

# I-75 REST AREAS PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

SARASOTA AND CHARLOTTE COUNTIES

## DRAFT AIR QUALITY TECHNICAL MEMORANDUM

FINANCIAL PROJECT NO.: 436602-1-22-01

APRIL 2017



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# 1 Introduction

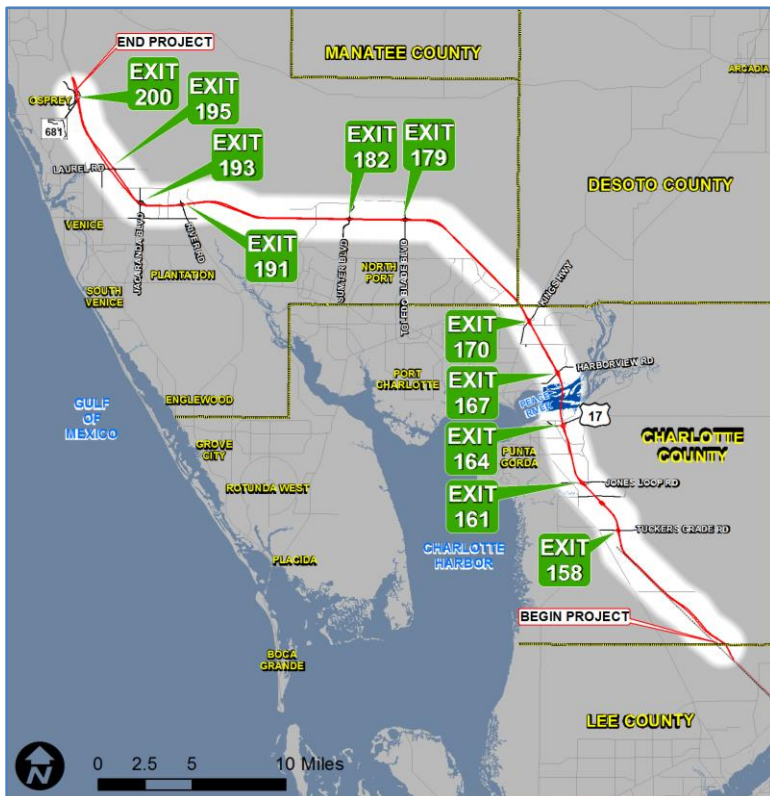
## 1.1 Purpose

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to identify sites for the replacement of the rest area facilities along I-75 in Charlotte County. The purpose of this study is to identify the optimal locations of two new rest areas (northbound and southbound) that will replace the recently closed rest area. In April of 2015, the FDOT closed the Jones Loop Road Rest Area at exit 161. This facility was an “off-system” rest area that serviced vehicles in both directions of I-75. The closure of this facility increased the distance between existing rest area facilities. One of the considerations for the placement of the new rest area facilities will be that they are as equidistant to the existing rest area sites as possible.

## 1.2 Project Description

The study limits extend from the Charlotte/Lee County line north to the interchange of SR 681 and I-75, see **Figure 1-1**. The total study corridor length is approximately 51 miles (22 miles in Charlotte County and 29 miles in Sarasota County). Note that there is a very small portion (approximately 0.214 miles) of I-75 located in DeSoto County between Charlotte County and Sarasota County. For this study, this portion is included in the Sarasota County portion of the project. The project identifies two sites for new rest areas along I-75, one each in the northbound and southbound direction.

Figure 1-1: Project Location Map



To identify the best potential location for the new rest areas along I-75, a three phase evaluation process was conducted. During the first phase, data was collected from a variety of sources to develop a preliminary base map of the corridor's existing conditions within the study limits between the Charlotte/Lee County line and SR 681 in Sarasota County. During the second phase, an initial corridor screening was conducted to locate segments within the corridor with potential for a new rest area site. The third and final phase included a viability screening of the initially identified segments to determine which locations provided the most potential for the new rest area sites.

