



I-595 (SR-862)
PROJECT DEVELOPMENT & ENVIRONMENT STUDY

FM No. 409354-1-22-01
FAP No. 5951 539 I
From the I-75 Interchange
To the I-95 Interchange
Broward County, Florida



Prepared for:
FDOT District Four
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309

Prepared by:
Reynolds, Smith and Hills, Inc.
300 South Pine Island Road, Suite 300
Plantation, Florida 33324

March 13, 2006





Table of Contents

Section	Title	Page
1.0	INTRODUCTION	1-1
2.0	PROJECT DESCRIPTION	2-1
2.1	Project Location	2-2
2.2	Need For Improvement	2-2
2.2.1	Statewide Needs	2-2
2.2.2	Regional (Areawide) Needs	2-3
2.2.3	Project Corridor Needs	2-7
2.3	Existing Roadway Characteristics	2-7
2.3.1	Typical Section(s)	2-7
2.3.2	Right of Way	2-8
2.3.3	Intersections and Signalizations	2-13
2.4	Alternative Analysis	2-13
2.5	Project Alternatives	2-15
2.5.1	No Project Alternative	2-15
2.5.2	Design Alternatives	2-16
3.0	ENVIRONMENTAL SETTING	3-1
3.1	Existing Land Use	3-1
3.2	Future Land Use	3-1
3.3	Existing Air Quality	3-1
4.0	AIR QUALITY ANALYSIS	4-1
4.1	Methodology	4-1
4.2	Air Quality Evaluation and Results	4-7
5.0	CONSTRUCTION	5-1
6.0	COORDINATION	6-1

APPENDICES

Appendix A EXISTING AND PROPOSED TYPICAL SECTIONS, WIDENING FLORIDA'S TURNPIKE FROM GRIFFIN ROAD TO NORTH OF SUNRISE BOULEVARD

Appendix B AIR QUALITY SCREENING MODEL RESULTS





List of Figures

Figure	Title	Page
1-1	Location Map.....	1-2
2-1	Existing Typical Sections.....	2-9
2-2	Existing Typical Sections.....	2-10
2-3	Existing Typical Sections.....	2-11
2-4	Existing Typical Sections.....	2-12
2-5	Alternative 1B Typical Section.....	2-23
2-6	Alternative 2A Typical Section.....	2-24
2-7	Summary of Proposed I-595 Corridor Improvements.....	2-25
3-1	Existing Land Use.....	3-2
3-2	Community Location Map.....	3-3
3-3	Future Land Use.....	3-6
4-1	Air Quality Receptor Site Location Map.....	4-4

List of Tables

Table	Title	Page
4.1	Evaluation Data for Identifying Representative Worst Case Air Quality Receptor Site for Analysis of CO Concentrations.....	4-2
4.2	Traffic Data.....	4-6
4.3	Predicted CO Concentrations.....	4-7



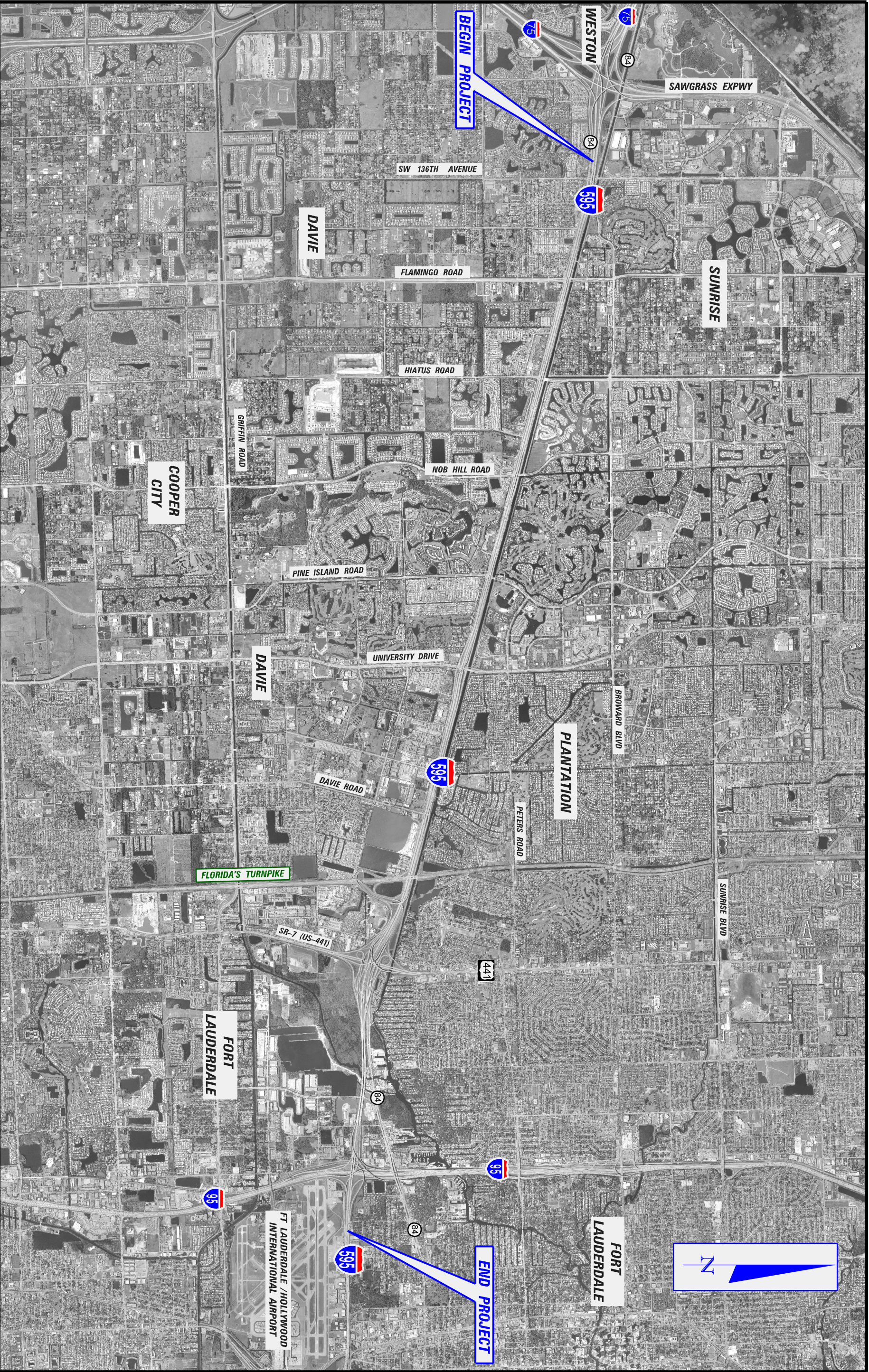


1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for proposed improvements to the I-595 corridor in central Broward County, Florida. The PD&E Study limits extend from the I-75/Sawgrass Expressway interchange (Mile Post 0.592) west of SW 136th Avenue to the I-95 interchange (Mile Post 10.407) for a total project length of approximately 10 miles. Figure 1-1 illustrates the location and limits of the project.

As part of the PD&E Study for the proposed improvements, an air quality study has been conducted to assess the potential air quality impacts associated with the proposed project. The study is based on Part 2, Chapter 16 "Air Quality Analysis" of the FDOT Project Development and Environment (PD&E Manual), revised August 18, 1999. This report describes the existing and proposed conditions in the project study area, the methods used to predict future air quality conditions, and the results of the air quality study. The information within this report is also intended to provide the technical support for the findings presented in the project's Preliminary Engineering Report (PER) and Environmental Document.







2.0 PROJECT DESCRIPTION

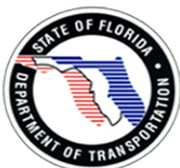
The I-595 PD&E Study is a continuation of the I-595 Master Plan Study completed in March 2003. The Master Plan produced a Locally Preferred Alternative (LPA). Public comment on the LPA was received at a Public Hearing conducted on November 16, 2000, the LPA was adopted by the Broward County Metropolitan Planning Organization (MPO) on January 7, 2003, and subsequently was approved by the Federal Highway Administration (FHWA). The major components of the LPA that emerged from the Master Plan process include the following features.

- Reversible lanes at grade level serving express traffic from I-75 to east of SR 7
- Continuous connection of SR 84 between Davie Road and SR 7
- Collector-Distributor (C-D) system between Davie Road and I-95
- Two-lane off-ramps, as needed
- Braided interchange ramps to eliminate mainline weaving segments
- Combined ramps and cross-street bypasses to reduce congestion
- A westbound to northbound (WB-NB¹) on-ramp at Florida's Turnpike
- Modifications to the I-595/Florida's Turnpike interchange
- Transit element, such as a commuter rail, integrated into the corridor (with details of the concept to be developed in a separate study)

Fifteen different build alternatives were evaluated during Tiers 1 and 2 of the Master Plan Study. The LPA consists of an integrated set of projects. This integration would be compromised if alternatives analyses for the individual projects resulted in design concepts that would necessitate a revisited corridor planning effort. Therefore, the I-595 Master Plan LPA served as the base build alternative for the I-595 PD&E Study.

