



**St. Johns River Crossing**  
PROJECT DEVELOPMENT & ENVIRONMENT STUDY

**Air Quality Impact  
Technical Memorandum**

**Prepared by:**

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200 W. Forsyth Street  
Jacksonville, FL 32202**

**For**

**Florida Department of Transportation District 2**

**Revised September 2008**

## **Air Quality Screening Test**

The proposed project is located in Clay and St. Johns Counties. Both of these counties are currently designated as being in attainment for the following criteria air pollutants: ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide, and lead.

The project consists of a No-Build Alternative and the following ten build alternatives: Pink Alternative 1, Black Alternative, Purple Alternative, Brown Alternative 1, Orange Alternative 1, Green Alternative 1, Pink Alternative 2, Brown Alternative 2, Orange Alternative 2, and Green Alternative 2. These eleven alternatives were analyzed for potential air quality impacts using FDOT's air quality screening model, CO Florida 2004, version 2.0.5. CO Florida 2004 incorporates the U.S. Environmental Protection Agency's (EPA) latest software, MOBILE6 and CAL3QHC2, to evaluate interchanges. The screening model predicts carbon monoxide (CO) concentrations at varying distances using conservative, worst-case assumptions about the meteorology, traffic and site conditions. Estimates are made of one-hour and eight-hour CO concentrations at default air quality receptor locations, and if the CO concentrations exceed 35 parts per million (ppm) for a one-hour period, or 9 ppm for an eight-hour period, the project exceeds the National Ambient Air Quality Standard (NAAQS) for CO. Should this occur, the project must then undergo a more thorough air quality analysis using the complete MOBILE6 and CAL3QHC2 models.

All eleven alternatives were analyzed for both the opening year (2015) and the design year (2035), but the interchanges forecasted to have the highest total approach traffic volume varied with each alternative. Directional design hour traffic volumes were obtained from the FDOT's Northeast Regional Planning Model (NERPM), 2030 and are summarized on the following page in Table 1 and included in Appendix B.

| <b>TABLE 1: SCREENING TEST INPUT DATA</b>       |   |   |   |
|---|---|---|---|
| <b>Analysis Scenario</b>                        | <b>Analyzed Interchange</b>               | <b>Approach Speed (mph) Cross Street/ Alternative</b> | <b>Maximum Approach Peak Hour Traffic</b> |
| <b>No-Build Alternative</b>                     |   |   |   |
| 2015 Year Open                                  | I-95/CR 210                               | 65/45   | 5109                                      |
| 2035 Design Year                                | I-95/SR 9B                                | 65/60   | 6976                                      |
| <b>Pink Alternative 1 &amp; Alternative 2</b>   |   |   |   |
| 2015 Year Open                                  | I-95/ First Coast Outer Beltway           | 65/60   | 4815                                      |
| 2035 Design Year                                | I-95/First Coast Outer Beltway            | 65/60   | 5995                                      |
| <b>Black Alternative</b>                        |   |   |   |
| 2015 Year Open                                  | I-95/First Coast Outer Beltway            | 65/60   | 3976                                      |
| 2035 Design Year                                | I-95/First Coast Outer Beltway            | 65/60   | 5503                                      |
| <b>Purple Alternative</b>                       |   |   |   |
| 2015 Year Open                                  | Racetrack Road/ First Coast Outer Beltway | 45/60   | 2955                                      |
| 2035 Design Year                                | Racetrack Road/ First Coast Outer Beltway | 45/60   | 4791                                      |
| <b>Brown Alternative 1 &amp; Alternative 2</b>  |   |   |   |
| 2015 Year Open                                  | Racetrack Road/ First Coast Outer Beltway | 45/60   | 2847                                      |
| 2035 Design Year                                | Racetrack Road/ First Coast Outer Beltway | 45/60   | 5046                                      |
| <b>Orange Alternative 1 &amp; Alternative 2</b> |   |   |   |
| 2015 Year Open                                  | Racetrack Road/ First Coast Outer Beltway | 45/60   | 2872                                      |
| 2035 Design Year                                | Racetrack Road/ First Coast Outer Beltway | 45/60   | 4996                                      |
| <b>Green Alternative 1 &amp; Alternative 2</b>  |   |   |   |
| 2015 Year Open                                  | I-95/ First Coast Outer Beltway           | 65/60   | 4821                                      |
| 2035 Design Year                                | I-95/ First Coast Outer Beltway           | 65/60   | 5976                                      |

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The model was run using the default receptors, located 10 to 150 feet from the edge of the roadway. These distances are representative of the various air receptors throughout the eleven alternatives and were deemed suitable for use in this analysis. Results from the screening test (included as Appendix A) indicate that the highest project-related CO 1-hour and CO 8-hour levels are not predicted to meet or exceed the NAAQS for this pollutant under any of the analyzed alternatives. As such, the project passes the screening model for all alternatives. The proposed project is located in an area designated as being in attainment for all of the NAAQS under the criteria provided in the Clean Air Act. Therefore, the Clean Act conformity requirements do not apply to the project.

APPENDIX A:  
CO FLORIDA 2004 OUTPUT

# Air Quality Impact Technical Memorandum

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## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: No-Build - Year Open I-95/CR 210  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2015  
 Intersection Type: Diamond Interchange  
 Max Freeway Traffic: 5109 veh/hour  
 Max Arterial Traffic: 1464 veh/hour  
 Freeway Speed: 65  
 Arterial Speed: 45

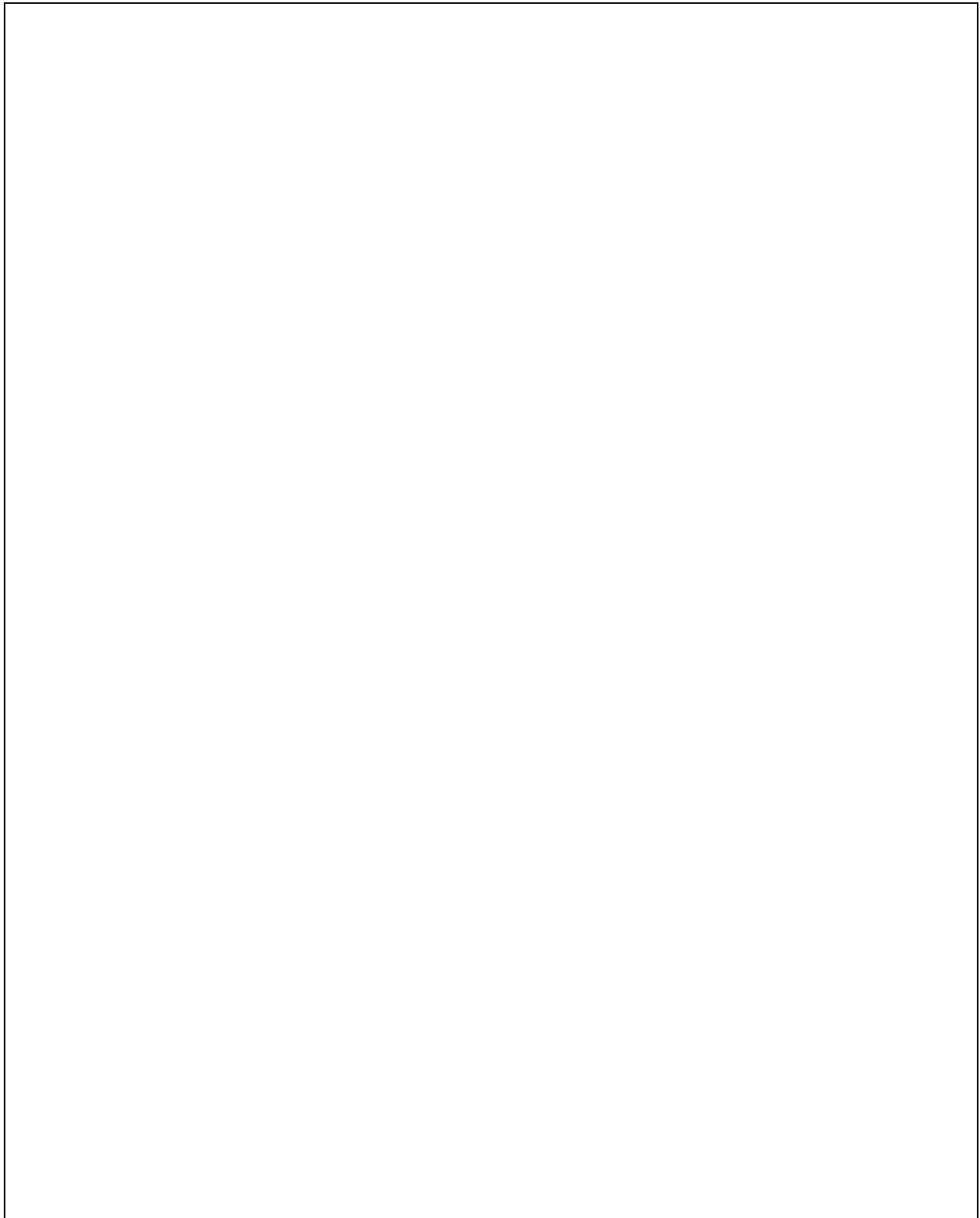
### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 10                                      | 1020                                      | 6                  |
| Default Rec 2  | 10                                      | 50  | 6                  |
| Default Rec 3  | 50                                      | 10  | 6                  |
| Default Rec 4  | 150                                     | 10  | 6                  |
| Default Rec 5  | 10                                      | -1020                                     | 6                  |
| Default Rec 6  | 10                                      | -50                                       | 6                  |
| Default Rec 7  | 50                                      | -10                                       | 6                  |
| Default Rec 8  | 150                                     | -10                                       | 6                  |
| Default Rec 9  | -10                                     | -1020                                     | 6                  |
| Default Rec 10 | -10                                     | -50                                       | 6                  |
| Default Rec 11 | -50                                     | -10                                       | 6                  |
| Default Rec 12 | -150                                    | -10                                       | 6                  |
| Default Rec 13 | -10                                     | 1020                                      | 6                  |
| Default Rec 14 | -10                                     | 50  | 6                  |
| Default Rec 15 | -50                                     | 10  | 6                  |
| Default Rec 16 | -150                                    | 10  | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 10.5                   | 6.3                    |
| Default Rec 2  | 7.7                    | 4.6                    |
| Default Rec 3  | 8.1                    | 4.9                    |
| Default Rec 4  | 7.4                    | 4.5                    |
| Default Rec 5  | 11.4                   | 6.9                    |
| Default Rec 6  | 7.7                    | 4.6                    |
| Default Rec 7  | 7.5                    | 4.5                    |
| Default Rec 8  | 6.7                    | 4.0                    |
| Default Rec 9  | 10.5                   | 6.3                    |
| Default Rec 10 | 7.7                    | 4.6                    |
| Default Rec 11 | 8.1                    | 4.9                    |
| Default Rec 12 | 7.4                    | 4.5                    |
| Default Rec 13 | 11.4                   | 6.9                    |
| Default Rec 14 | 7.7                    | 4.6                    |
| Default Rec 15 | 7.5                    | 4.5                    |
| Default Rec 16 | 6.7                    | 4.0                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: No-Build - Design Year I-95/SR 9B  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2035  
 Intersection Type: Diamond Interchange  
 Max Freeway Traffic: 6976 veh/hour  
 Max Arterial Traffic: 4460 veh/hour  
 Freeway Speed: 65  
 Arterial Speed: 60