After the first and second phases were conducted, ten viable segments were identified including potential sites at the existing Punta Gorda WIM stations (northbound and southbound). Each of the ten viable segments were then analyzed and evaluated for potential impacts to the 100-year floodplain, wetlands, and listed species habitat in accordance with the site selection criteria for avoidance and minimization of impacts to these environmental features. After the conclusion of the screening, four segments were recommended for further study. These four segments were NB WIMS, NB-2, SB WIMS, and SB-2. The other segments were recommended to be eliminated from further consideration due to their comparatively higher impacts to the natural environment, including wetlands and available natural habitat. After reviewing the engineering and environmental factors, as well as public comments, the following sites were selected as the Preferred Alternatives:

- Southbound Site SB-2
- Northbound Site NB-2B

### 1.3 Proposed Improvements

The proposed improvements consist of two new rest area sites: Alternatives NB-2B and SB-2. Alternative NB-2B (**Figure 1-2**) is located on the east side of I-75 just south of the Airport Road overpass in Charlotte County. The site consists of open improved pasture. This alternative develops an auxiliary lane north of North Jones Loop Road. This lane becomes a single exit only lane ramp to the rest area. This single lane ramp then separates into two single lane ramps. One ramp is for cars and the other ramp is for trailer trucks and RVs. Two ramps leading from the separate parking areas converge into a single lane ramp. This single lane ramp then merges with I-75 as a parallel entrance ramp.

In addition to the parking for vehicles, the rest area site includes the main building with restrooms, vending, and security, as well as picnic shelters, a dog park and a maintenance building.

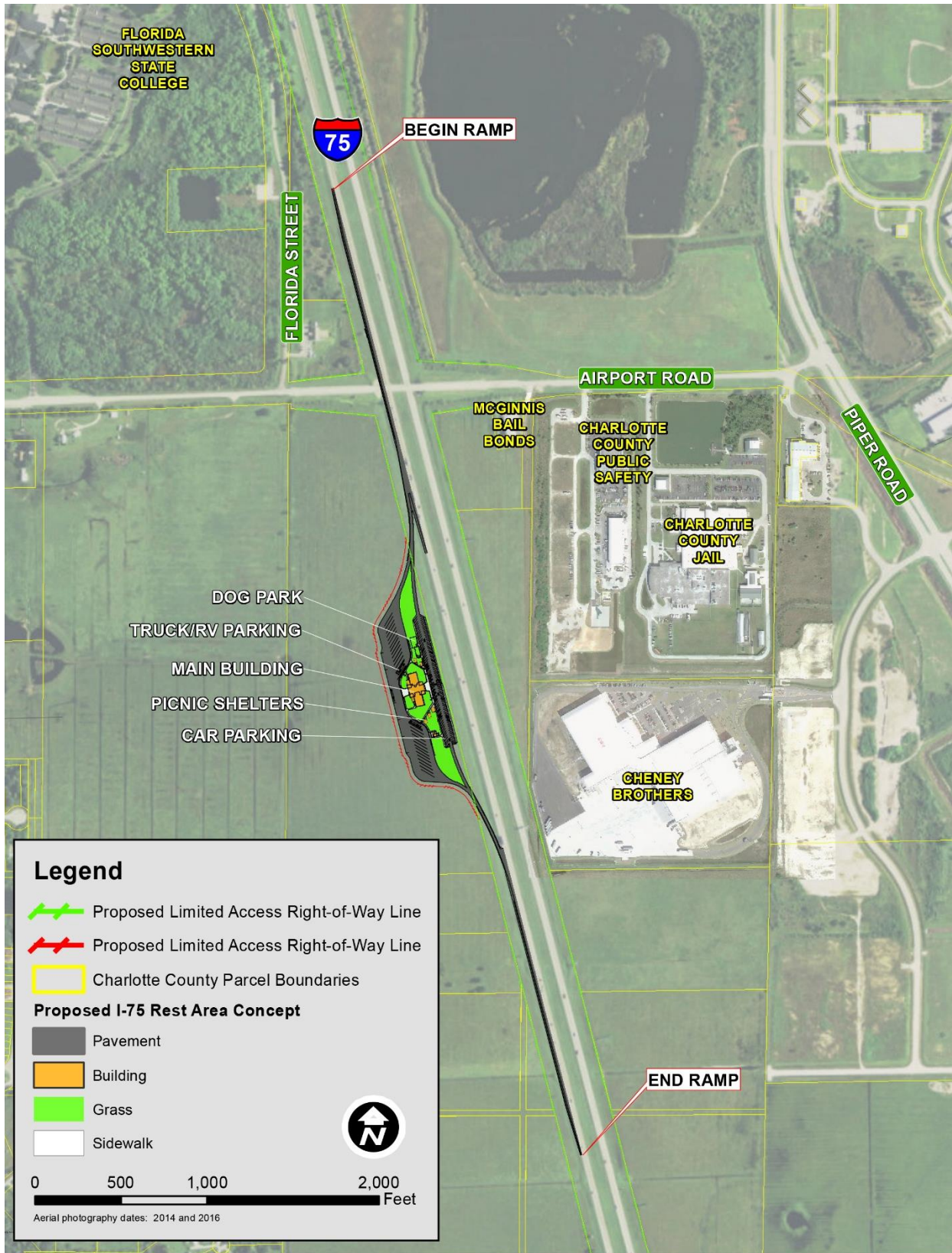
Alternative SB-2 (**Figure 1-3**) is located on the west side of I-75 just south of Airport Road in Charlotte County. The site consists primarily of open improved pasture. This alternative develops an auxiliary lane north of Airport road. This lane becomes a single exit only lane ramp to the rest area. This single lane ramp then separates into two single lane ramps. One ramp is for cars and the other ramp is for trailer trucks and RVs. Two ramps leading from the separate parking areas converge into a single lane ramp. This single lane ramp then merges with I-75 as a parallel entrance ramp.