The objective of the I-595 PD&E Study is to re-examine the original justifications for the Master Plan LPA to assure that federal, state and local policies enacted since initial development of the project concepts have been incorporated into its recommendations. The same is true of the design standards and technologies considered for application or implementation in the corridor. Complementary projects, either in progress or completed since earlier studies of the I-595 corridor were concluded, have also been considered in the development of recommendations. The detailed examination of these issues through the PD&E process assures that FDOT has identified the most cost-feasible, constructable improvements in the final recommended package. In addition to preserving both local and state interests, the PD&E process satisfies National Environmental Policy Act (NEPA) procedures. These measures are a prerequisite for receiving Location Design Concept Acceptance (LDCA) from FHWA, an essential step in qualifying for the federal funds needed to implement the proposed improvements.

¹ Throughout this document the following conventions are used: WB = westbound, NB = northbound, EB = eastbound and SB = southbound. Directional movements are written as shown in the following example: "... westbound to northbound travel ..." will be written as "... WB-NB travel ..."





2.1 PROJECT LOCATION

The I-595 corridor is located in central Broward County, Florida. The western study limits are the I-75/Sawgrass Expressway interchange (Mile Post 0.592); the eastern study limits are the I-95 interchange (Mile Post 10.407). The total project length is approximately 10 miles. The I-595 corridor passes through or lies immediately adjacent to six governmental jurisdictions: the Cities of Sunrise, Davie, Plantation, Ft. Lauderdale and Dania, as well as unincorporated areas of Broward County.

Unlike most interstate corridors in Florida, the majority of the I-595 corridor is comprised of two facilities: I-595 and SR 84. The I-595 portion of the corridor is a six-lane, limited access facility. In addition to interchanges with the two freeway systems at each end of the study corridor, there are nine other interchanges along the corridor at the following crossroads: SW 136th Avenue, Flamingo Road (SR 823), Hiatus Road, Nob Hill Road, Pine Island Road, University Drive (SR 817), Davie Road, Florida's Turnpike (SR 91), and SR 7 (US 441).

The SR 84 portion of the corridor lies both north and south of the I-595 mainline. The two lanes north of the mainline operate one-way WB while the two lanes south of the mainline operate one-way EB. In the area west of the I-75 interchange and continuing east to Davie Road, the SR 84 lanes serve as a collector-distributor system to the I-595 mainline. The SR 84 system is suspended through the I-595 interchanges with Florida's Turnpike and SR 7. East of the SR 7 interchange, the SR 84 and I-595 rights of way separate. The SR 84 alignment veers to the northeast and the I-595 alignment continues nearly due east.

2.2 NEED FOR IMPROVEMENT

The various improvements that comprise this project address a number of state, regional and corridor-specific needs. The following sections summarize the need for the proposed improvements. A more detailed discussion of the project justification is provided in Section 3.0 NEED FOR IMPROVEMENTS of the PD&E Study's accompanying *Preliminary Engineering Report* (PER).

2.2.1 Statewide Needs

The improvements proposed for the I-595 corridor are directly related to the FDOT Mission Statement.

Florida will provide and manage a safe transportation system that ensures the mobility of people and goods, while enhancing economic competitiveness and the quality of our environment and communities.





The proposed improvements to the I-595 corridor are directly related to the four goals that FDOT has adopted as its means of carrying out this Mission Statement.

1. **Safe Transportation** – The proposed improvements will enhance the safe operation of the corridor by increasing the number of persons, vehicles and travel modes that it can accommodate. This is an asset to residents, visitors and commerce.
2. **System Management** – The proposed improvements expand the service life of the corridor, expanding upon the original vision for whom and how the corridor operates to serve the Southeast Florida traveling public.
3. **Economic Competitiveness** – Because of its critical location in the center of Broward County and its proximity to a wide range of other major modes, such as the Port Everglades, Ft. Lauderdale-Hollywood International Airport, Florida East-Coast Rail Line and Tri-County Commuter Rail, as well as its connection to the region’s major north-south expressways and principal highways, improvements to the I-595 corridor are a boost to the state and regional economic competitiveness in the global market.
4. **Quality of Life** – The proposed improvements to the I-595 corridor have been developed in a manner that ensures that the qualities of life that are of value to Florida citizens are sustained: preserving parklands, protecting sensitive wetlands and taking appropriate measures to mitigate any environmental impacts that may occur.

2.2.2 Regional (Areawide) Needs

There are a number of regional issues that serve to justify implementation of the proposed I-595 improvements. These regional issues include system linkages; transportation demand; federal, state and local authorities’ support for the project; social demands and economic development; and modal interrelationships.

System Linkages

Within Dade, Broward and Palm Beach Counties, the I-595 corridor is the only east-west freeway providing connections to all of the region’s principal north-south corridors, as well as freeways beyond the region’s boundaries. West of the I-75/Sawgrass Expressway, I-595 becomes I-75, with direct connections to the population centers along the Gulf Coast. This linkage is important for many reasons.

- I-595 plays an important role in the distribution of products, both within the Southeast (SE) Florida area and between the region and other areas of the state and nation.
- I-595 is a critical link between other components of the Florida Intrastate Highway System (FIHS) network, such as US 27 (located west of the project corridor), Sawgrass Expressway, I-75, Florida’s Turnpike and I-95. It is also an important link to Strategic Intermodal System (SIS) network components for other travel modes: freight and passenger rail, port, aviation and intercity bus. These linkages work to ensure an efficient transportation network.





- I-75 is an important facility in the area's emergency evacuation plans. Fox Trail Elementary School (1250 Nob Hill Road, Davie) is a designated emergency shelter and is located within one block of the corridor. I-595 is also a primary route for departure from the SE Florida area, while avoiding the coastal region.

Transportation Demand

Level of Service analyses were performed on Base Year 2002 (existing) travel conditions within the I-595 corridor. They examined each of the system's operating elements: mainline sections, mainline/ramp merge and diverge points, weave sections, ramps, and ramp/crossroad intersections. Table 2-1 identifies those elements of the project found to have volumes that resulted in less than acceptable levels of service, based on the local jurisdictions' adopted minimum standards.

Details of the levels of service assessment are provided in Section 6.0 TRAFFIC of the PER. Analysis of the traffic volumes forecast for the future years of this project (Year 2014 as the Year Open of proposed improvements and Year 2034 as the Design Year) showed that these deficiencies would only worsen in future years. Therefore, any degree of additional capacity that the corridor can contribute to the total system capacity will improve the responsiveness of the entire SE Florida regional transportation network to meet the needs of the motoring public.

Federal, State or Local Governmental Authority

It is important that any publicly-funded transportation project have the support of the public agencies charged with reviewing, approving, constructing and/or financing it. For a project on the interstate system, such as I-595, these agencies exist at the local, state and federal levels.

Local support for the I-595 PD&E Study and its related physical improvements are coordinated through the Broward County MPO. The *Broward County MPO 2030 Long-Range Transportation Plan* shows that the elements of the Master Plan-defined LPA are included.

Project #44 on the list of Cost-Feasible Highway Projects is broken down into two separate projects.

- The first is a 10-mile segment of I-595, from I-75 to SR 7, and includes adding reversible lanes in the median area.
- The second is a 14-mile segment of I-595, extending from I-75 to US 1.

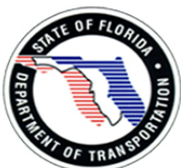




Table 2-1 Corridor Elements Below Adopted Level of Service (LOS) Standards

System Component: Direction of Travel Element Location	AM Peak Hour LOS	PM Peak Hour LOS
<u>Mainline I-595: EB</u> ♦ Viaduct between I-95 and SR 7/Florida's Turnpike	F	
<u>I-595 Mainline/Ramp Merges & Diverges: EB</u> ♦ SR 7 – Diverge ♦ Florida's Turnpike – Merge ♦ SR 7 – Merge ¹	F F F	
<u>I-595 Mainline/Ramp Merges and Diverges: WB</u> ♦ SR 7, from NB mainline – Merge ♦ SR 84/Davie Road, from C-D Rd ² – Merge ♦ SW 136 th Avenue – Diverge	E	F F E
<u>Mainline Weave Analyses: I-595 EB</u> ♦ Between 136 th Ave and Flamingo Rd ♦ Between Flamingo Rd and Hiatus Rd ♦ Between Hiatus Rd and Nob Hill Rd ♦ Between Nob Hill Rd and Pine Island Rd ♦ Between Pine Island Rd and University Dr	E F F F F	E F
<u>Mainline Weave Analysis: I-595 WB</u> ♦ Between Florida's Turnpike and Davie Rd ♦ Between University Dr and Pine Island Rd ♦ Between Pine Island Rd and Nob Hill Rd ♦ Between Nob Hill Rd and Hiatus Rd ♦ Between Hiatus Rd and Flamingo Rd ♦ Between Flamingo Rd and SW 136 th Ave	E E F E E	F F F F E
<u>Ramp Levels of Service</u> <i>No ramps had substandard levels of service</i>		
<u>SR 84 /Crossroad Intersections: EB</u> ♦ Nob Hill Rd ♦ Pine Island Rd ♦ University Dr ♦ Davie Rd	F F E E	
<u>SR 84/Crossroad Intersections: WB</u> ♦ SW 136 th Ave ♦ Pine Island Rd ♦ Davie Rd		E F E

1. Highway Capacity Manual Methodology recommends analyzing upstream and downstream basic freeway segments when there is an Add/Drop lane design on the ramp
2. C-D Road – Collector Distributor System developed using segments of parallel SR-84 and braided ramps between I-595 and SR 84





The South Florida Water Management District (SFWMD) has also been a partner in the development of this project. Throughout the development of proposed improvements, the FDOT worked closely with the SFWMD to ensure that their concerns were addressed in the design of project alternatives. From relocation of ramps and roadways to measures taken to mitigate such unavoidable impacts as stormwater retention and noise, SFWMD staff comments and concerns are reflected in designs throughout the corridor.