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 10                                      | 1020                                      | 6                  |
| Default Rec 2  | 10                                      | 50  | 6                  |
| Default Rec 3  | 50                                      | 10  | 6                  |
| Default Rec 4  | 150                                     | 10  | 6                  |
| Default Rec 5  | 10                                      | -1020                                     | 6                  |
| Default Rec 6  | 10                                      | -50                                       | 6                  |
| Default Rec 7  | 50                                      | -10                                       | 6                  |
| Default Rec 8  | 150                                     | -10                                       | 6                  |
| Default Rec 9  | -10                                     | -1020                                     | 6                  |
| Default Rec 10 | -10                                     | -50                                       | 6                  |
| Default Rec 11 | -50                                     | -10                                       | 6                  |
| Default Rec 12 | -150                                    | -10                                       | 6                  |
| Default Rec 13 | -10                                     | 1020                                      | 6                  |
| Default Rec 14 | -10                                     | 50  | 6                  |
| Default Rec 15 | -50                                     | 10  | 6                  |
| Default Rec 16 | -150                                    | 10  | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 12.0                   | 7.2                    |
| Default Rec 2  | 10.8                   | 6.5                    |
| Default Rec 3  | 11.3                   | 6.8                    |
| Default Rec 4  | 11.2                   | 6.7                    |
| Default Rec 5  | 12.8                   | 7.7                    |
| Default Rec 6  | 10.6                   | 6.4                    |
| Default Rec 7  | 11.5                   | 6.9                    |
| Default Rec 8  | 10.9                   | 6.6                    |
| Default Rec 9  | 12.0                   | 7.2                    |
| Default Rec 10 | 10.8                   | 6.5                    |
| Default Rec 11 | 11.3                   | 6.8                    |
| Default Rec 12 | 11.2                   | 6.7                    |
| Default Rec 13 | 12.8                   | 7.7                    |
| Default Rec 14 | 10.6                   | 6.4                    |
| Default Rec 15 | 11.5                   | 6.9                    |
| Default Rec 16 | 10.9                   | 6.6                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Pink Alignment 1 -FCOB/I-95 Year Open 2015  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2015  
 Intersection Type: T Intersection  
 Max Traffic1: 4815 veh/hour  
 Traffic2: 2188 veh/hour  
 Speed1: 65  
 Speed2: 60

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 120                                     | 150                                       | 6                  |
| Default Rec 2  | 120                                     | 50  | 6                  |
| Default Rec 3  | 50                                      | 120                                       | 6                  |
| Default Rec 4  | 150                                     | 120                                       | 6                  |
| Default Rec 5  | 50                                      | 50  | 6                  |
| Default Rec 6  | 120                                     | -150                                      | 6                  |
| Default Rec 7  | 120                                     | -50                                       | 6                  |
| Default Rec 8  | 50                                      | -120                                      | 6                  |
| Default Rec 9  | 150                                     | -120                                      | 6                  |
| Default Rec 10 | 50                                      | -50                                       | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 6.6                    | 4.0                    |
| Default Rec 2  | 7.2                    | 4.3                    |
| Default Rec 3  | 8.1                    | 4.9                    |
| Default Rec 4  | 6.4                    | 3.9                    |
| Default Rec 5  | 8.7                    | 5.2                    |
| Default Rec 6  | 6.6                    | 4.0                    |
| Default Rec 7  | 7.3                    | 4.4                    |
| Default Rec 8  | 8.4                    | 5.1                    |
| Default Rec 9  | 6.6                    | 4.0                    |
| Default Rec 10 | 8.9                    | 5.4                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Pink Alignment 1 - FCOB/I-95 Design Year 2035  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2035  
 Intersection Type: T Intersection  
 Max Traffic1: 5995 veh/hour  
 Traffic2: 2970 veh/hour  
 Speed1: 65  
 Speed2: 60

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>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<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 12.0                   | 7.2                    |
| Default Rec 2  | 12.4                   | 7.5                    |
| Default Rec 3  | 9.5                    | 5.7                    |
| Default Rec 4  | 7.6                    | 4.6                    |
| Default Rec 5  | 8.6                    | 5.2                    |
| Default Rec 6  | 11.8                   | 7.1                    |
| Default Rec 7  | 12.6                   | 7.6                    |
| Default Rec 8  | 9.7                    | 5.8                    |
| Default Rec 9  | 7.7                    | 4.6                    |
| Default Rec 10 | 8.9                    | 5.4                    |

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 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Pink Alignment 2 -FCOB/I-95 Year Open 2015  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2015  
 Intersection Type: T Intersection  
 Max Traffic1: 4815 veh/hour  
 Traffic2: 2188 veh/hour  
 Speed1: 65  
 Speed2: 60

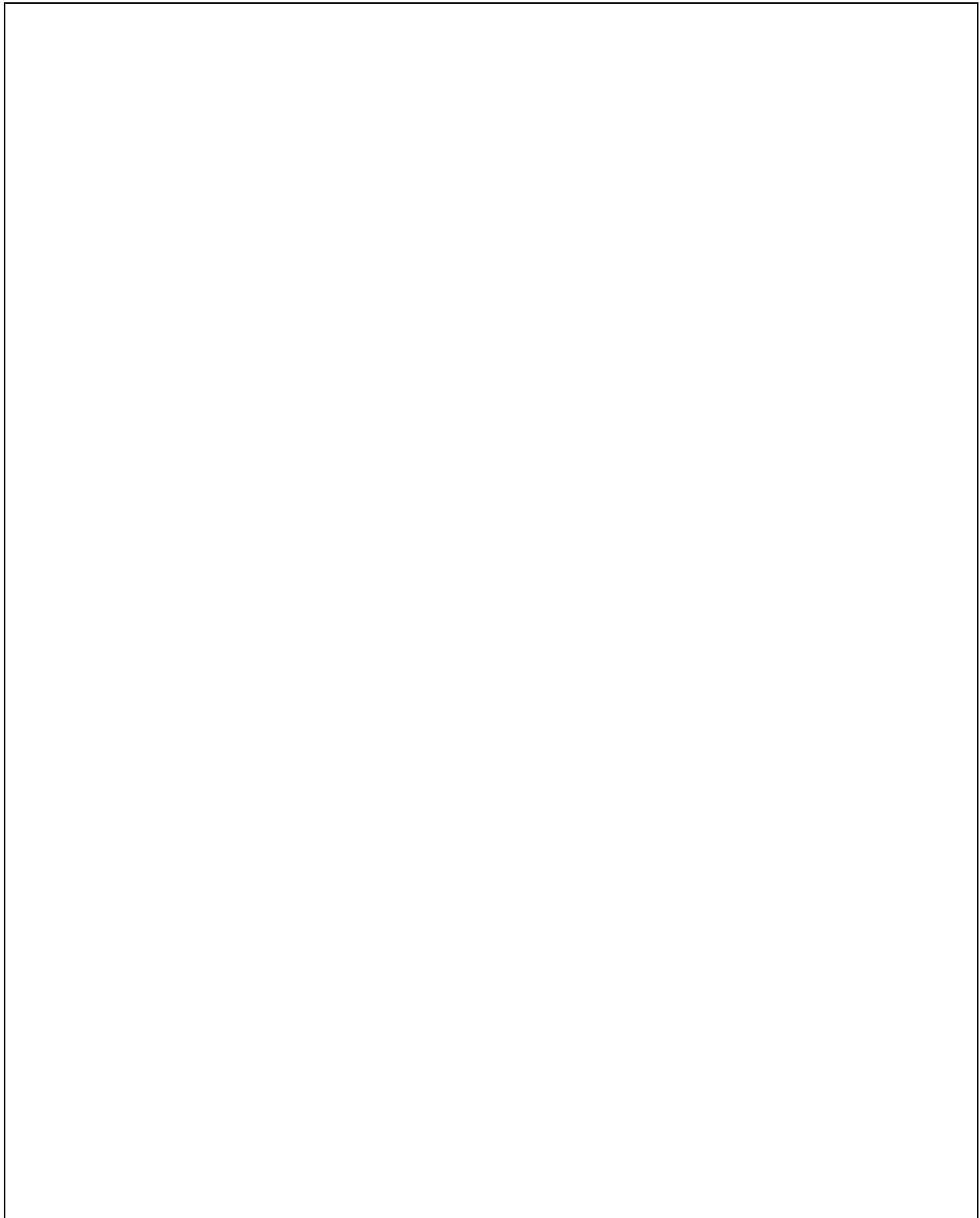
### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 120                                     | 150                                       | 6                  |
| Default Rec 2  | 120                                     | 50  | 6                  |
| Default Rec 3  | 50                                      | 120                                       | 6                  |
| Default Rec 4  | 150                                     | 120                                       | 6                  |
| Default Rec 5  | 50                                      | 50  | 6                  |
| Default Rec 6  | 120                                     | -150                                      | 6                  |
| Default Rec 7  | 120                                     | -50                                       | 6                  |
| Default Rec 8  | 50                                      | -120                                      | 6                  |
| Default Rec 9  | 150                                     | -120                                      | 6                  |
| Default Rec 10 | 50                                      | -50                                       | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 6.6                    | 4.0                    |
| Default Rec 2  | 7.2                    | 4.3                    |
| Default Rec 3  | 8.1                    | 4.9                    |
| Default Rec 4  | 6.4                    | 3.9                    |
| Default Rec 5  | 8.7                    | 5.2                    |
| Default Rec 6  | 6.6                    | 4.0                    |
| Default Rec 7  | 7.3                    | 4.4                    |
| Default Rec 8  | 8.4                    | 5.1                    |
| Default Rec 9  | 6.6                    | 4.0                    |
| Default Rec 10 | 8.9                    | 5.4                    |

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 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Pink Alignment 2 - FCOB/I-95 Design Year 2035  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2035  
 Intersection Type: T Intersection  
 Max Traffic1: 5995 veh/hour  
 Traffic2: 2970 veh/hour  
 Speed1: 65  
 Speed2: 60