In addition to the parking for vehicles, the rest area site includes the main building with restrooms, vending, and security, as well as picnic shelters, a dog park and a maintenance building.

Figure 1-2: Alternative NB-2B



Figure 1-3: Alternative SB-2



## 2 Air Quality Screening

The Preferred Build Alternative (i.e., Rest Area Sites NB-2B and SB-2) is located in Charlotte County, which is currently designated as being 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/lead.

The Preferred Build Alternative alternatives was 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, CO Florida 2012, uses the latest United States Environmental Protection Agency (USEPA)-approved software (Motor Vehicle Emission Simulator and CAL3QHC) to produce estimates of one-hour and eight-hour CO concentrations 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 that are 35 parts per million (ppm) and 9 ppm, respectively. A No-Build Alternative was not screened because the No-Build Alternative does not include any roadway intersections to be screened.

### 2.1 Traffic Data

The No Build and Preferred Build Alternatives were evaluated for the opening year (2025) and design year (2045) traffic conditions. This traffic data was obtained from the Design Traffic Technical Memorandum prepared as part of this PD&E Study. As shown in Figure 2-2, the forecasted design year (2045) peak hour, peak direction traffic volume entering the rest area is the same in the AM and PM peak periods (i.e., 438 total vehicles per hour). The Toll Booth Interchange configuration was used for the CO screening analysis, which takes into consideration both the traffic entering the rest area and the free flow traffic along I-75 that does not stop at the rest area. The Preferred Build Alternative traffic data is shown in Figure 2-1 for opening year (2025) peak traffic and Figure 2-2 for design year (2045) peak traffic. In the screening model, the traffic volume entering the rest area/toll booth is entered as a rounded percentage; therefore, the volumes entered in the screening model for the Build Alternative are a best approximation but do not exactly match the volumes shown in Figure 2-1 and 2-2.

### 2.2 CO Florida 2012 Results

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-hour level (4.4 ppm) and eight-hour level (2.6 ppm) are not predicted to meet or exceed the one-hour (35 ppm) or eight-hour (9 ppm) National Ambient Air Quality Standards for this pollutant with Preferred Build Alternative. 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.



Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to all applicable State regulations and to the FDOT standard Specifications for Road and Bridge Construction.

## 2.3 Greenhouse Gases

Greenhouse gases (GHG) cause a global phenomenon in which heat is trapped in the earth's atmosphere. Because atmospheric concentration of GHGs continues to climb, our planet will continue to experience climate-related phenomena. For example, warmer global temperatures can cause changes in precipitation and sea levels. The burning of fossil fuels and other human activities are adding to the concentration of GHGs in the atmosphere. Many GHGs remain in the atmosphere for time periods ranging from decades to centuries.

To date, no national standards have been established regarding GHGs, nor has United States Environmental Protection Agency (EPA) established criteria or thresholds for ambient GHG emissions pursuant to its authority to establish motor vehicle emission standards for CO<sub>2</sub> under the Clean Air Act. GHGs are different from other air pollutants evaluated in the federal environmental reviews because their impacts are not localized or regional due to their rapid dispersion into the global atmosphere, which is characteristic of these gases. The affected environment for CO<sub>2</sub> and other GHG emissions is the entire planet. In addition, from a quantitative perspective, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations. In contrast to broad scale actions such as actions involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the GHG emissions impacts for a particular transportation project. Furthermore, presently there is no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions.

Under NEPA, detailed environmental analysis should be focused on issues that are significant and meaningful to decision-making (40 CFR 1500.1(b), 1500.2(b), 1500.4(g), and 1501.7). FHWA has concluded, based on the nature of GHG emissions and the exceedingly small potential GHG impacts of the proposed action that the GHG emissions from the proposed action will not result in "reasonably foreseeable significant adverse impacts on the human environment" (40 CFR 1502.22(b)). The GHG emission from the project build alternatives will be insignificant, and will not play a meaningful role in a determination of the environmentally preferable alternative or the selection of the preferred alternative. More detailed information on GHG emissions "is not essential to a reasoned choice among reasonable alternatives" (40 CFR 1502.22(a)) or to making a decision in the best overall public interest based on a balanced consideration of transportation, economic, social, and environmental needs and impacts (23 CFR 771.105(b)).

In summary, this document does not incorporate an analysis of the GHG emissions or climate change effects of each of the alternatives because the potential change in GHG emissions is very small in the context of the affected environment. Because of the insignificance of the GHG impacts, those local impacts will not be meaningful to a decision on the environmentally preferable alternative or to a choice among alternatives. Therefore, no alternatives-level GHG analysis has been performed for this project.