At the state level, the proposed improvements within the I-595 corridor are addressed in two different plans, one for each of the major corridor designations, FIHS and SIS. The FDOT prepared a comprehensive long-range plan for the FIHS network in 2000 with a planning horizon of 2020, with updates in 5-year cycles. The FDOT published its revised *FIHS 2025 Cost-Feasible Plan Update* in 2003. A number of the elements of the I-595 improvements package were retained in the state's FIHS Cost-Feasible Plan: the mainline reversible lanes, improvements to SR 84 EB and WB, and interchange improvements at SR 7, Florida's Turnpike and I-95.

The I-595 corridor is a Designated SIS Highway Corridor link of the state's Strategic Intermodal Transportation network. All components of the I-595 improvements package are included in the SIS "Unprogrammed Project Needs" list, published in early 2005, divided into eight separate project packages. Seven of these packages reference the Broward County MPO's Long Range Plan as the source of the project listing. The eighth package refers to a recently completed Intelligent Transportation Systems (ITS) study, FDOT District 4's *10-Year ITS Cost Feasible Plan*. The revised listing of SIS projects is anticipated to be published late in 2005. This listing will also include the proposed corridor improvements.

Federal agencies have also been involved in the development of the proposed improvements. In addition to FHWA, which has been involved with the project since its earlier Master Plan phase, several federal agencies have had opportunities to comment on the project. Because the New River, which lies north of SR 84 within the limits of the project, is a navigable waterway through much of the corridor, FDOT has also met with the U.S. Coast Guard to receive their input regarding the design and location of ramps and structures that overpass the river.

Social Demands and Economic Development

The I-595 PD&E Study maximizes the capacity of the corridor within the existing rights of way to the greatest extent feasible. Acquisition of additional rights of way has been restricted to very narrow confines. The directive to minimize acquisition of right of way worked to protect the Section 4(f) lands and the pristine waters and sensitive environmental features adjacent to the corridor. The protection of the natural assets of SE Florida enhances the area's attractiveness to potential business interests, developers and visitors.





Modal Interrelationships

The LPA for the I-595 corridor that emerged from the Master Plan study introduced several multimodal features into the I-595 corridor: light rail transit (LRT), special use lanes, integration with transit lines on crossroads, and non-motorized travel. Utilizing a comprehensive multimodal planning approach in these I-595 corridor studies will enable optimum performance to be derived from all parts of the system, balancing the needs of the various travel modes while minimizing their collective impacts.

2.2.3 Project Corridor Needs

In addition to the statewide and regional benefits of implementing the proposed corridor improvements, there are benefits that are specific to the corridor. These include reductions of incident-related delay and design solutions for the existing interchange design deficiencies and unsafe weaving and merging conditions within the project corridor.

2.3 EXISTING ROADWAY CHARACTERISTICS

I-595 is a limited access facility that runs in an east-west direction with a posted speed of 65 miles per hour (mph). I-595 is an integral part of the FIHS and SIS through its functional classification as a limited access expressway. There are one-way frontage roadways (SR 84) on the north and south sides of the mainline between SW 136th Avenue and Davie Road. SR 84 is functionally classified as a one-way collector with a posted speed of 50 mph. Florida's Turnpike, a major north-south intersecting highway, is a six-lane freeway toll facility, three lanes in each direction, with a posted speed of 65 mph.

2.3.1 Typical Sections

The I-595 corridor has four main typical sections which are described below. The following are their limits.

- Typical Section 1 SW 136th Avenue to University Drive
- Typical Section 2 University Drive to Florida's Turnpike
- Typical Section 3 Florida's Turnpike to west of SR 7
- Typical Section 4 West of SR 7 to I-95

Typical Section 1 – SW 136th Avenue to University Drive

Typical Section 1 includes a 64-foot median, 10-foot paved inside and outside shoulders (12-foot overall width), and three general purpose (GP) lanes in each direction. There are one or two auxiliary lanes between each pair of successive interchanges. Guardrails are located on the outside of the travel lanes to protect motorists in sections with high fill, while barrier walls are located on areas where mechanically stabilized earth (MSE) retaining walls are used.





Typical Section 1 has a frontage road system, SR 84, on the north and south sides of the I-595. SR 84 is a two-lane, one-way pair that acts as a collector/distributor (C-D) roadway to I-595. When I-595 was planned, the SR 84 right of way served as the original working alignment for the new Interstate connector. Typical Section 1 is depicted in Figure 2-1.

Typical Section 2 - University Drive to Florida's Turnpike

Typical Section 2 is similar to Typical Section 1, except that its median width is 68 feet (see Figure 2-2). The I-595 mainline has a frontage road system (SR 84) on its north and south sides along most of its length, from University Drive to Davie Road.

Typical Section 3 – Florida's Turnpike to West of SR 7

Typical Section 3 has median and inside shoulder widths that vary. This variability is due to a restriping project, completed in 2002, that created an additional WB auxiliary lane on I-595. The mainline alignment is on curve and superelevated through much of this area. No frontage roads are present along this section of I-595. One or two auxiliary lanes are present between interchanges in both directions. Typical Section 3 is shown in Figure 2-3.

Typical Section 4 – West of SR 7 to I-95

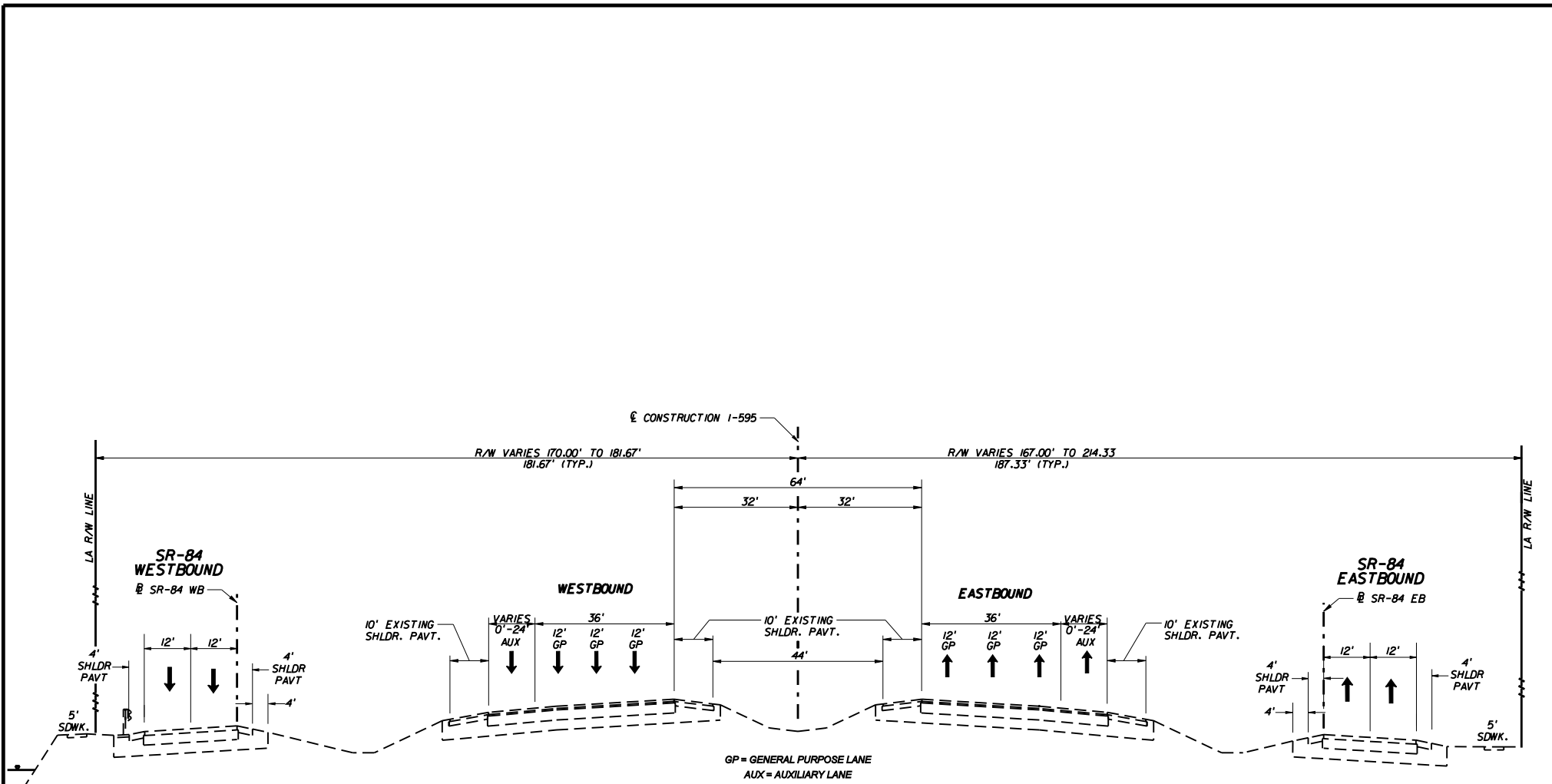
I-595 is on bridge structure through much of this area. Typical Section 4 area has a varying median width and 3-foot inside shoulders that resulted from the 2002 restriping project described above. Three general purpose and two auxiliary lanes are present within this segment of I-595; no frontage roads present (see Figure 2-4). East of SR 7, SR 84 resumes its original alignment north of – and separate from – the I-595 mainline.