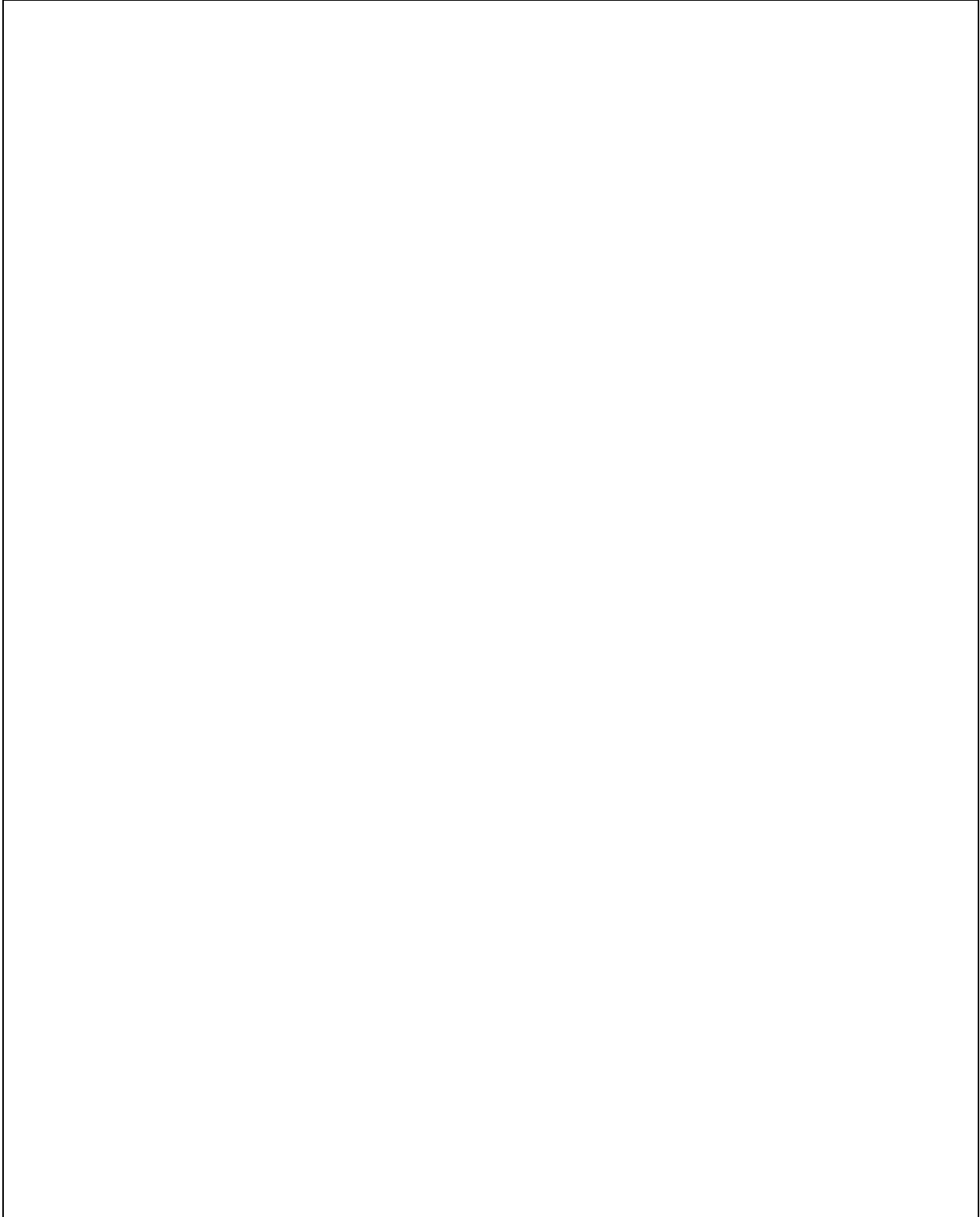
### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>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<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 12.0                   | 7.2                    |
| Default Rec 2  | 12.4                   | 7.5                    |
| Default Rec 3  | 9.5                    | 5.7                    |
| Default Rec 4  | 7.6                    | 4.6                    |
| Default Rec 5  | 8.6                    | 5.2                    |
| Default Rec 6  | 11.8                   | 7.1                    |
| Default Rec 7  | 12.6                   | 7.6                    |
| Default Rec 8  | 9.7                    | 5.8                    |
| Default Rec 9  | 7.7                    | 4.6                    |
| Default Rec 10 | 8.9                    | 5.4                    |

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 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Black Corridor - Year Open FCOB/I-95  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2015  
 Intersection Type: T Intersection  
 Max Traffic1: 3976 veh/hour  
 Traffic2: 845 veh/hour  
 Speed1: 65  
 Speed2: 60

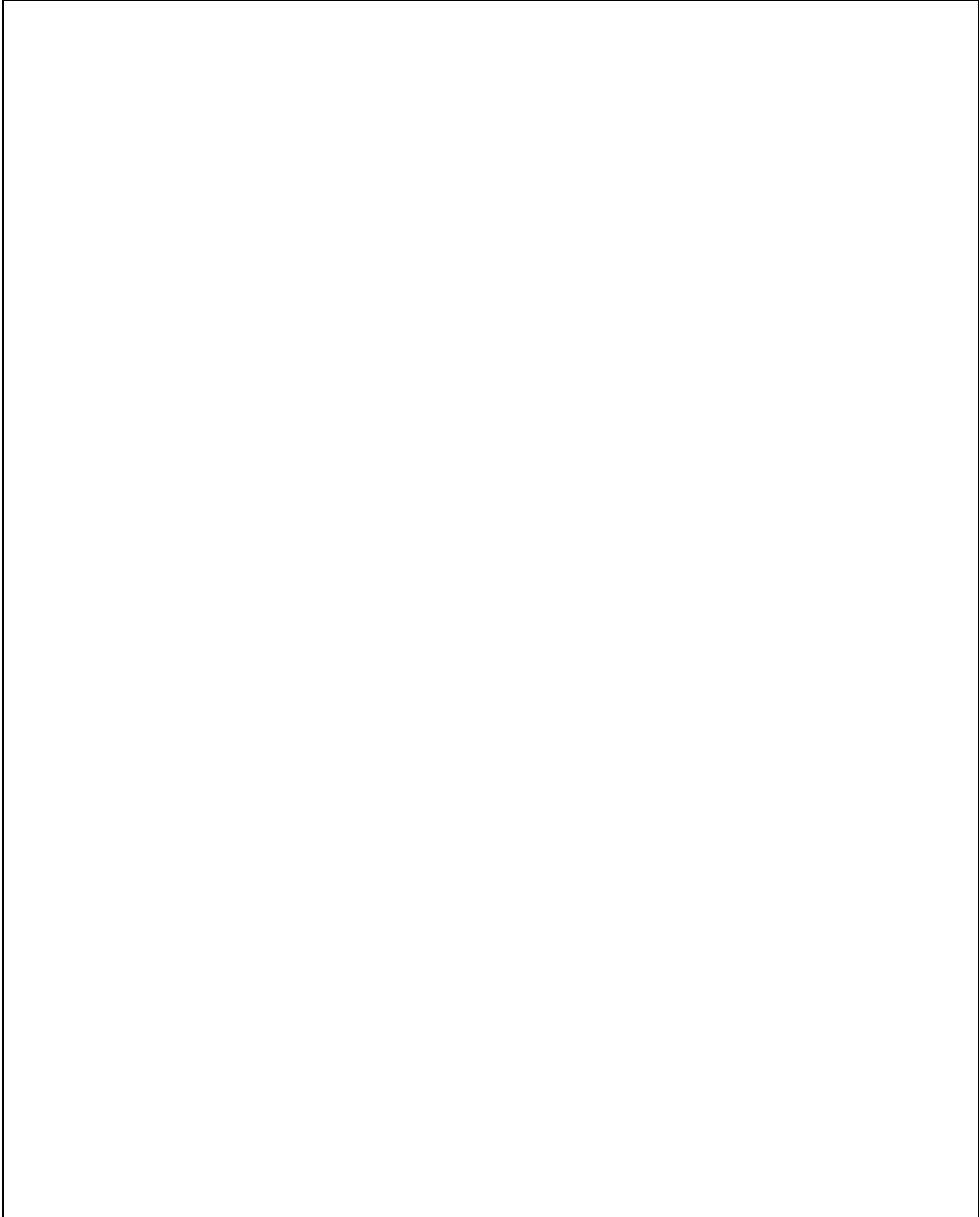
### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>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<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 9.7                    | 5.8                    |
| Default Rec 2  | 10.2                   | 6.1                    |
| Default Rec 3  | 7.9                    | 4.8                    |
| Default Rec 4  | 6.2                    | 3.7                    |
| Default Rec 5  | 7.5                    | 4.5                    |
| Default Rec 6  | 10.2                   | 6.1                    |
| Default Rec 7  | 10.5                   | 6.3                    |
| Default Rec 8  | 8.1                    | 4.9                    |
| Default Rec 9  | 6.5                    | 3.9                    |
| Default Rec 10 | 7.6                    | 4.6                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Black Alternative - FCOB/I-95 2035 Design Year  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2035  
 Intersection Type: T Intersection  
 Max Traffic1: 5503 veh/hour  
 Traffic2: 1277 veh/hour  
 Speed1: 65  
 Speed2: 60

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>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<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 10.6                   | 6.4                    |
| Default Rec 2  | 10.8                   | 6.5                    |
| Default Rec 3  | 8.4                    | 5.1                    |
| Default Rec 4  | 6.5                    | 3.9                    |
| Default Rec 5  | 7.8                    | 4.7                    |
| Default Rec 6  | 10.9                   | 6.6                    |
| Default Rec 7  | 11.2                   | 6.7                    |
| Default Rec 8  | 8.6                    | 5.2                    |
| Default Rec 9  | 6.9                    | 4.2                    |
| Default Rec 10 | 8.1                    | 4.9                    |

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

# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Purple Corridor - FCOB/Racetrack Rd 2015 Year Open  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2015  
 Intersection Type: Diamond Interchange  
 Max Freeway Traffic: 2955 veh/hour  
 Max Arterial Traffic: 1159 veh/hour  
 Freeway Speed: 60  
 Arterial Speed: 45

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 10                                      | 1020                                      | 6                  |
| Default Rec 2  | 10                                      | 50  | 6                  |
| Default Rec 3  | 50                                      | 10  | 6                  |
| Default Rec 4  | 150                                     | 10  | 6                  |
| Default Rec 5  | 10                                      | -1020                                     | 6                  |
| Default Rec 6  | 10                                      | -50                                       | 6                  |
| Default Rec 7  | 50                                      | -10                                       | 6                  |
| Default Rec 8  | 150                                     | -10                                       | 6                  |
| Default Rec 9  | -10                                     | -1020                                     | 6                  |
| Default Rec 10 | -10                                     | -50                                       | 6                  |
| Default Rec 11 | -50                                     | -10                                       | 6                  |
| Default Rec 12 | -150                                    | -10                                       | 6                  |
| Default Rec 13 | -10                                     | 1020                                      | 6                  |
| Default Rec 14 | -10                                     | 50  | 6                  |
| Default Rec 15 | -50                                     | 10  | 6                  |
| Default Rec 16 | -150                                    | 10  | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 7.4                    | 4.5                    |
| Default Rec 2  | 6.4                    | 3.9                    |
| Default Rec 3  | 6.8                    | 4.1                    |
| Default Rec 4  | 6.1                    | 3.7                    |
| Default Rec 5  | 7.9                    | 4.8                    |
| Default Rec 6  | 6.9                    | 4.2                    |
| Default Rec 7  | 6.7                    | 4.0                    |
| Default Rec 8  | 6.2                    | 3.7                    |
| Default Rec 9  | 7.4                    | 4.5                    |
| Default Rec 10 | 6.4                    | 3.9                    |
| Default Rec 11 | 6.8                    | 4.1                    |
| Default Rec 12 | 6.1                    | 3.7                    |
| Default Rec 13 | 7.9                    | 4.8                    |
| Default Rec 14 | 6.9                    | 4.2                    |
| Default Rec 15 | 6.7                    | 4.0                    |
| Default Rec 16 | 6.2                    | 3.7                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Purple Alternative - FCOB/ Racetrack Road 2035 Design Year  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2035  
 Intersection Type: Diamond Interchange  
 Max Freeway Traffic: 4791 veh/hour  
 Max Arterial Traffic: 3365 veh/hour  
 Freeway Speed: 60  
 Arterial Speed: 45