Figure 2-1: Preferred Build Alternative (2025) Peak Hour Traffic Volumes

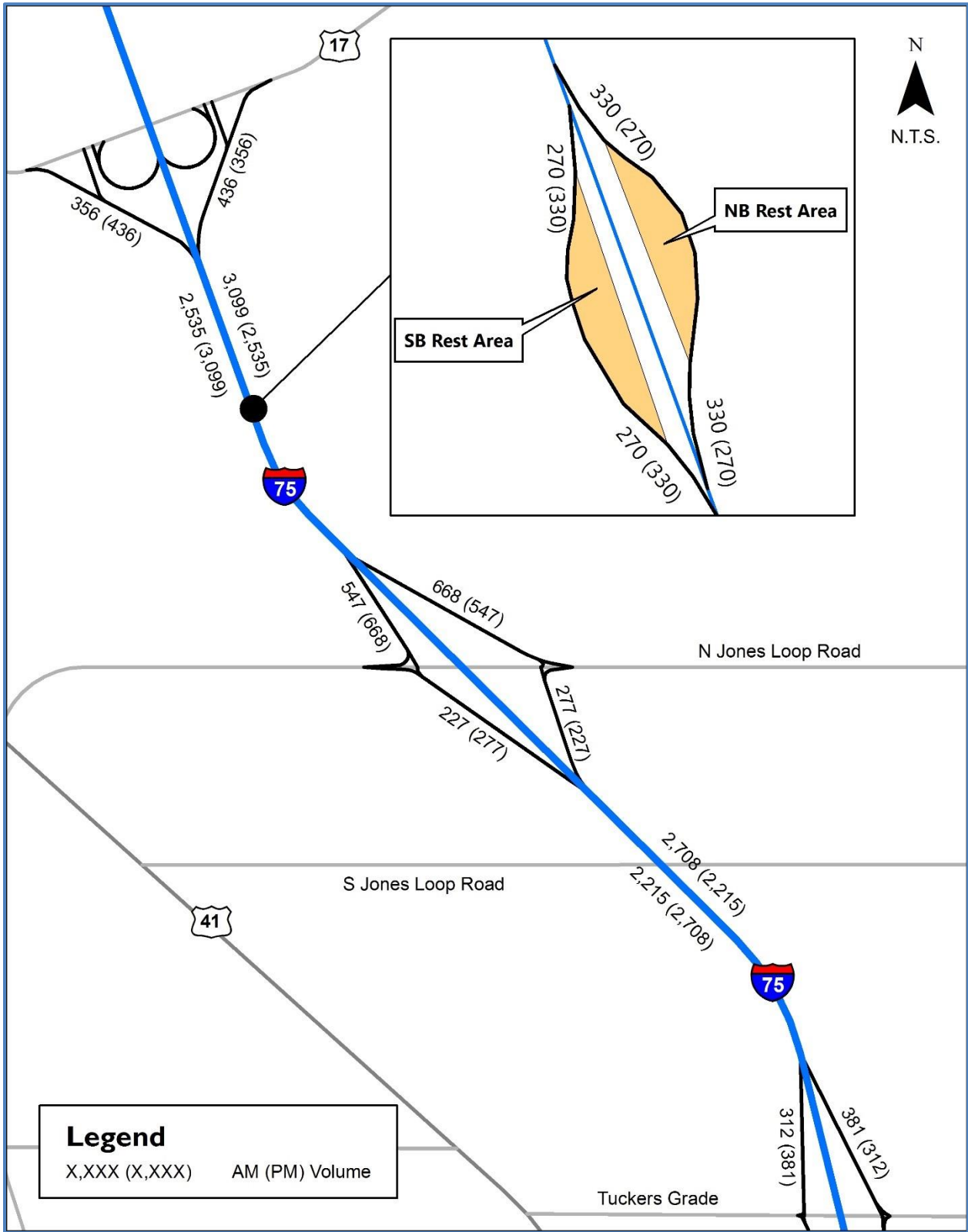
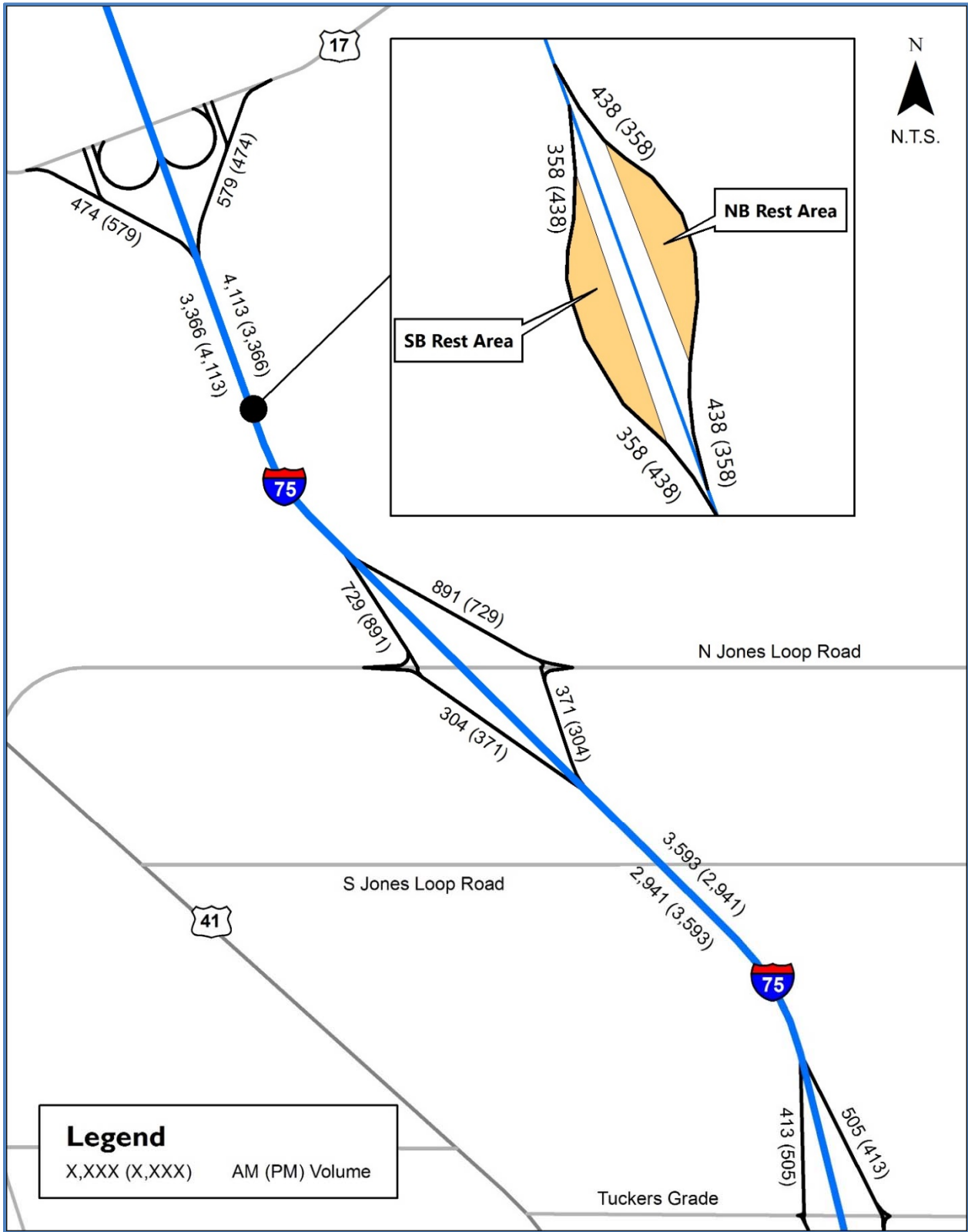