The existing Florida's Turnpike typical section and the proposed typical sections associated with the widening of Florida's Turnpike (Financial Project ID 406094-1) immediately north and south of I-595 are included in Appendix A (see Figures 2-1 and 2-3). These typical sections were taken from the "Noise Study Report" (July 8, 2005) for the *Widening Florida's Turnpike Project* that extended from Griffin Road to north of Sunrise Boulevard. The Florida's Turnpike project is separate from this I-595 PD&E Study.

2.3.2 Right of Way

Between SW 136th Avenue and Pine Island Road, I-595 and its adjacent frontage roads lie within a 324-foot right of way. Between Pine Island Road and Davie Road, where the frontage road terminates, the right of way varies in width up to 500 feet. Following the I-595 right of way east from Davie Road, it widens to as much as 1,800 feet in the vicinity of the SR 7 interchange, then narrows to 360 feet west of I-95. East of the I-95 interchange, the I-595 right of way narrows to a minimum of 155 feet.

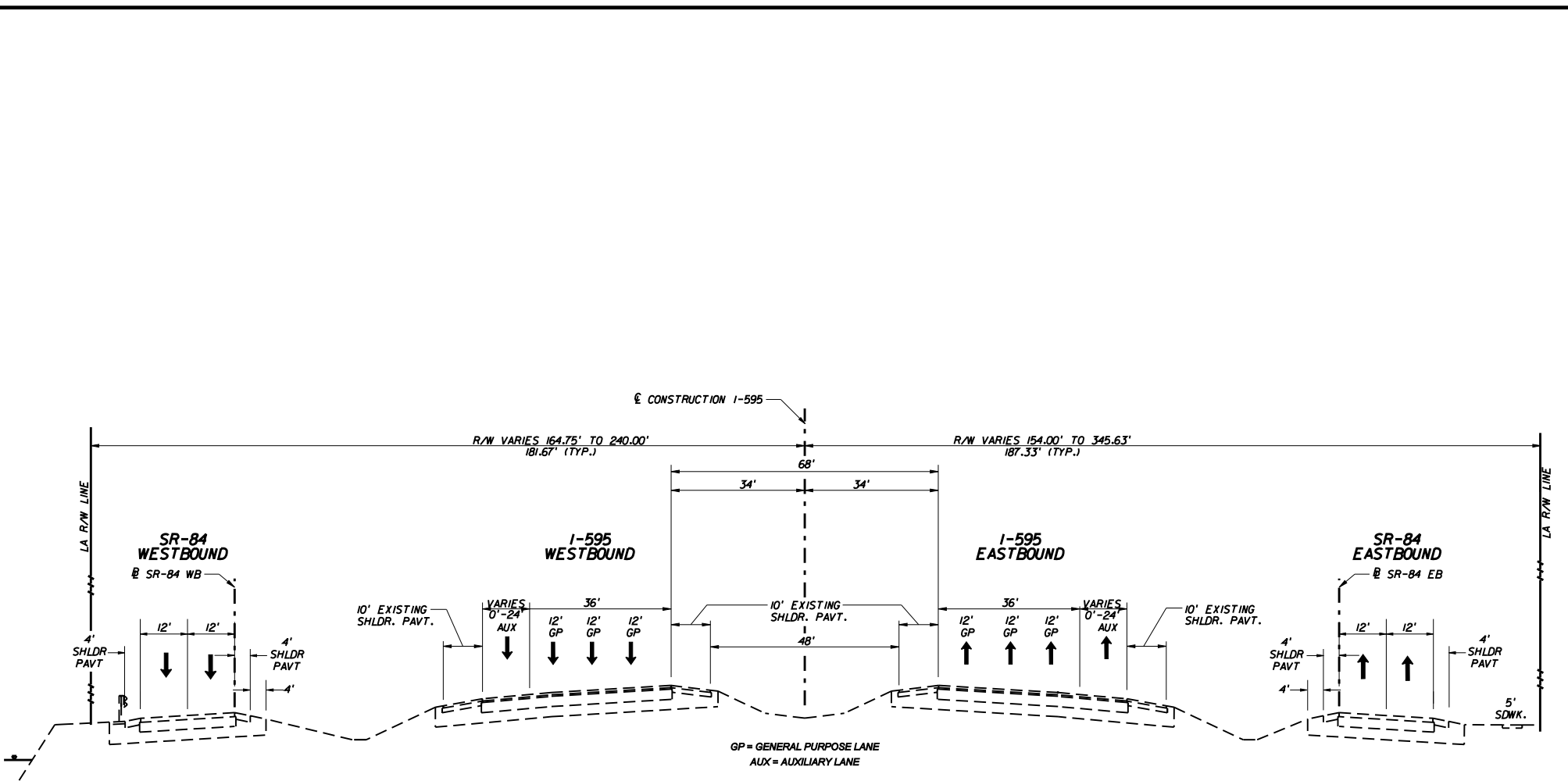




GP = GENERAL PURPOSE LANE
 AUX = AUXILIARY LANE

I-595 (SR-862) EXISTING TYPICAL SECTION 1
 FROM SW 136th AVE. TO UNIVERSITY DR.
 (64' EXISTING MEDIAN)

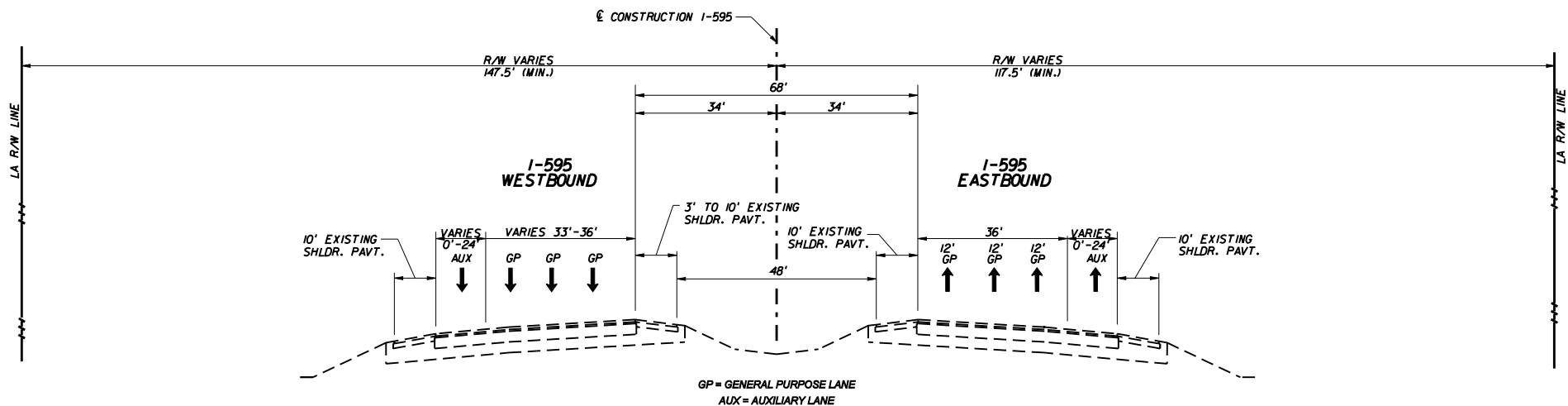
2-9



I-595 (SR-862) EXISTING TYPICAL SECTION 2
 FROM UNIVERSITY DR. TO FLORIDA'S TURNPIKE
 (68' EXISTING MEDIAN)