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 10                                      | 1020                                      | 6                  |
| Default Rec 2  | 10                                      | 50  | 6                  |
| Default Rec 3  | 50                                      | 10  | 6                  |
| Default Rec 4  | 150                                     | 10  | 6                  |
| Default Rec 5  | 10                                      | -1020                                     | 6                  |
| Default Rec 6  | 10                                      | -50                                       | 6                  |
| Default Rec 7  | 50                                      | -10                                       | 6                  |
| Default Rec 8  | 150                                     | -10                                       | 6                  |
| Default Rec 9  | -10                                     | -1020                                     | 6                  |
| Default Rec 10 | -10                                     | -50                                       | 6                  |
| Default Rec 11 | -50                                     | -10                                       | 6                  |
| Default Rec 12 | -150                                    | -10                                       | 6                  |
| Default Rec 13 | -10                                     | 1020                                      | 6                  |
| Default Rec 14 | -10                                     | 50  | 6                  |
| Default Rec 15 | -50                                     | 10  | 6                  |
| Default Rec 16 | -150                                    | 10  | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 9.3                    | 5.6                    |
| Default Rec 2  | 8.9                    | 5.4                    |
| Default Rec 3  | 9.4                    | 5.7                    |
| Default Rec 4  | 9.7                    | 5.8                    |
| Default Rec 5  | 10.0                   | 6.0                    |
| Default Rec 6  | 8.6                    | 5.2                    |
| Default Rec 7  | 9.3                    | 5.6                    |
| Default Rec 8  | 8.8                    | 5.3                    |
| Default Rec 9  | 9.3                    | 5.6                    |
| Default Rec 10 | 8.9                    | 5.4                    |
| Default Rec 11 | 9.4                    | 5.7                    |
| Default Rec 12 | 9.7                    | 5.8                    |
| Default Rec 13 | 10.0                   | 6.0                    |
| Default Rec 14 | 8.6                    | 5.2                    |
| Default Rec 15 | 9.3                    | 5.6                    |
| Default Rec 16 | 8.8                    | 5.3                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Brown Alternative 1- FCOB/ Racetrack Road - 2015 Year Open  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2015  
 Intersection Type: Diamond Interchange  
 Max Freeway Traffic: 2847 veh/hour  
 Max Arterial Traffic: 1273 veh/hour  
 Freeway Speed: 60  
 Arterial Speed: 45

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>Height |
|----------------|---|---|--------------------|
| Default Rec 1  | 10                                      | 1020                                      | 6                  |
| Default Rec 2  | 10                                      | 50  | 6                  |
| Default Rec 3  | 50                                      | 10  | 6                  |
| Default Rec 4  | 150                                     | 10  | 6                  |
| Default Rec 5  | 10                                      | -1020                                     | 6                  |
| Default Rec 6  | 10                                      | -50                                       | 6                  |
| Default Rec 7  | 50                                      | -10                                       | 6                  |
| Default Rec 8  | 150                                     | -10                                       | 6                  |
| Default Rec 9  | -10                                     | -1020                                     | 6                  |
| Default Rec 10 | -10                                     | -50                                       | 6                  |
| Default Rec 11 | -50                                     | -10                                       | 6                  |
| Default Rec 12 | -150                                    | -10                                       | 6                  |
| Default Rec 13 | -10                                     | 1020                                      | 6                  |
| Default Rec 14 | -10                                     | 50  | 6                  |
| Default Rec 15 | -50                                     | 10  | 6                  |
| Default Rec 16 | -150                                    | 10  | 6                  |

### RESULTS (including background CO):

| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 7.1                    | 4.3                    |
| Default Rec 2  | 6.8                    | 4.1                    |
| Default Rec 3  | 7.1                    | 4.3                    |
| Default Rec 4  | 6.4                    | 3.9                    |
| Default Rec 5  | 7.7                    | 4.6                    |
| Default Rec 6  | 7.0                    | 4.2                    |
| Default Rec 7  | 7.0                    | 4.2                    |
| Default Rec 8  | 6.6                    | 4.0                    |
| Default Rec 9  | 7.1                    | 4.3                    |
| Default Rec 10 | 6.8                    | 4.1                    |
| Default Rec 11 | 7.1                    | 4.3                    |
| Default Rec 12 | 6.4                    | 3.9                    |
| Default Rec 13 | 7.7                    | 4.6                    |
| Default Rec 14 | 7.0                    | 4.2                    |
| Default Rec 15 | 7.0                    | 4.2                    |
| Default Rec 16 | 6.6                    | 4.0                    |

\*\*\*\*\*  
 PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED  
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# Air Quality Impact Technical Memorandum

09-16-2008

## CO Florida 2004

Project: St. Johns River Crossing PDE  
 Facility: Green Alternative 2 - FCOB/I-95 2035 Design Year  
 Analyst: R. Ossi, AICP - ETP

### Environmental Data:

Temperature: 41 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: 1: North Florida  
 Year: 2035  
 Intersection Type: T Intersection  
 Max Traffic1: 5976 veh/hour  
 Traffic2: 2965 veh/hour  
 Speed1: 65  
 Speed2: 60

### Receptor Data (all distances are in feet):

| Receptor Name  | East-West Distance<br>from Intersection | North-South Distance<br>from Intersection | Receptor<br>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):

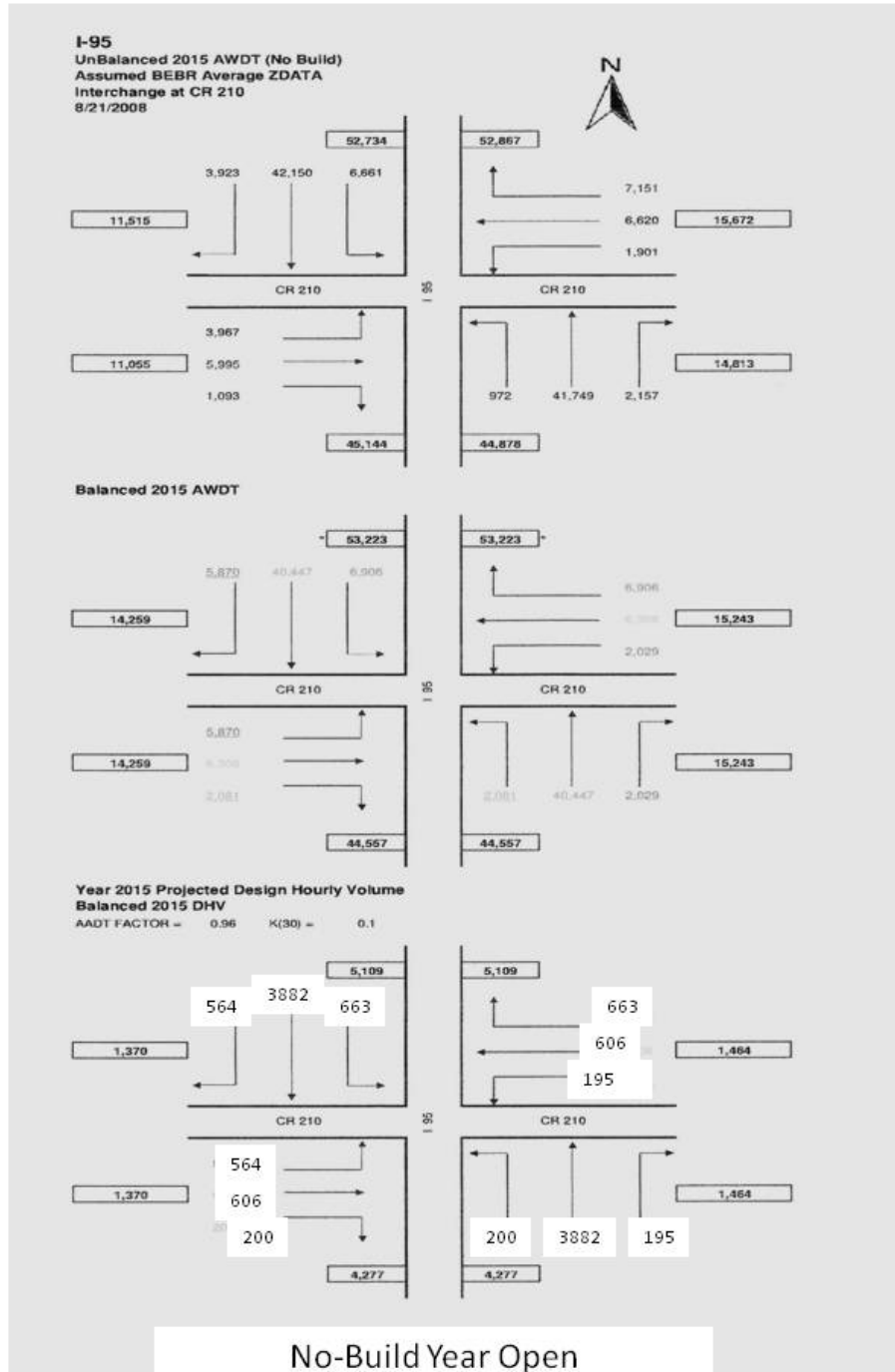
| Receptor Name  | Max 1-Hr<br>Conc (ppm) | Max 8-Hr<br>Conc (ppm) |
|----------------|------------------------|------------------------|
| Default Rec 1  | 12.0                   | 7.2                    |
| Default Rec 2  | 12.4                   | 7.5                    |
| Default Rec 3  | 9.5                    | 5.7                    |
| Default Rec 4  | 7.6                    | 4.6                    |
| Default Rec 5  | 8.6                    | 5.2                    |
| Default Rec 6  | 11.7                   | 7.0                    |
| Default Rec 7  | 12.5                   | 7.5                    |
| Default Rec 8  | 9.7                    | 5.8                    |
| Default Rec 9  | 7.7                    | 4.6                    |
| Default Rec 10 | 8.9                    | 5.4                    |

