.0
5	3.1	1.9
6	3.2	1.9
7	3.3	2.0
8	3.5	2.1
9	3.2	1.9
10	3.1	1.9
11	3.2	1.9
12	3.3	2.0
13	3.5	2.1
14	3.2	1.9
15	3.1	1.9
16	3.2	1.9
17	3.4	2.0
18	3.5	2.1
19	3.2	1.9
20	3.1	1.9

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CO Florida 2012 - Results  
 Tuesday, November 14, 2017

Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and 66 Ave - Build  
 FDOT District 4  
 Year 2040  
 Intersection Type 4 X 4  
 Speed Arterial 35 mph  
 Approach Traffic Arterial 1532 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	3.4	2.0
2	3.6	2.2
3	3.8	2.3
4	3.6	2.2
5	3.2	1.9
6	3.4	2.0
7	3.6	2.2
8	3.8	2.3
9	3.5	2.1
10	3.2	1.9
11	3.5	2.1
12	3.6	2.2
13	3.8	2.3
14	3.5	2.1
15	3.2	1.9
16	3.4	2.0
17	3.7	2.2
18	3.8	2.3
19	3.5	2.1
20	3.2	1.9

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CO Florida 2012 - Results  
 Tuesday, November 14, 2017

Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and CR 512  
 FDOT District 4  
 Year 2020  
 Intersection Type 6 X 4  
 Speed Arterial 30 mph  
 Approach Traffic Arterial 999 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results  
 (ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	2.8	1.7
2	3.1	1.9
3	3.4	2.0
4	2.9	1.7
5	2.7	1.6
6	2.6	1.6
7	2.9	1.7
8	3.1	1.9
9	3.1	1.9
10	2.9	1.7
11	2.8	1.7
12	3.1	1.9
13	3.4	2.0
14	2.9	1.7
15	2.7	1.6
16	2.6	1.6
17	2.9	1.7
18	3.1	1.9
19	3.1	1.9
20	2.9	1.7

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Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and CR 512 - Build  
 FDOT District 4  
 Year 2020  
 Intersection Type 6 X 4  
 Speed Arterial 30 mph  
 Approach Traffic Arterial 999 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results  
 (ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	2.8	1.7
2	3.1	1.9
3	3.4	2.0
4	2.9	1.7
5	2.7	1.6
6	2.6	1.6
7	2.9	1.7
8	3.1	1.9
9	3.1	1.9
10	2.9	1.7
11	2.8	1.7
12	3.1	1.9
13	3.4	2.0
14	2.9	1.7
15	2.7	1.6
16	2.6	1.6
17	2.9	1.7
18	3.1	1.9
19	3.1	1.9
20	2.9	1.7

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CO Florida 2012 - Results  
 Tuesday, November 14, 2017

Project Description

Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and CR 512  
 FDOT District 4  
 Year 2040  
 Intersection Type 6 X 4  
 Speed Arterial 30 mph  
 Approach Traffic Arterial 1161 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	2.8	1.7
2	3.0	1.8
3	3.2	1.9
4	2.8	1.7
5	2.5	1.5
6	2.6	1.6
7	2.7	1.6
8	3.1	1.9
9	2.8	1.7
10	2.8	1.7
11	2.8	1.7
12	3.0	1.8
13	3.2	1.9
14	2.8	1.7
15	2.5	1.5
16	2.6	1.6
17	2.7	1.6
18	3.1	1.9
19	2.8	1.7
20	2.8	1.7

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Project Title CR 510 PD&E Study  
 Facility Name CR 510  
 User's Name Caitlin Hill  
 Run Name CR 510 and CR 512 - Build  
 FDOT District 4  
 Year 2040  
 Intersection Type 6 X 4  
 Speed Arterial 30 mph  
 Approach Traffic Arterial 1199 vph

Environmental Data

Temperature 53.9 °F  
 Reid Vapor Pressure 13.3 psi  
 Land Use Rural  
 Stability Class E  
 Surface Roughness 10 cm  
 1 Hr. Background Concentration 1.7 ppm  
 8 Hr. Background Concentration 1.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	2.9	1.7
2	3.0	1.8
3	3.2	1.9
4	2.8	1.7
5	2.6	1.6
6	2.6	1.6
7	2.7	1.6
8	3.1	1.9
9	2.9	1.7
10	2.8	1.7
11	2.9	1.7
12	3.0	1.8
13	3.2	1.9
14	2.8	1.7
15	2.6	1.6
16	2.6	1.6
17	2.7	1.6
18	3.1	1.9
19	2.9	1.7
20	2.8	1.7

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