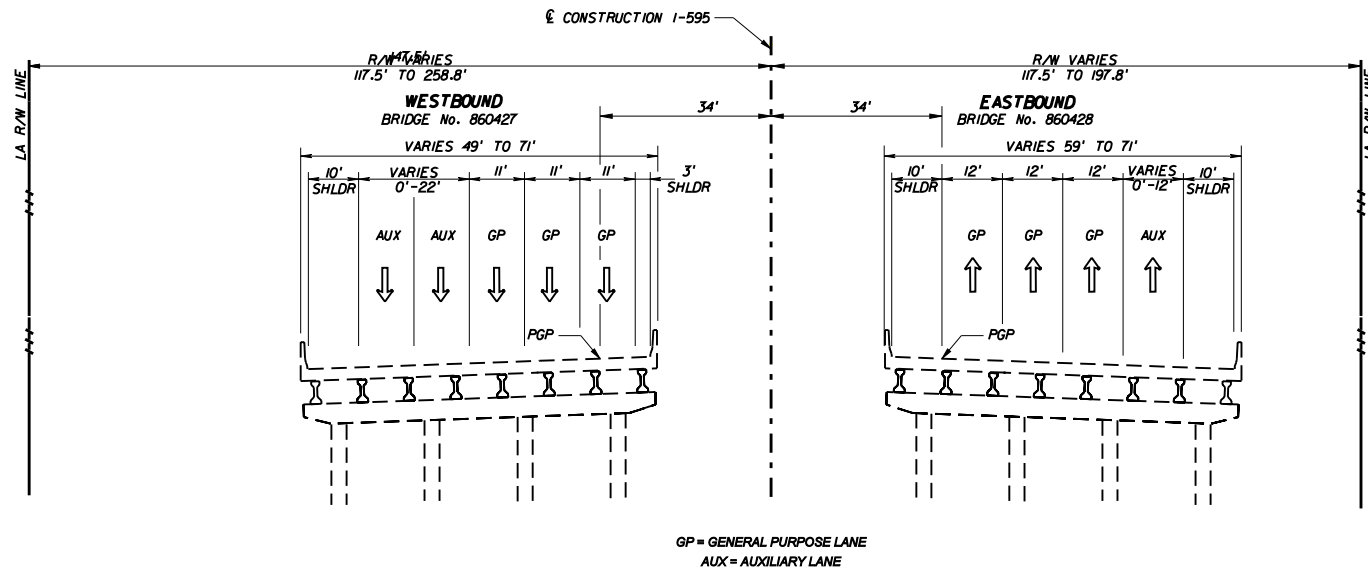
GP = GENERAL PURPOSE LANE
 AUX = AUXILIARY LANE

2-10



I-595 (SR-862) EXISTING TYPICAL SECTION 3
 FROM FLORIDA'S TURNPIKE TO WEST OF SR-7

2-11



I-595 (SR-862) EXISTING BRIDGE TYPICAL SECTION 4
 FROM WEST OF SR-7 TO I-95



2.3.3 Intersections and Signalizations

There are 14 signalized intersections within the corridor under the control of the Broward County Traffic Engineering Division. The following intersections were evaluated as part of this study. Each of the signals is actuated. The cycle lengths vary from 80 seconds to 150 seconds.

- SR 84 EB at SW 136th Avenue
- SR 84 EB at Flamingo Road
- SR 84 EB at Hiatus Road
- SR 84 EB at Nob Hill Road
- SR 84 EB at Pine Island Road
- SR 84 EB at University Drive
- SR 84 EB at Davie Road
- SR 84 WB at SW 136th Avenue
- SR 84 WB at Flamingo Road
- SR 84 WB at Hiatus Road
- SR 84 WB at Nob Hill Road
- SR 84 WB at Pine Island Road
- SR 84 WB at University Drive
- SR 84 WB at Davie Road

2.4 ALTERNATIVE ANALYSIS

The Master Plan LPA was developed with a Design Year of 2020. The primary objective of the alternative analysis phase was to refine the LPA as necessary to satisfy future travel demand to a Design Year of 2034. The LPA was updated to include changed conditions within the corridor that have occurred since the Master Plan Study was completed. In addition, the LPA was refined to reflect comments received at public workshops, as well as an extensive Value Engineering/Design Review (VE/DR) process conducted during the PD&E Study. The following are critical elements that were considered during the refinement of the Master Plan LPA.

PD&E Study Design Year 2034

The Master Plan LPA was developed with a Design Year of 2020; the PD&E Study Design Year is 2034. The LPA was refined to accommodate traffic growth for an additional 14 years that required additional auxiliary lanes and ramp widening at select locations.

North New River Greenway

Broward County is developing the North New River Greenway, a shared-use bicycle/pedestrian trail, extending from Markham Park, west of I-75, to SR 7. A portion of the Greenway between Davie Road and SR 7 was relocated to the north side of the corridor as part of the I-595 improvements due to conflicts associated with modifications to the SR 84 alignment in that area.

Sewell Lock Park

The historic Sewell Lock Park, located on the North New River Canal along the north side of I-595 immediately west of Davie Road, presented an obstacle for the





proposed LPA improvements in that area. The Master Plan LPA will impact the park and possibly create Section 4(f) involvement. To avoid impacts to the park, the alignment of the proposed braided ramps and typical sections for SR 84 and the on-and off-ramps between University Drive and Davie Road were modified.

Florida Power and Light (FP&L) Substation

The existing FP&L substation, located on the south side of I-595 west of Davie Road and across from Sewell Lock Park, extends into the SR 84 right of way. The Master Plan LPA most likely will require relocation of the substation. The roadway typical section and alignment in this area were adjusted to avoid impacts to the FP&L substation.

Central Broward East-West Transit Alternatives Analysis

Since the Master Plan Study, FDOT has initiated the Central Broward East-West Transit Alternatives Analysis. As a result of that study, the Broward County MPO endorsed the I-595 corridor in its meeting of April 14, 2005 as the preferred location for the East-West Transit Alignment. At the same time, the MPO identified light rail as the preferred transit mode. The preliminary transit concept provides for elevated light rail within the I-595 corridor between SW 136th Avenue and SR 7. The Master Plan LPA had proposed the transit alignment be elevated within the I-595 corridor as well, but placed it south of both I-595 and SR 84. Extensive coordination with transit officials has continued throughout the PD&E Study process to accommodate the potential transit alignment within the I-595 corridor.

Value Engineering/Design Review Process

As part of the PD&E Study design analysis, a comprehensive VE/DR Team was assembled, composed of senior staff from FDOT District 4, Broward County, Florida's Turnpike Enterprise and specialty consultants. The purpose of the VE/DR Team was to conduct detailed design reviews of the design alternatives at critical stages of the refinement process to assure that the project remained cost effective, constructable and made the most efficient uses of existing rights of way. The refinements to the LPA that emerged from the first four week-long VE/DR workshops were incorporated into a single PD&E design concept, **Alternative 1A**.

As the VE/DR alternative was developed further, it became apparent that extensive right-of-way acquisitions would be needed to construct the transit line along the south side of SR 84. As a result, the project team developed three additional concepts. The alternatives were developed in coordination with the transit study consultants, local municipalities and stakeholders, FHWA and the VE/DR Team. The three alternatives were designated as **Alternatives 1B, 2A and 2B**. The three alternatives maintained the basic design components of the Master Plan LPA (reversible lanes, auxiliary lanes, braided ramp





systems, etc.) but made more efficient use of the space available within the existing corridor right of way.

A comparative analysis of the four design alternatives was performed that evaluated each build alternative using such criteria as traffic service; preliminary engineering, environmental and socio-economic impacts; and costs. Based on this analysis, Alternatives 1A and 2B were considered "fatally flawed" and eliminated from further consideration. The Concept Plans for all of the alternatives evaluated, including the No Build Alternative, are presented in Appendix D – Alternative Concept Plans of the PER.

Selection of the alternative for which LDCA will be sought from FHWA will be made after receiving public input during the I-595 PD&E Public Hearing in December 2005.

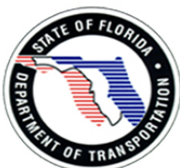
2.5 PROJECT ALTERNATIVES

The following section describes the primary characteristics of the **No Project Alternative** and the two design concepts, **Alternatives 1B and 2A**.

2.5.1 No Project Alternative

The No Project Alternative entails maintaining the existing I-595 corridor without implementing capacity, operational or safety improvements, except for those already funded and included in the Broward County MPO's *2005/06 – 2009/10 Transportation Improvement Plan*. The following is a summary of the key corridor characteristics.

- Three general purpose lanes with paved inside and outside shoulders per direction, separated by either a 64-foot or 68-foot grass median
- One or two auxiliary lanes between each pair of interchanges
- SR 84, configured as a two-lane one-way pair, with WB lanes north of the mainline and the North New River Canal and EB lanes south of the mainline; extends from SW 136th Avenue to Davie Road; has a design speed of 50 mph (e max = 0.10); has an open drainage; serves as I-595 C-D system
- No frontage road between Davie Road and SR 7; east of SR 7, both EB and WB lanes of SR 84 on the north side of the mainline and the North New River Canal, following its original alignment – separated and apart from the I-595 right of way
- Tight diamond with frontage road interchange configuration at the following crossroads:
 - SW 136th Avenue
 - Flamingo Road
 - Hiatus Road
 - Nob Hill Road
 - Pine Island Road
 - University Drive
 - Davie Road





- Two flyovers at the University Drive interchange carrying SB-EB and NB-WB movements
- 70 mph design speed on mainline; 50 mph design speed on ramps

The consequences of selecting the No Project Alternative include the acceptance of increased traffic congestion that will result from the increased travel demand associated with the continued significant growth of SE Florida that is expected to occur over the next 20 years. By contrast, the advantages of the No Project Alternative include no additional costs, other than maintenance of the existing facility; no need for acquisition of additional rights of way for construction of retention/detention ponds that will be needed for additions to the impervious areas within the corridor limits; and no impacts to traffic or surrounding neighborhoods as a result of construction activities.

The No Project Alternative remains under consideration throughout the study process to provide a baseline for comparison with project design alternatives.

2.5.2 Design Alternatives

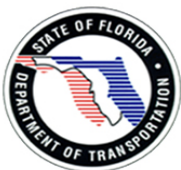
The improvement alternatives initially proposed for the I-595 corridor during the 2003 Master Plan and further developed through this PD&E Study process, have a number of design elements.