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

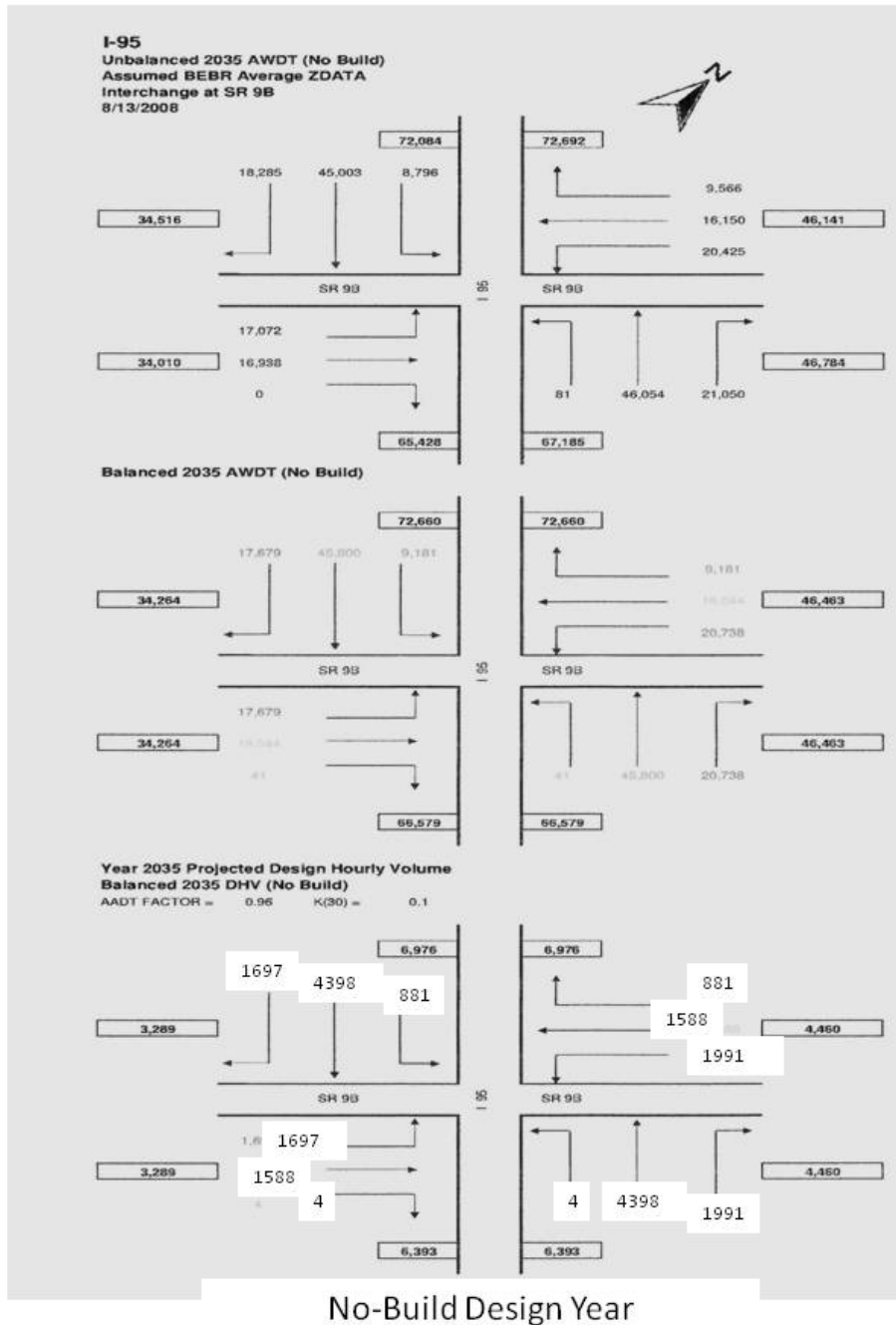
APPENDIX B:  
TRAFFIC DATA



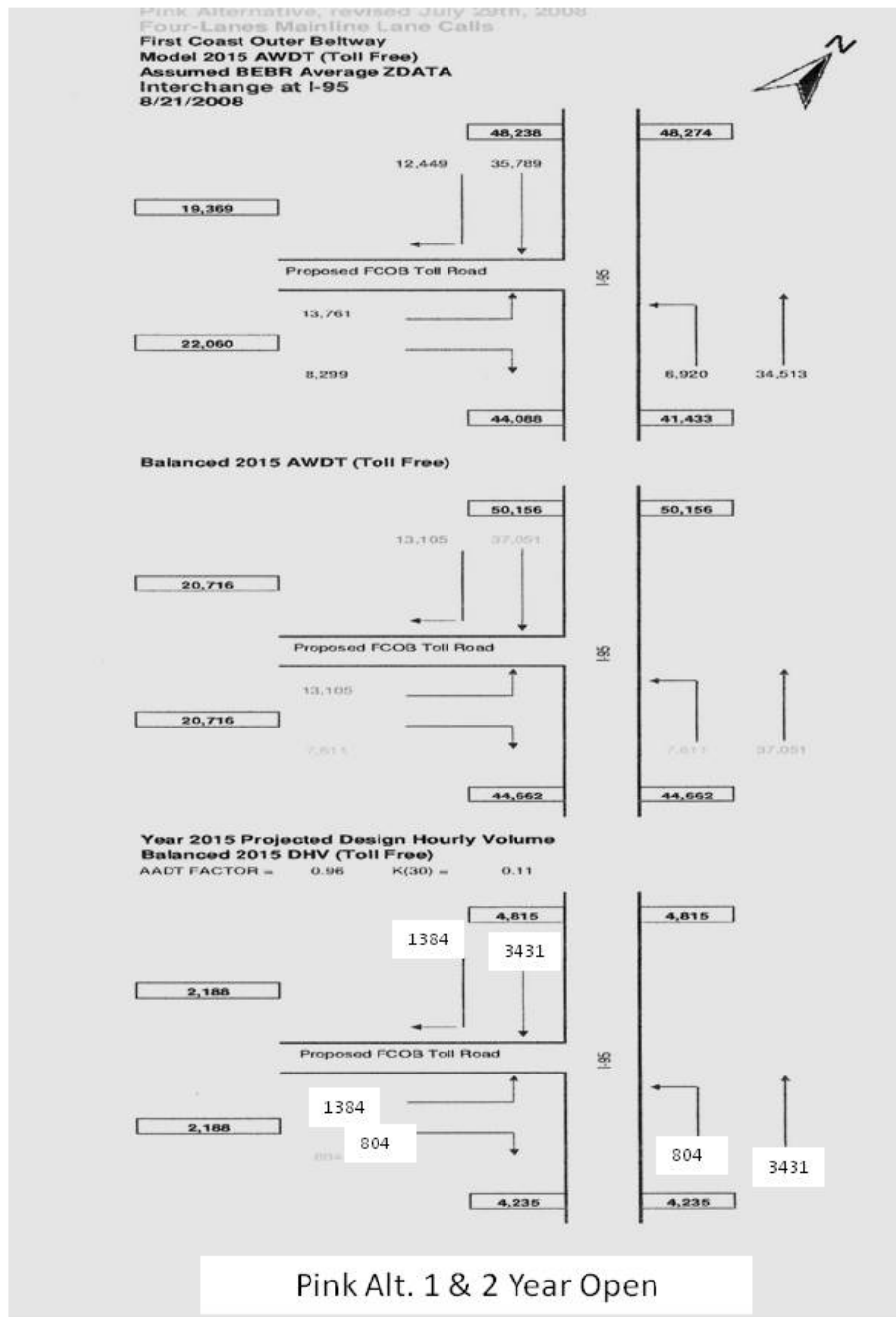
# Air Quality Impact Technical Memorandum



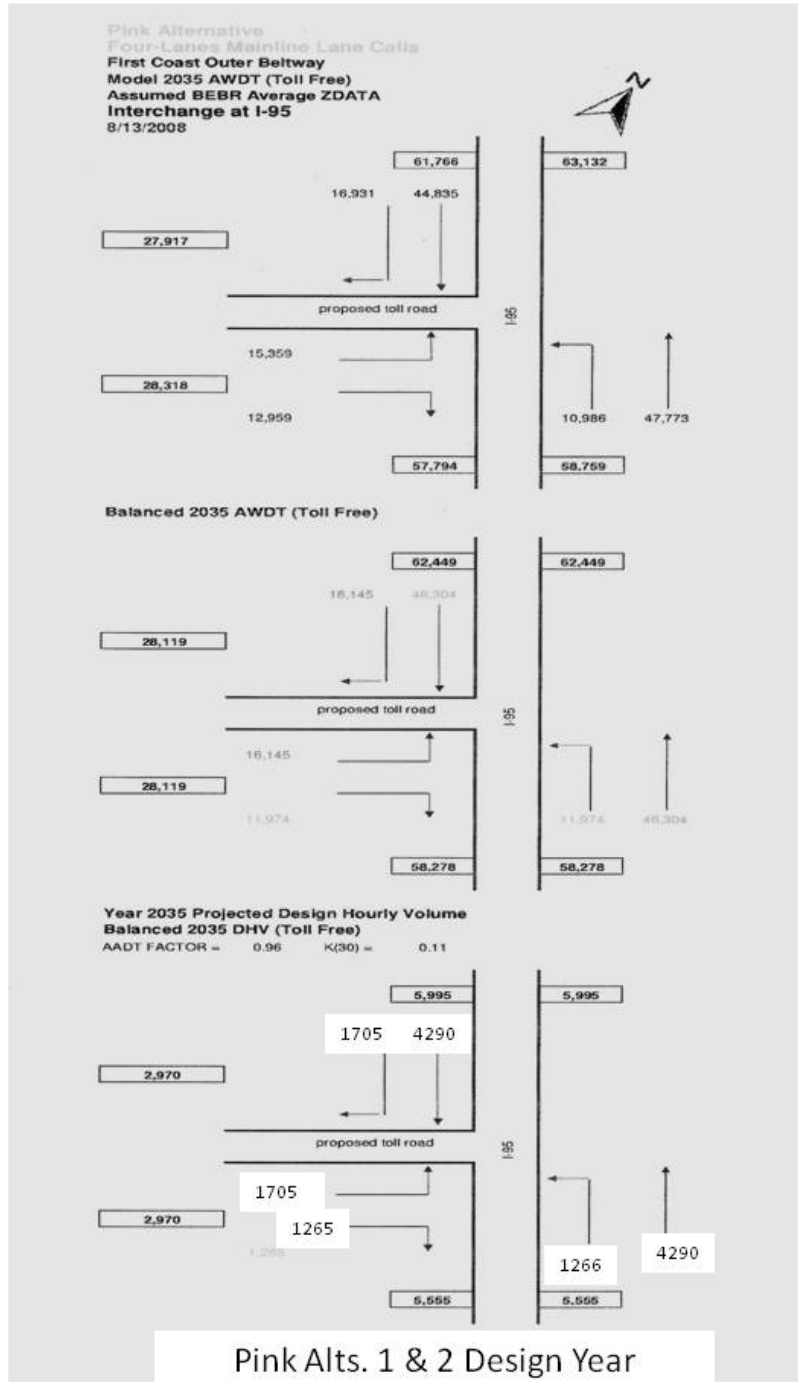
# Air Quality Impact Technical Memorandum