Figure 2-2: Preferred Build Alternative (2045) Peak Hour Traffic Volumes



**AIR QUALITY SCREENING MODEL RESULTS**

**CO FLORIDA 2012**

CO Florida 2012 - Results  
 Friday, April 14, 2017

Project Description

Project Title	I-75 Rest Areas PD&E		
Facility Name	I-75 Rest Areas (Charlotte County)		
User's Name	Raina Cumby		
Run Name	No Build		
FDOT District	1		
Year	2025		
Intersection Type	N-S Freeway Toll Booth		
Speed	North Bound 65 mph	South Bound	65 mph
Approach Traffic	NB Stopping 0 vph	SB Stopping	0 vph
	NB ETC-only 3099 vph	SB ETC-only	2535 vph

Environmental Data

Temperature	48.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Suburban
Stability Class	D
Surface Roughness	108 cm
1 Hr. Background Concentration	3.3 ppm
8 Hr. Background Concentration	2.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
-----	-----	-----
1	4.0	2.4
2	4.0	2.4
3	3.8	2.3
4	3.8	2.3
5	3.6	2.2
6	3.6	2.2
7	3.8	2.3
8	3.8	2.3
9	4.0	2.4
10	4.0	2.4
11	3.9	2.3
12	3.9	2.3
13	3.6	2.2
14	3.7	2.2
15	3.6	2.2
16	3.6	2.2
17	3.7	2.2
18	3.6	2.2
19	3.9	2.3
20	3.9	2.3