- Mainline I-595
- Mainline I-595 Interchanges
- Reversible Lanes
- Reversible Lane Interchanges
- SR 84
- Pedestrian and Bicycle Facilities
- I-595/Florida's Turnpike Interchange
- Florida's Turnpike Mainline
- Transit Facilities
- Pond Apple Slough

Common elements of the design alternatives are discussed below and are followed by a discussion of the unique elements of each design alternative. In general terms, Alternative 1B proposes constructing the new reversible lanes at grade level within the median of the I-595 corridor. In Alternative 2A, the reversible lanes would be elevated above the existing I-595 mainline median area.

Shared Design Alternative Design Features

Mainline I-595 – Each of the design alternatives preserves the existing I-595 mainline general purpose lanes in their present location through much of the corridor, 34 feet left and right of the centerline of construction. Where needed, an additional auxiliary lane is proposed so that two auxiliary lanes per direction are provided between each pair of successive interchanges within the corridor. Mainline design speeds of 70 mph are also preserved.





Mainline I-595 Interchanges – Major improvements are proposed for the mainline interchanges to eliminate friction in the outer lanes caused by merge, diverge and weaving segments along the mainline. This will be accomplished by introducing braided ramps, a design feature that eliminates ramps by combining ramp movements and reversing the typical on-ramp/off-ramp sequence usually found between successive interchanges. The proposed improvements will either eliminate mainline weaving segments altogether or relocate them to the frontage roads where any delays would not impact mainline traffic flow.

All ramps will be of parallel type, with auxiliary lanes beginning/ending at the ramp gores. This configuration will improve the operation of merge and diverge segments. In addition, all ramps at interchanges within the study corridor will have 50 mph design speeds.

In addition, the existing flyovers at the University Drive interchange will be reconstructed, moving them to allow widening of the median as needed to accommodate the reversible express lanes.

Reversible Lanes – The reversible lanes will be located within the I-595 median area. Their horizontal and vertical alignments are to follow the existing I-595 alignment. At the present time, it is envisioned that the reversible lane system will flow EB during the AM peak period and WB during the PM peak period, allowing a large percentage of long distance through traffic to be removed from the GP lanes and augmenting the number of lanes flowing in the direction of greatest demand.

Reversible Lane Interchanges – Whether originating within the I-595 corridor only, as proposed under Alternative 1B, or within both the I-595 and Florida’s Turnpike corridors, as proposed under Alternative 2A, the median areas are to be widened to accommodate the reversible lane interchanges. Two inside auxiliary lanes will be developed for access to the reversible lane system, separated from the mainline by a 4-foot buffer area. Overhead Dynamic Message Signs (DMSs) are proposed to guide motorists into or away from the auxiliary lanes leading to the reversible lanes (depending on the time of day). Opposing traffic will be prohibited from entering the reversible lanes by a series of gates that will extend from the inside barrier wall in the area of the auxiliary lanes. Drop down safety nets are also proposed to further prohibit motorists from entering the reversible lanes in the wrong direction. Barrier walls will be used along the I-595 mainline to eliminate clear zone violations in the reversible lane interchange area.

SR 84 – A number of factors make it impractical to maintain SR 84 as a rural (open drainage) facility. These factors include limited rights of way, addition of mainline auxiliary lanes, proposed realignments of ramps, proposed addition or expansion of bicycle and pedestrian facilities, and potential impacts to the North New River Canal. It is proposed that SR 84 be changed to a suburban facility with two 12-foot lanes per direction,





installation of a Type F curb-and-gutter system on the outside and an 8-foot stabilized inside shoulder, of which 4 feet are paved. The proposed use of a curb-and-gutter system accomplishes several things: it allows the roadway drainage to be contained within the existing right of way; it allows for a pedestrian/bicycle path to be installed on the outside between Davie Road and SR 7; and it reduces clear zone requirements. A guardrail will be installed in the WB direction along the curb and gutter to protect users from the drop off hazard associated with the canal.

Additional rights of way are required along the north side of WB SR 84 for much of its length. Meetings were held with SFWMD regarding this issue. The SFWMD issued the following guidelines to be followed with respect to potential impacts to the North New River Canal.

- If the roadway footprint is within the SFWMD right of way, a bulkhead constructed with sheet piling will be installed to prevent encroachment on the canal.
- No reduction in the capacity of the canal cross section is permitted.
- No change in the conveyance of the canal is permitted.
- Sound walls may be installed on top of the bulkhead, but not within 100 feet of any bridge crossing the canal.

The reconstructed SR 84 will be located at the same elevation as the existing facility. It also will be located on the outside of I-595 mainline ramps and bypass ramps so that a continuous 4-foot undesignated bicycle lane can be maintained along the outside travel lane. The single exception to this occurs between Pine Island Road and Nob Hill Road.

As part of the SR 84 reconstruction, its intersections with SW 136th Avenue, Flamingo Road, Hiatus Road, Nob Hill Road, Pine Island Road, University Drive, and Davie Road will require reconstruction. Elimination of WB SR 84 access across the canal to and from SW 125th Avenue and Commodore Avenue will also be required, due to limited space between the widened I-595 mainline and the canal.

Improvements are also proposed for the EB lanes of SR 84. The improved EB lanes will be constructed at the elevation of the existing SR 84 Limited Access right-of-way line. The EB lanes will also be located outside of the I-595 mainline ramps and bypass ramps. This will enable access to the many driveways along EB SR 84 to be maintained, as well as allowing a continuous 4-foot undesignated bicycle lane to be constructed along the outside travel lane.





At the present time, SR 84 ends a few hundred feet east of Davie Road, at which point EB traffic is forced onto the I-595 mainline. Both of the design alternatives propose to extend SR 84 farther east, eliminating the need for frontage road traffic to use any portion of the I-595 mainline.

Pedestrian/Bicycle Facilities – Broward County has designated the I-595 corridor as a major component of its Greenway system. A bi-directional shared-use path is currently being designed (by others) that will be located on the north side of the North New River Canal between the western I-595 PD&E project limit and University Drive. The path leaves the project corridor between University Drive and Davie Road, reentering it at Davie Road. Between Davie Road and SR 7, it runs along the south side of the North New River Canal to SR 7. Following discussion with County officials, FDOT has agreed to relocate the portion of Greenway between Davie Road and SR 7 to the north side of the canal as part of this I-595 PD&E project. The relocation will eliminate potential conflicts with proposed ramps within the I-595/Florida’s Turnpike interchange.

In addition to the Greenway, FDOT has requested that a 12-foot shared-use, bi-directional path be located along the outside of EB SR 84 (south of the mainline), between SW 136th Avenue and University Drive. It will be constructed adjacent to the proposed curb and gutter. The path will be narrowed to 6 feet between University Drive and Davie Road because of the limited right of way in front of an existing FP&L substation. Four-foot undesignated bicycle lanes will also be incorporated into the design of the outside travel lane of SR 84 in both directions to accommodate advanced riders that currently use SR 84.

Turnpike Interchange – A new WB-NB slip ramp is proposed for the northeast quadrant of the I-595/Florida’s Turnpike interchange. Addition of the WB-NB ramp will remove WB-NB traffic volumes from the short weaving section where EB and WB I-595 volumes converge before separating to travel either NB or SB on Florida’s Turnpike. Following the opening of the new ramp, a barrier wall will be placed along the existing weave section to prohibit vehicles from making unnecessary weaving movements.

It also is proposed that the bridge carrying both EB-SB and WB-SB traffic between I-595 and Florida’s Turnpike be reconstructed as a three-lane structure. The new ramp structure will have a larger radius than the one it is replacing. The Griffin Road SB off-ramp will be relocated farther north to accommodate the wider bridge. It also is proposed that the existing NB-EB and NB-WB two-lane off-ramps be replaced with a single three-lane off-ramp. The NB and SB traffic will separate once away from the mainline. This configuration will eliminate one of the two mainline exits to the Turnpike.





Pond Apple Slough – Both design alternatives propose widening the I-595 causeway structures over Pond Apple Slough between SR 7 and I-95. This improvement will allow for the extension of SR 84 as far east as I-95. The proposed design avoids wetland impacts to the fullest extent possible while providing the additional I-595 lanes needed to satisfactorily handle future traffic demand. After careful study, it was determined that the least invasive solution would be to widen the existing structures to the inside as much as physically possible. This approach minimizes widening to the outside and into the environmentally sensitive areas of Pond Apple Slough.

Alternative 1B – At-Grade Reversible Lanes

Mainline I-595 – Mechanically stabilized earthen barrier walls are proposed for use in areas where I-595 passes over cross streets. Barrier walls along the outside shoulders will be required for much of the I-595 mainline because of clear zone violations and grade differentials between I-595 and SR 84.

All entrance ramps along I-595 will be parallel type entrance ramps with a 50 mph design speed.

Reversible Lanes – In Alternative 1B, the reversible lanes will be located at grade level within the I-595 median. In this configuration, the proposed reversible lane facility will have two 12-foot lanes, with 10-foot paved shoulders on each side. The reversible lanes will be physically separated from the I-595 GP lanes by median barrier walls that will drain to the outside through barrier wall inlets.

Access to and egress from the reversible lanes will be limited to two points. The western access point will be located between the SW 136th Avenue and Flamingo Road interchanges; the eastern access point will be located between Florida's Turnpike and SR 7.