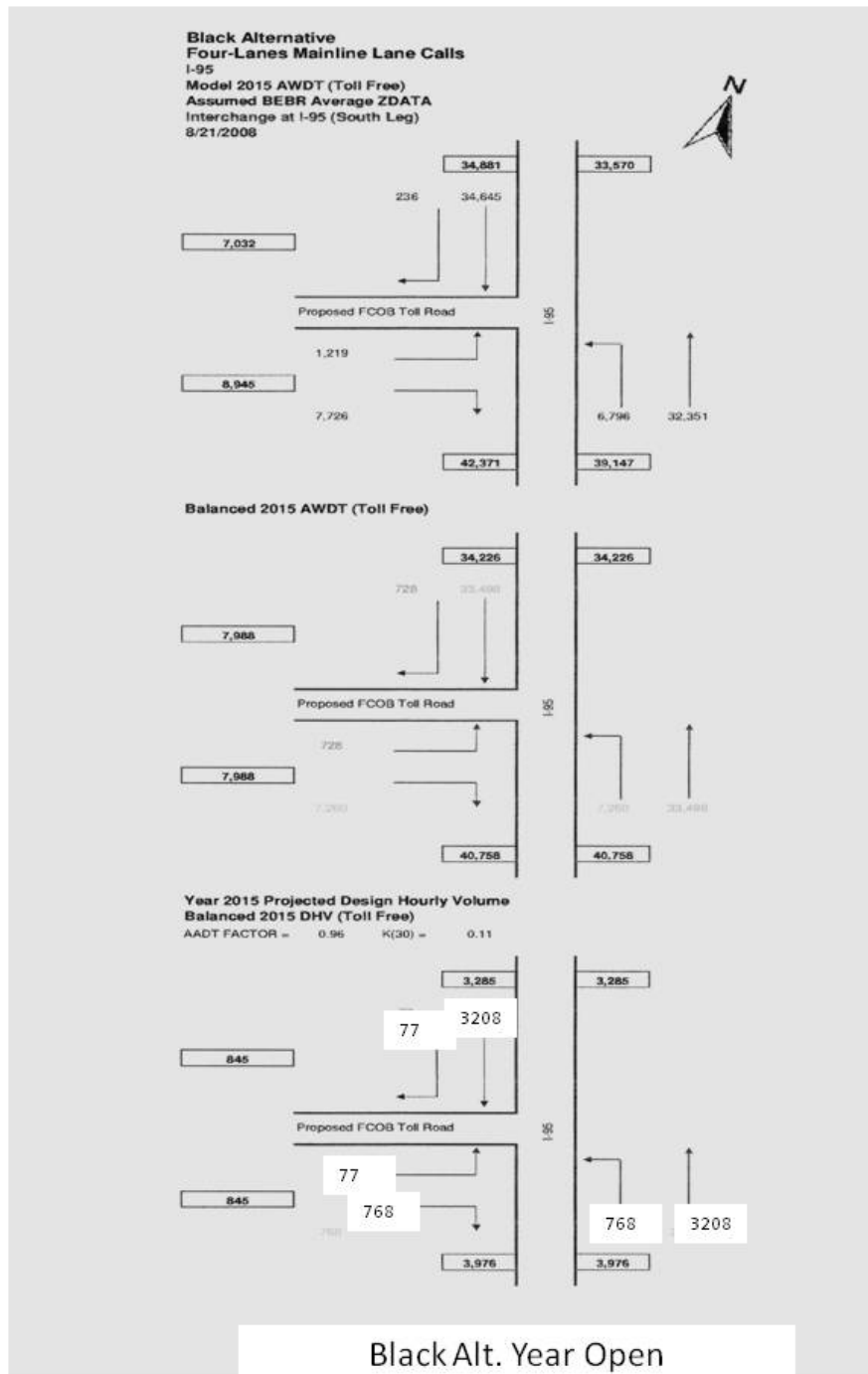
# Air Quality Impact Technical Memorandum



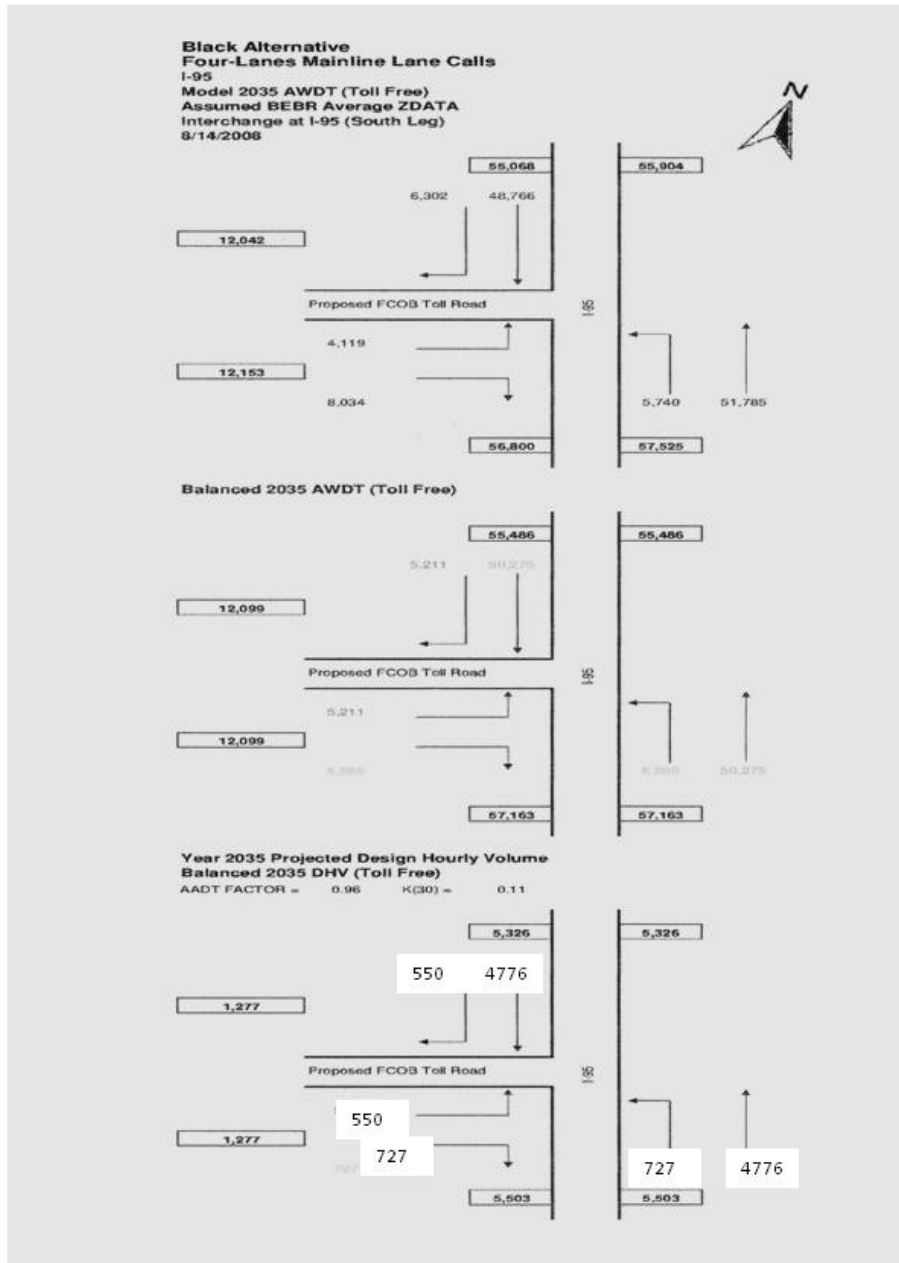
# Air Quality Impact Technical Memorandum