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

CO Florida 2012 - Results  
 Friday, April 14, 2017

Project Description

Project Title	I-75 Rest Areas PD&E		
Facility Name	I-75 Rest Areas (Charlotte County)		
User's Name	Raina Cumby		
Run Name	Preferred Build Alt		
FDOT District	1		
Year	2025		
Intersection Type	N-S Freeway Toll Booth		
Speed	North Bound 65 mph	South Bound	65 mph
Approach Traffic	NB Stopping 341 vph	SB Stopping	279 vph
	NB ETC-only 2758 vph	SB ETC-only	2256 vph

Environmental Data

Temperature	48.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Suburban
Stability Class	D
Surface Roughness	108 cm
1 Hr. Background Concentration	3.3 ppm
8 Hr. Background Concentration	2.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
-----	-----	-----
1	4.0	2.4
2	4.1	2.5
3	4.0	2.4
4	4.1	2.5
5	4.1	2.5
6	4.0	2.4
7	3.9	2.3
8	3.8	2.3
9	4.1	2.5
10	4.0	2.4
11	3.9	2.3
12	4.0	2.4
13	4.0	2.4
14	3.9	2.3
15	4.0	2.4
16	3.9	2.3
17	3.7	2.2
18	3.7	2.2
19	4.0	2.4
20	3.9	2.3

\*\*\*\*\*  
 \*\*\*\*\*PROJECT PASSES\*\*\*\*\*  
 \*NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED\*  
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CO Florida 2012 - Results  
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Project Title	I-75 Rest Areas PD&E		
Facility Name	I-75 Rest Areas (Charlotte County)		
User's Name	Raina Cumby		
Run Name	No Build		
FDOT District	1		
Year	2045		
Intersection Type	N-S Freeway Toll Booth		
Speed	North Bound 65 mph	South Bound	65 mph
Approach Traffic	NB Stopping 0 vph	SB Stopping	0 vph
	NB ETC-only 4113 vph	SB ETC-only	3366 vph

Environmental Data

Temperature	48.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Suburban
Stability Class	D
Surface Roughness	108 cm
1 Hr. Background Concentration	3.3 ppm
8 Hr. Background Concentration	2.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
-----	-----	-----
1	4.1	2.5
2	4.1	2.5
3	3.8	2.3
4	3.8	2.3
5	3.8	2.3
6	3.8	2.3
7	3.8	2.3
8	3.8	2.3
9	4.1	2.5
10	4.1	2.5
11	4.0	2.4
12	4.1	2.5
13	3.8	2.3
14	3.8	2.3
15	3.8	2.3
16	3.8	2.3
17	3.8	2.3
18	3.8	2.3
19	4.1	2.5
20	4.0	2.4

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

Project Description

Project Title	I-75 Rest Areas PD&E		
Facility Name	I-75 Rest Areas (Charlotte County)		
User's Name	Raina Cumby		
Run Name	Preferred Build Alt		
FDOT District	1		
Year	2045		
Intersection Type	N-S Freeway Toll Booth		
Speed	North Bound 65 mph	South Bound	65 mph
Approach Traffic	NB Stopping 452 vph	SB Stopping	370 vph
	NB ETC-only 3661 vph	SB ETC-only	2996 vph

Environmental Data

Temperature	48.3 °F
Reid Vapor Pressure	13.3 psi
Land Use	Suburban
Stability Class	D
Surface Roughness	108 cm
1 Hr. Background Concentration	3.3 ppm
8 Hr. Background Concentration	2.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
-----	-----	-----
1	4.1	2.5
2	4.2	2.5
3	4.2	2.5
4	4.3	2.6
5	4.4	2.6
6	4.3	2.6
7	4.1	2.5
8	4.0	2.4
9	4.2	2.5
10	4.1	2.5
11	4.0	2.4
12	4.1	2.5
13	4.1	2.5
14	4.2	2.5
15	4.3	2.6
16	4.1	2.5
17	4.0	2.4
18	4.0	2.4
19	4.1	2.5
20	4.1	2.5

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