Reversible Lane Interchanges – The auxiliary lanes constructed to provide connections between the I-595 mainline and the proposed reversible lanes will be separated from the mainline by a 4-foot buffer area.

Turnpike Mainline – Alternative 1B has no significant impacts to the Florida's Turnpike mainline alignment. The proposed improvements will consist mainly of restriping, reconstructing ramp terminals, and widening to the outside of the NB Florida's Turnpike lanes to accommodate the increased number of lanes on the proposed WB-NB on-ramp.

Transit Facilities – The proposed transit alignment will be elevated on a dedicated structure within the limits of the I-595 right of way. The Alternative 1B transit envelope will





be developed in the green space area created between SR 84 and I-595. Locating the transit in this area has several major benefits.

- Avoids the FP&L substation
- Avoids long spans when right-turn lanes are introduced along SR 84
- Minimizes right-of-way impacts and costs
- Allows for more visibility of businesses from SR 84

Alternative 2A – Elevated Reversible Lanes

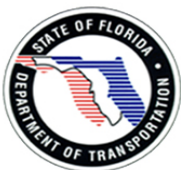
Mainline I-595 – Alternative 2A recommends that the existing I-595 GP lanes be milled and resurfaced, with widening to the outside for the additional auxiliary lanes where needed. Mechanically stabilized earth walls are proposed where I-595 attains grade to pass over cross streets. Barrier walls along the outside shoulder are required for much of the I-595 mainline because of clear zone violations and grade differentials between I-595 and SR 84. All entrance ramps along I-595 will be of parallel type and will have 50 mph design speeds.

Reversible Lanes – In Alternative 2A, the reversible lanes will be located on elevated structure within the existing I-595 median. The reversible lanes will be located one level higher than the mainline, with the exception of the area near the University Drive flyovers. At these points, the reversible lanes will be raised to a fourth level to avoid the flyovers.

The proposed reversible lane structure will be 59 feet wide, with three 12-foot travel lanes and 10-foot paved shoulders on each side. Four points of access to and egress from the reversible lanes are proposed. The westernmost point will be located between the SW 136th Avenue and Flamingo Road interchanges. In clockwise sequence, the other points are along Florida's Turnpike, between Peters Road and I-595; between Florida's Turnpike and SR 7; and along Florida's Turnpike between I-595 and Griffin Road.

Reversible Lane Interchanges – The auxiliary lanes that carry traffic from the I-595 mainline to the reversible lanes will be elevated to a second level on MSE walls. Upon reaching a vertical clearance of 16.5 feet, the I-595 reversible lanes will be carried on structure, joining with the third lane. This third lane arises from or carries traffic to Florida's Turnpike and I-75.

Turnpike Mainline – The Florida's Turnpike mainline will require realignment in two areas: from north of Griffin Road to the south abutment of the Turnpike bridges over I-595, and from the north abutment of the Turnpike bridges over I-595 to Peters Road. Its median will also require widening to accommodate the I-595 reversible lane interchange areas, from its current 26 feet to 81.5 feet. In addition, the Turnpike's NB mainline lanes will be widened to the outside to incorporate the additional WB-NB on-ramp lanes.





Transit Facilities – Alternative 2A differs from Alternative 1B in that the transit corridor is located in the median under the elevated reversible lane structure. This requires raising the reversible lane structure from the second level to a third level. Transit traffic will enter and exit the I-595 median at Level 2 at two locations: east of Flamingo Road and west of University Drive. Once the transit line is away from the access/egress areas, it is lowered to the same profile as the I-595 mainline. This will allow the same benefits to be attained by both Alternatives 2A and 1B.

- Avoids the FP&L substation
- Minimizes the need for an additional transit structure
- Minimizes right-of-way impacts and costs
- Allows for more visibility of businesses from SR 84

Design Alternatives' Proposed Typical Sections

The typical sections proposed for Alternatives 1B and 2A will each provide six 12-foot wide general purpose lanes (three per direction) and two 12-foot auxiliary lanes between interchanges. The I-595 mainline will have 10-foot paved shoulders on both the inside and outside.

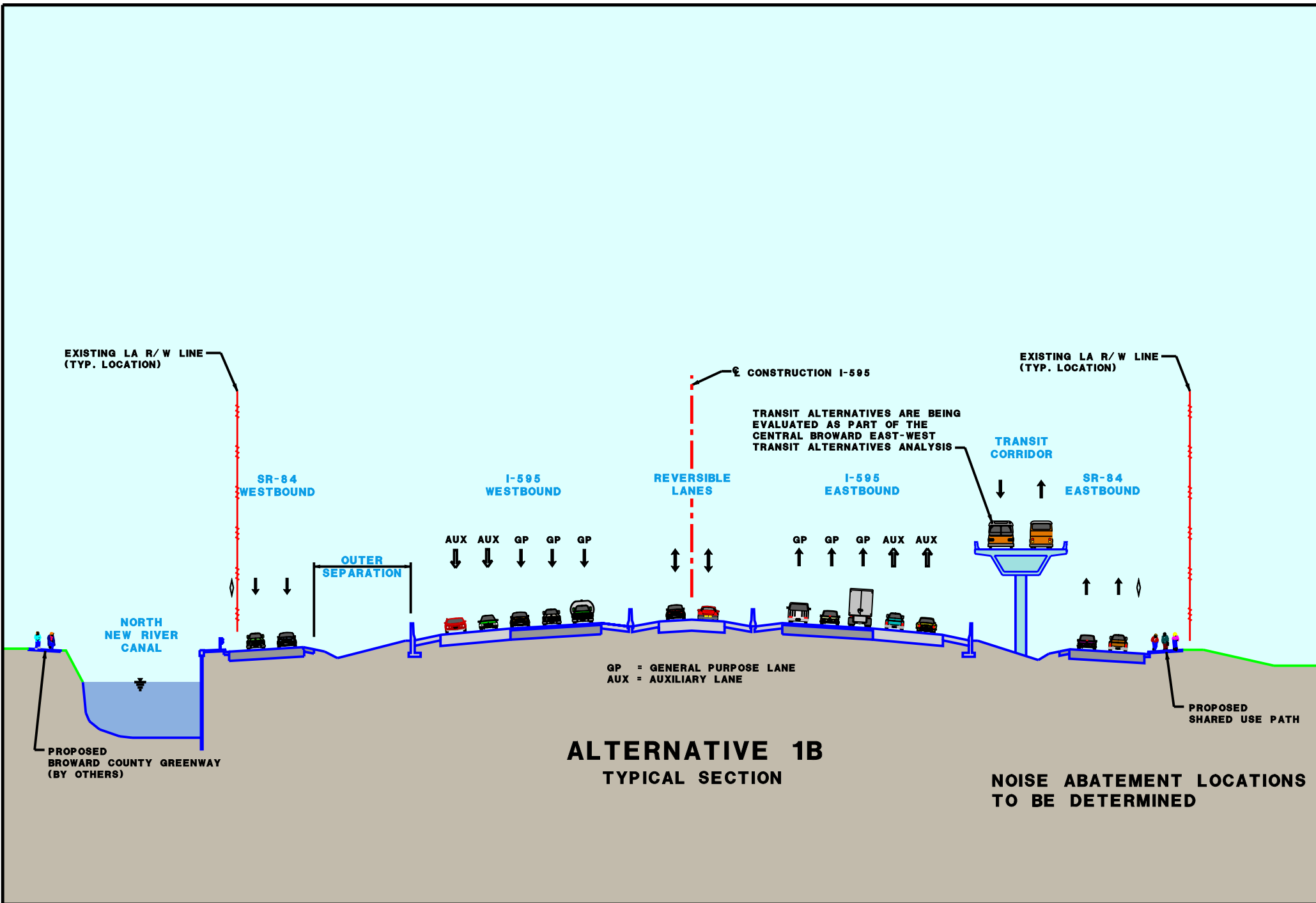
SR 84 will have two 12-foot lanes with 4-foot paved shoulders to the inside and to the outside. Type F curb and gutter and 6 feet to 12 feet of shared-use sidewalk/bicycle path will be included on the outside.

The configuration of the reversible lanes features is the primary way in which the two alternatives differ.

- **Alternative 1B** proposes that the reversible lanes be constructed at grade level within the I-595 median, separated from the mainline by median barrier walls. Under this design concept, there will be two 12-foot reversible lanes with 10-foot shoulders.
- **Alternative 2A** proposes that the reversible lanes be carried on a bridge structure that is 59 feet wide. It, too, will be located within the I-595 median. In Alternative 2A, there will be three 12-foot reversible lanes with 10-foot shoulders.

The proposed typical sections for **Alternatives 1B** and **2A** are shown in Figures 2-5 and 2-6. Figure 2-7 shows the system improvements proposed along the corridor.