# Air Quality Impact Technical Memorandum

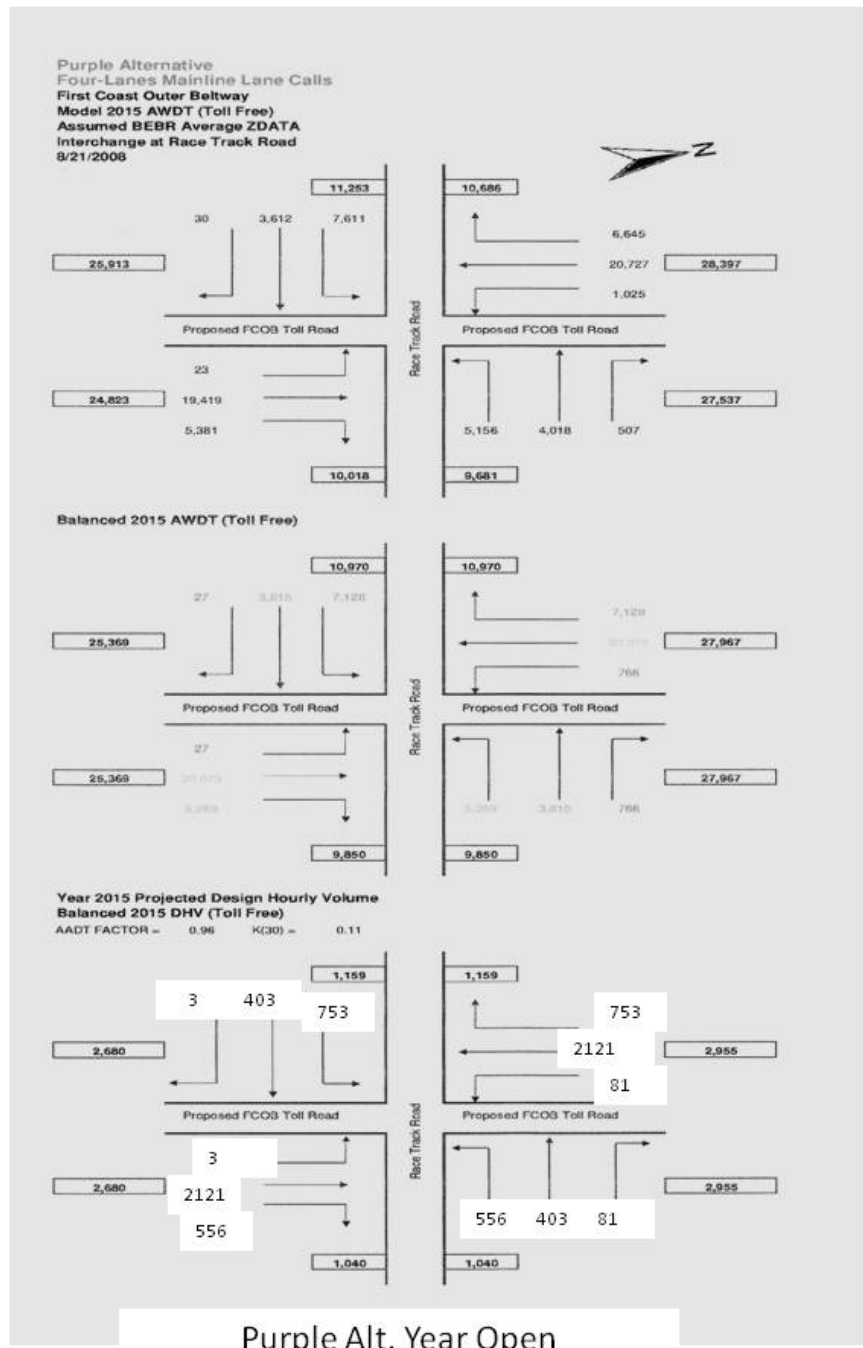


# Air Quality Impact Technical Memorandum

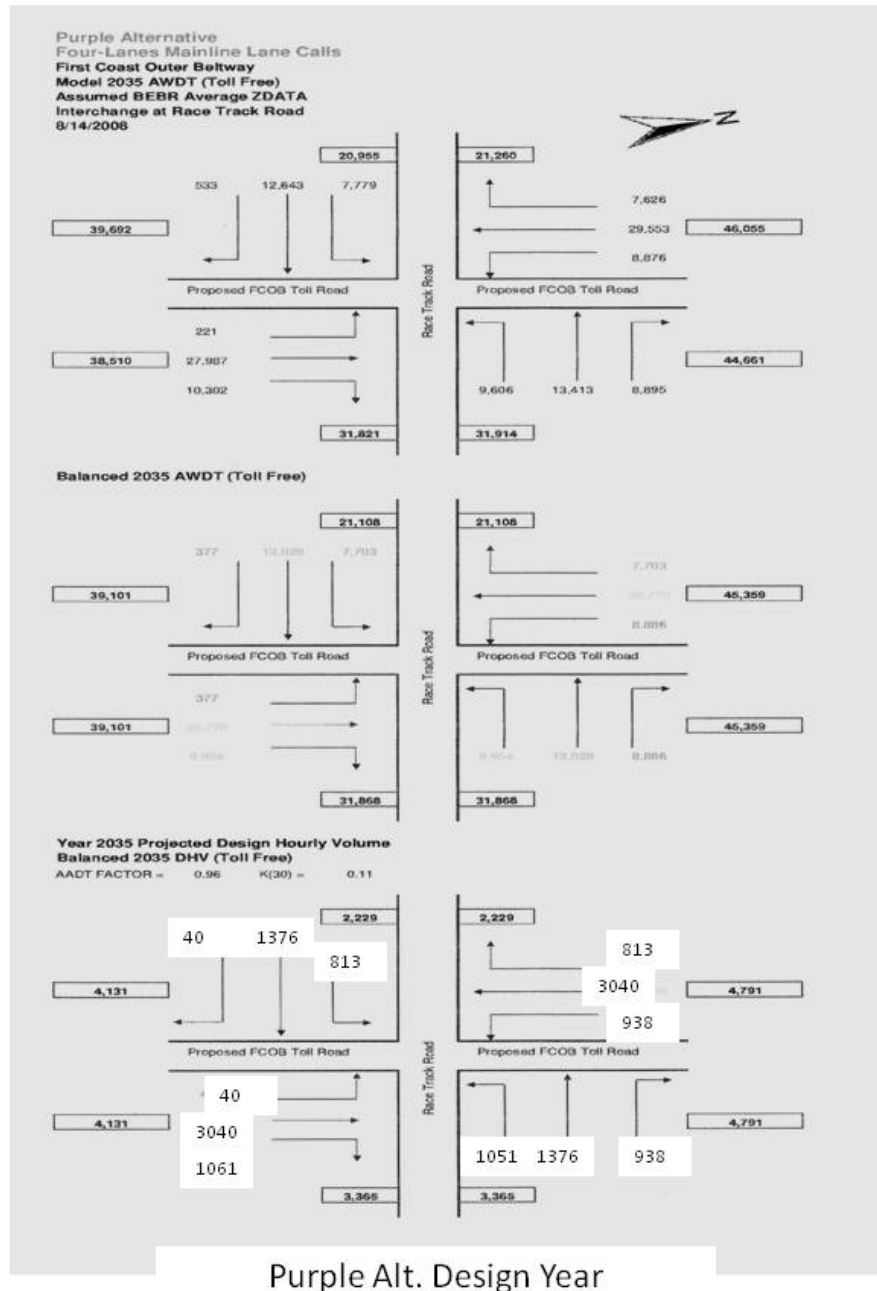


Black Alt. Design Year

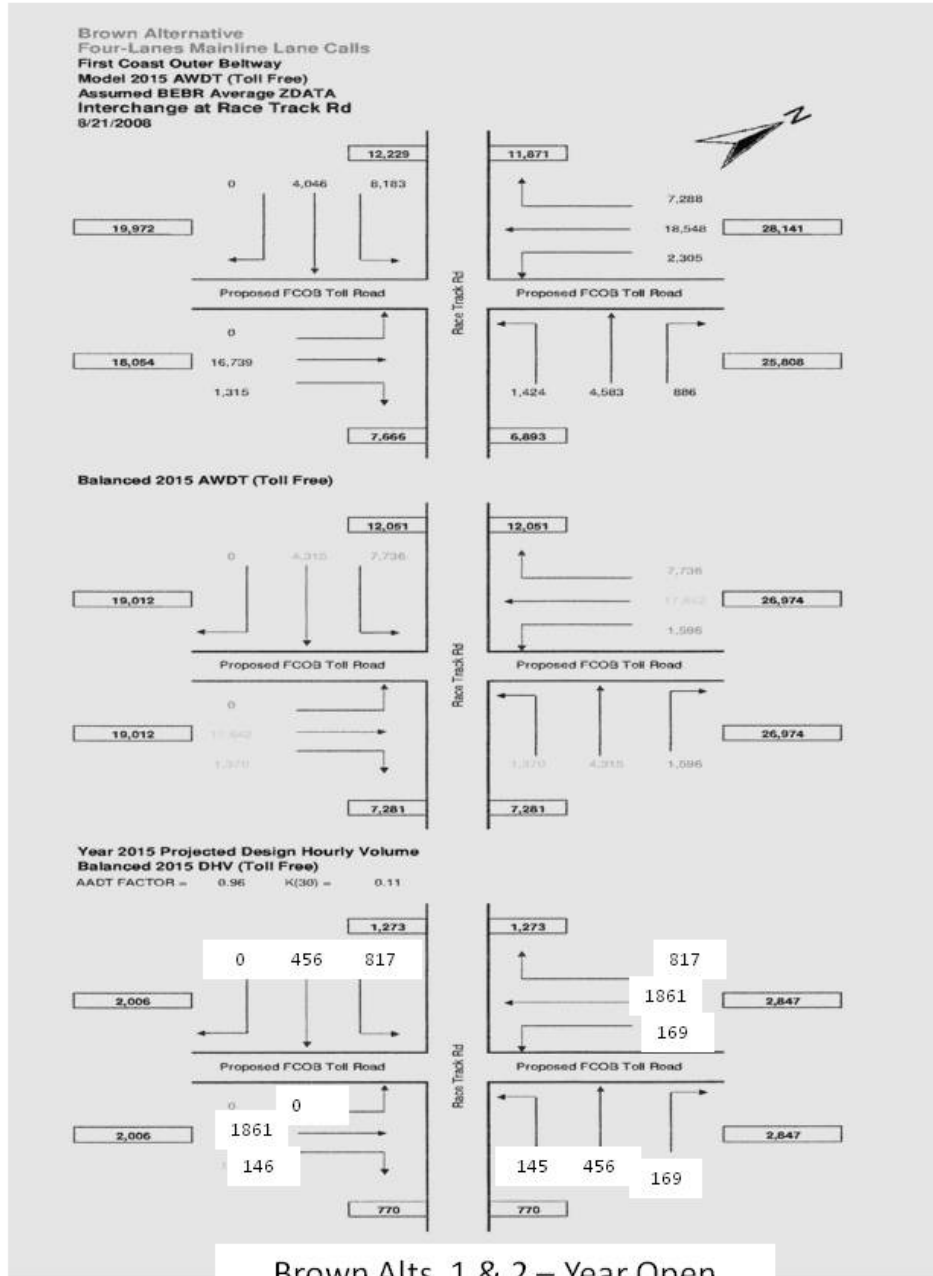
# Air Quality Impact Technical Memorandum



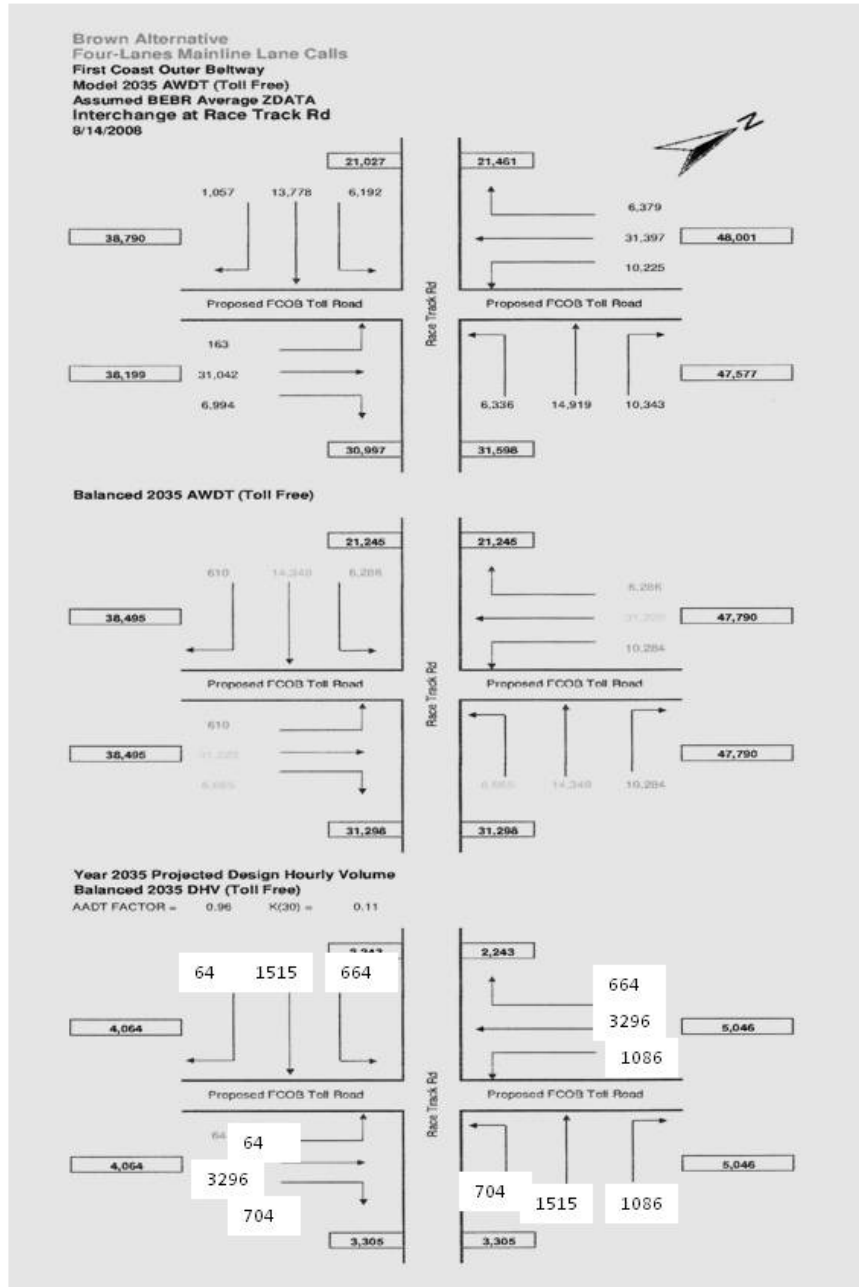
# Air Quality Impact Technical Memorandum



# Air Quality Impact Technical Memorandum

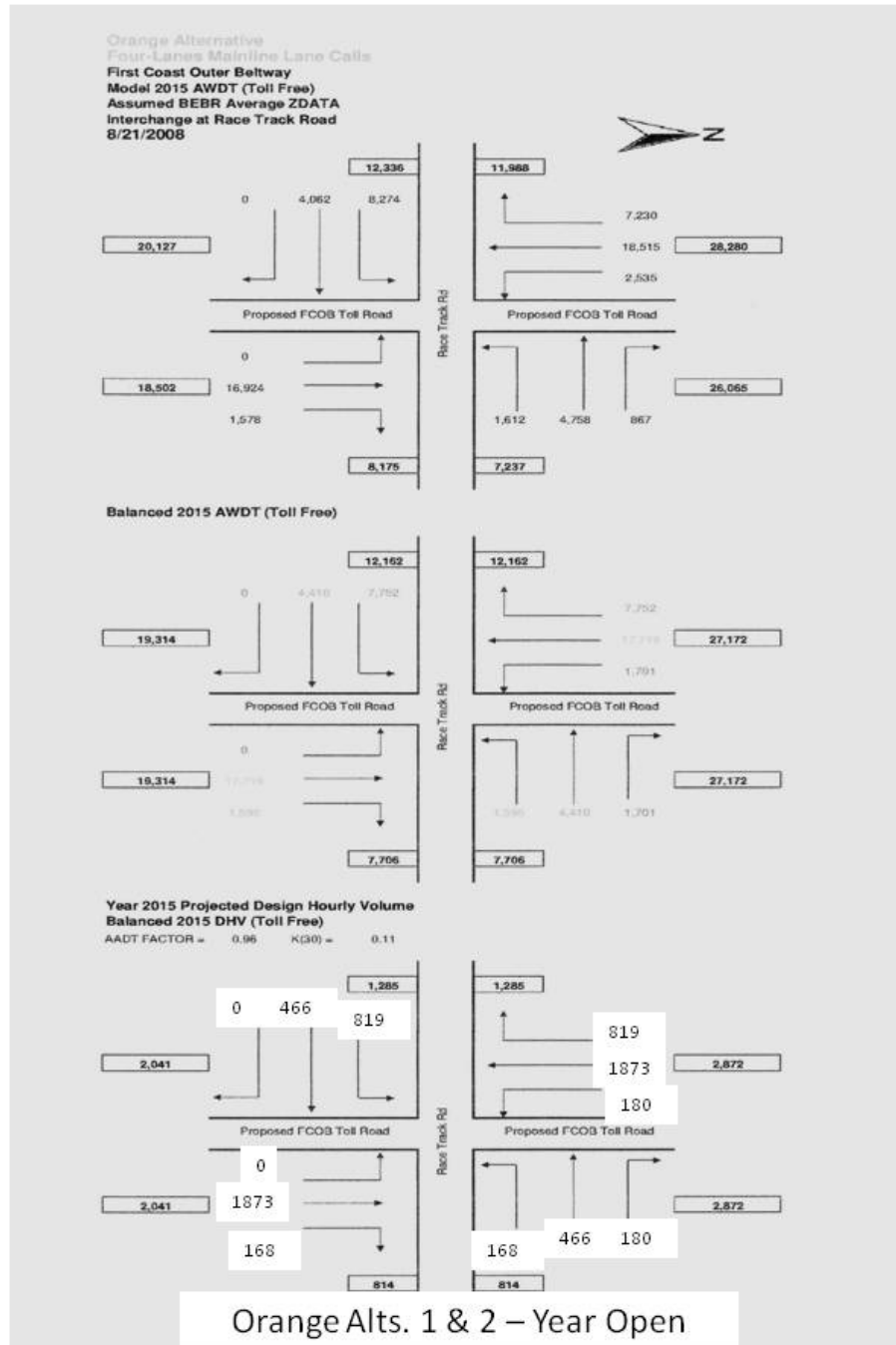


# Air Quality Impact Technical Memorandum

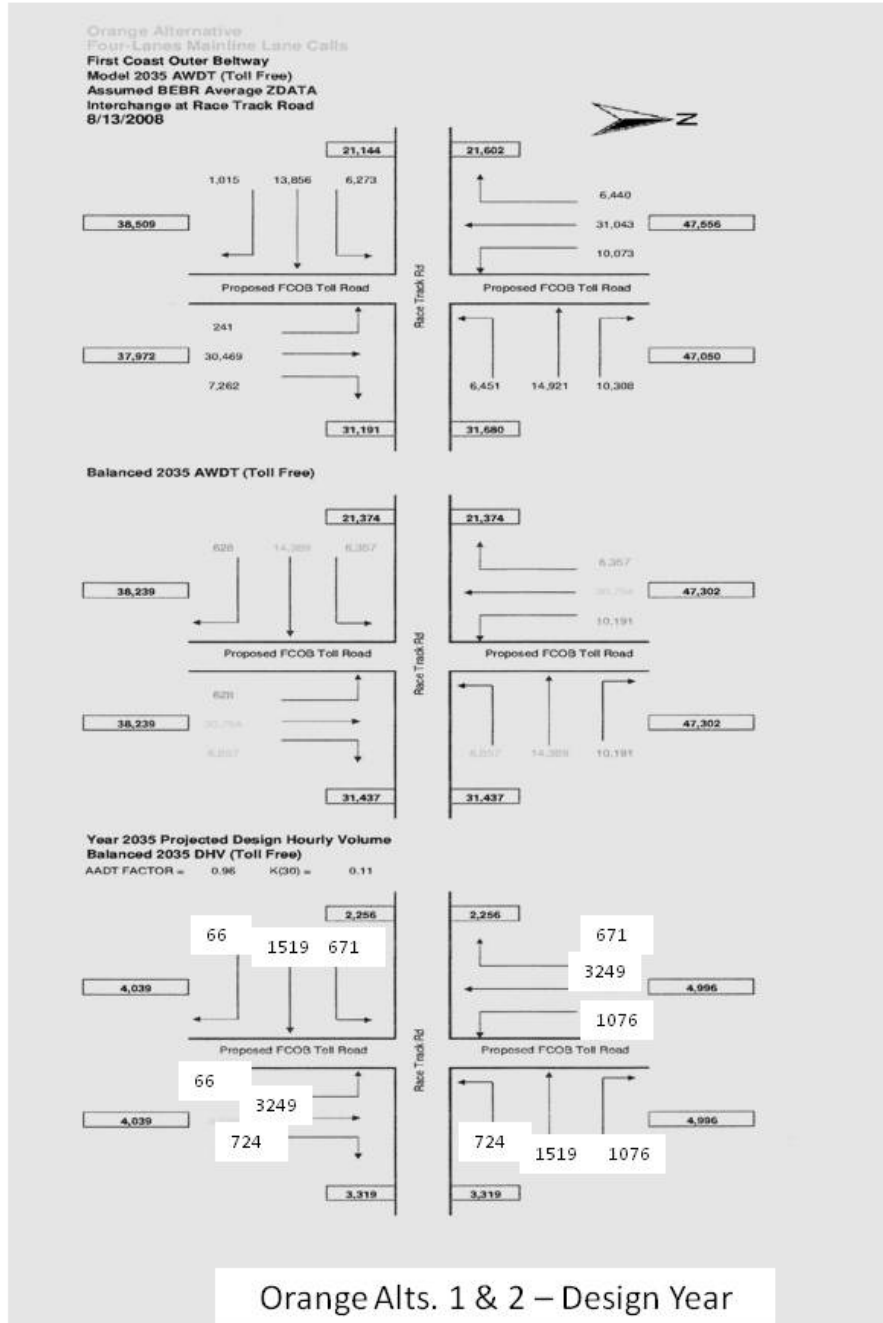


Brown Alts. 1 & 2 – Design Year

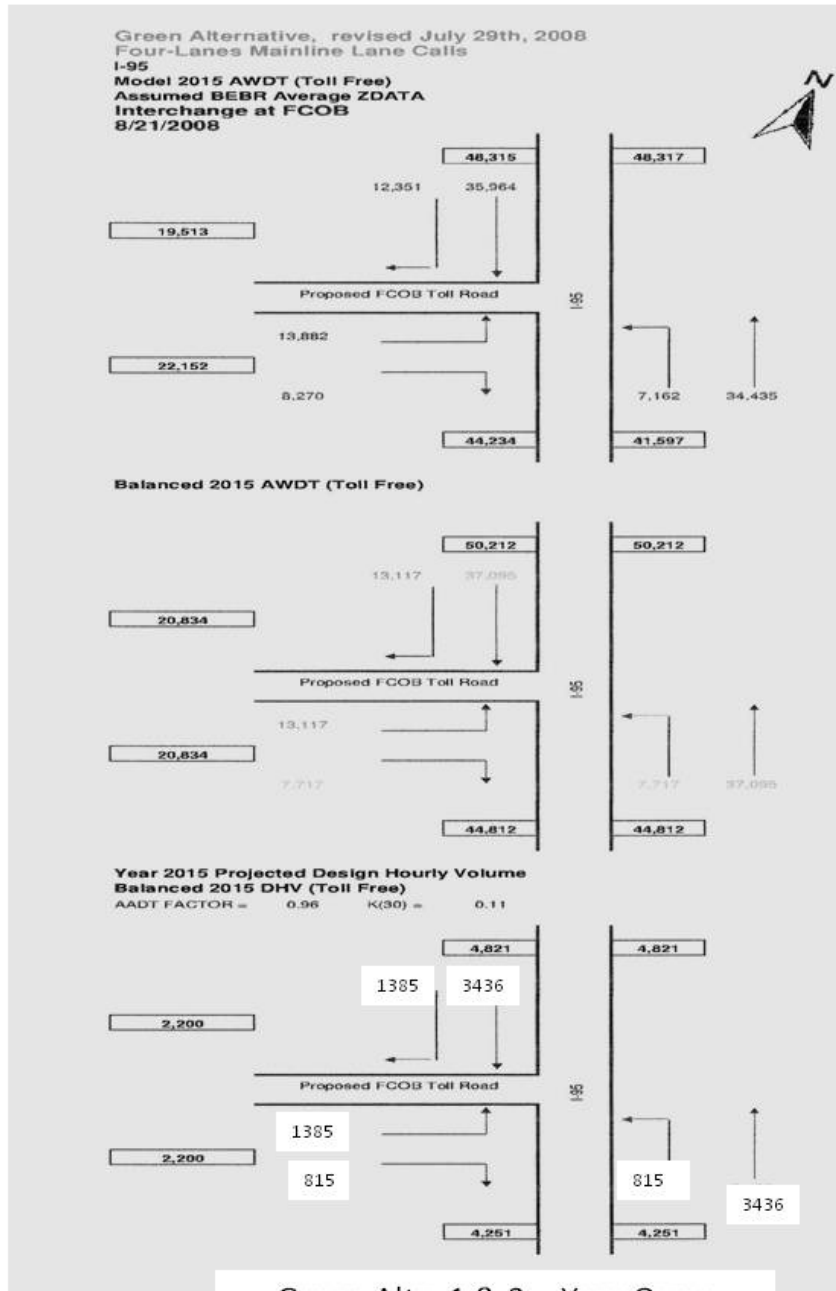
# Air Quality Impact Technical Memorandum



# Air Quality Impact Technical Memorandum



Air Quality Impact Technical Memorandum



Green Alts. 1 & 2 – Year Open

# Air Quality Impact Technical Memorandum