**ALTERNATIVE 1B
TYPICAL SECTION**

**NOISE ABATEMENT LOCATIONS
TO BE DETERMINED**

GP = GENERAL PURPOSE LANE
AUX = AUXILIARY LANE

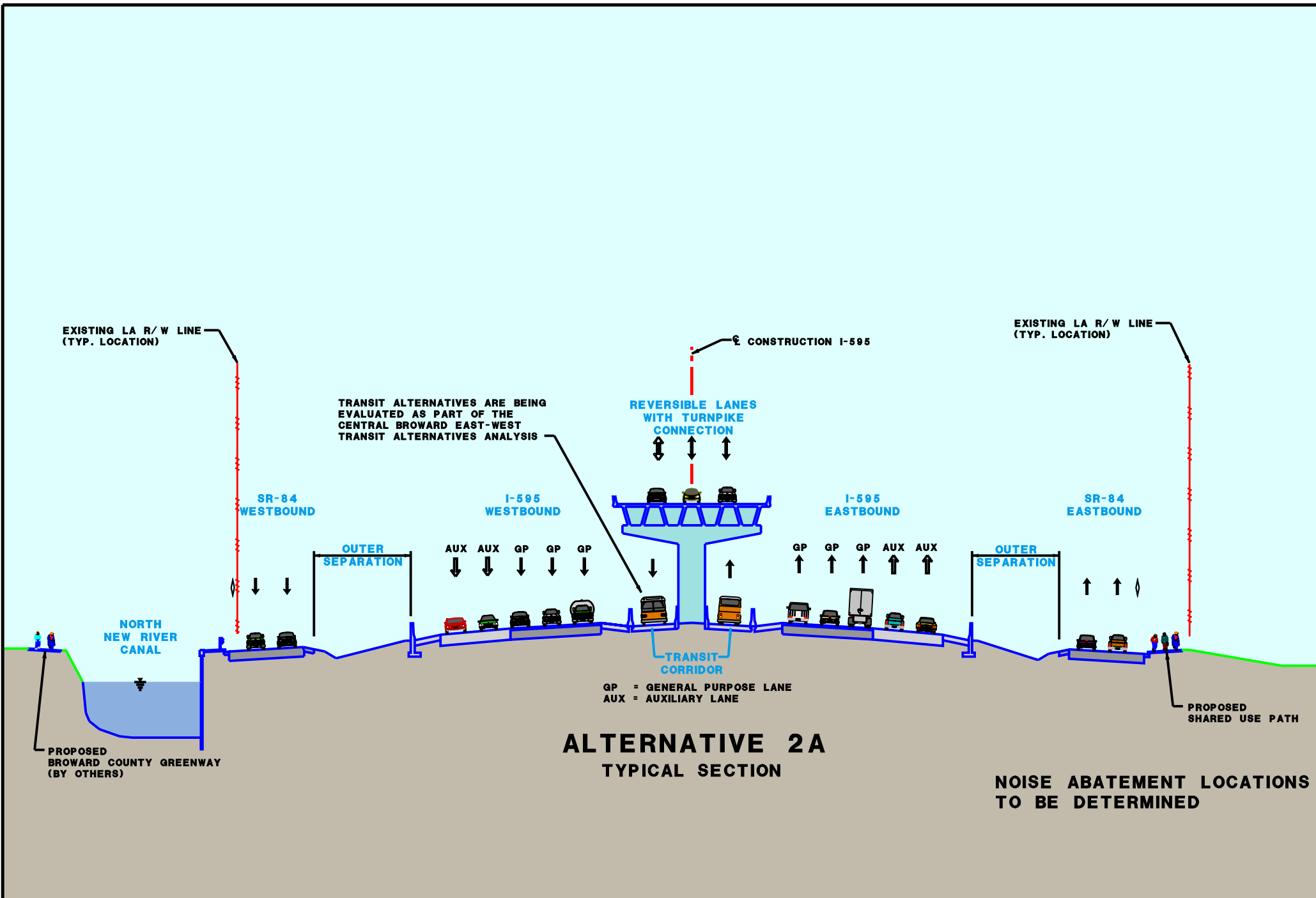
EXISTING LA R/W LINE
(TYP. LOCATION)

EXISTING LA R/W LINE
(TYP. LOCATION)

TRANSIT ALTERNATIVES ARE BEING
EVALUATED AS PART OF THE
CENTRAL BROWARD EAST-WEST
TRANSIT ALTERNATIVES ANALYSIS

TRANSIT
CORRIDOR

2-23

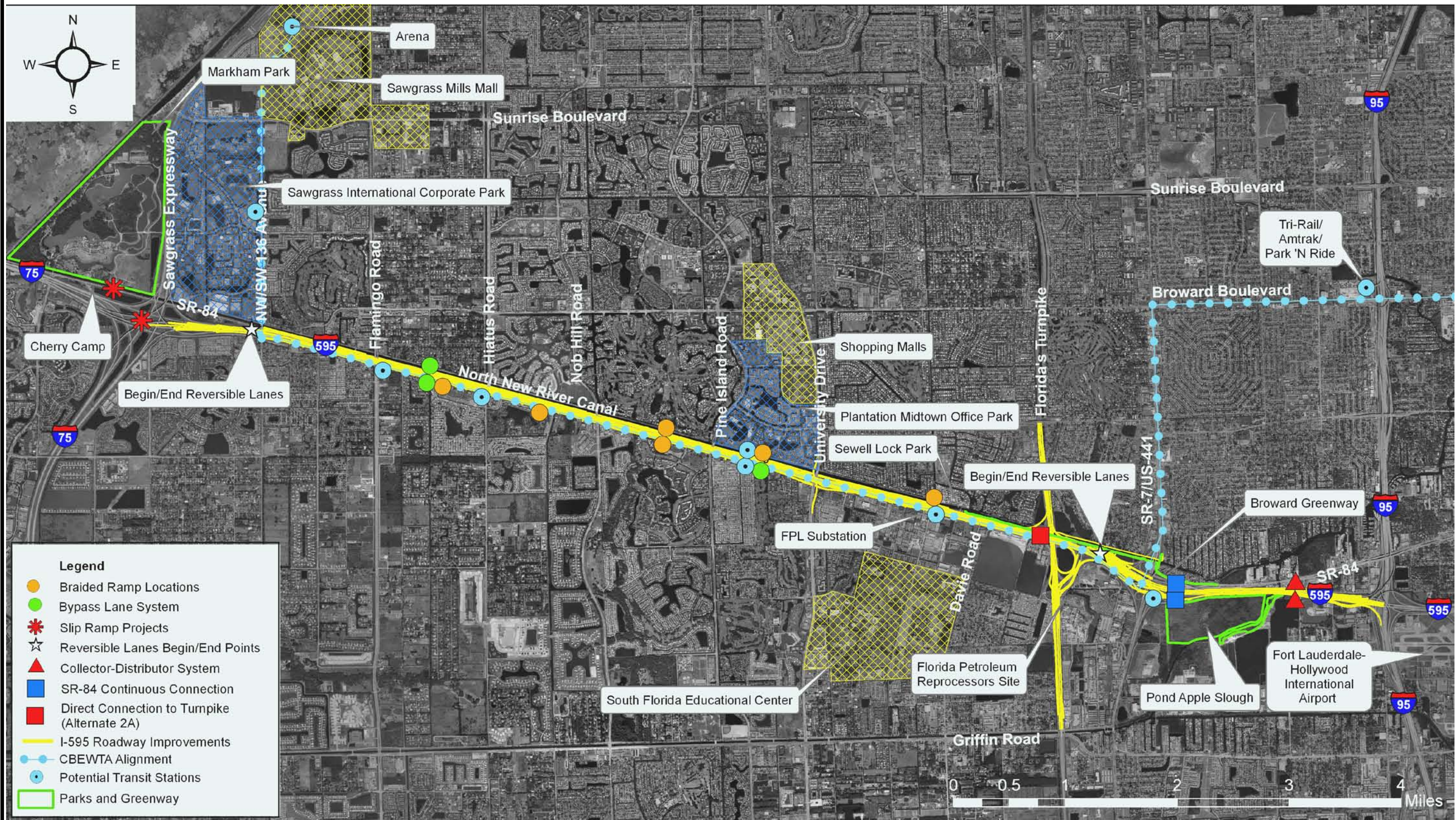


**ALTERNATIVE 2A
TYPICAL SECTION**

**NOISE ABATEMENT LOCATIONS
TO BE DETERMINED**

GP = GENERAL PURPOSE LANE
AUX = AUXILIARY LANE

2-24





3.0 ENVIRONMENTAL SETTING

3.1 EXISTING LAND USE

The existing land uses along the project corridor are a mix of commercial and residential uses. The majority of the area is fully developed. The North New River Canal (C-15) parallels the north side of WB SR 84 through most of the project corridor, from SW 136th Avenue to SR 7. Land uses north of the canal are primarily residential, with some commercial development clustered near interchanges. Land uses along EB SR 84 and south of the corridor are generally strip commercial with adjacent multi-family and single-family residential development. Figure 3-1 illustrates existing land uses within the study area. Figure 3-2 depicts the residential communities along the project corridor.

East of I-95 and the eastern project terminus, Ft. Lauderdale/Hollywood International Airport borders the south side of I-595. Light industrial land use is also found south of the corridor and east of Florida's Turnpike. A mixture of residential, industrial and open space land uses border the corridor northeast of the I-595/I-95 interchange area.

3.2 FUTURE LAND USE

The future land use in the project corridor is shown in Figure 3-3. This map was based on the Broward County Planning Council's *Future Land Use Plan*, an element of its Local Government Comprehensive Plan. Because the project area is almost entirely developed, future land uses will be similar to existing patterns. The future land use map shows continued mixed-use development in the project corridor, with a change from industrial/residential to institutional land use in the central portion of the I-595 corridor south of SR 84.

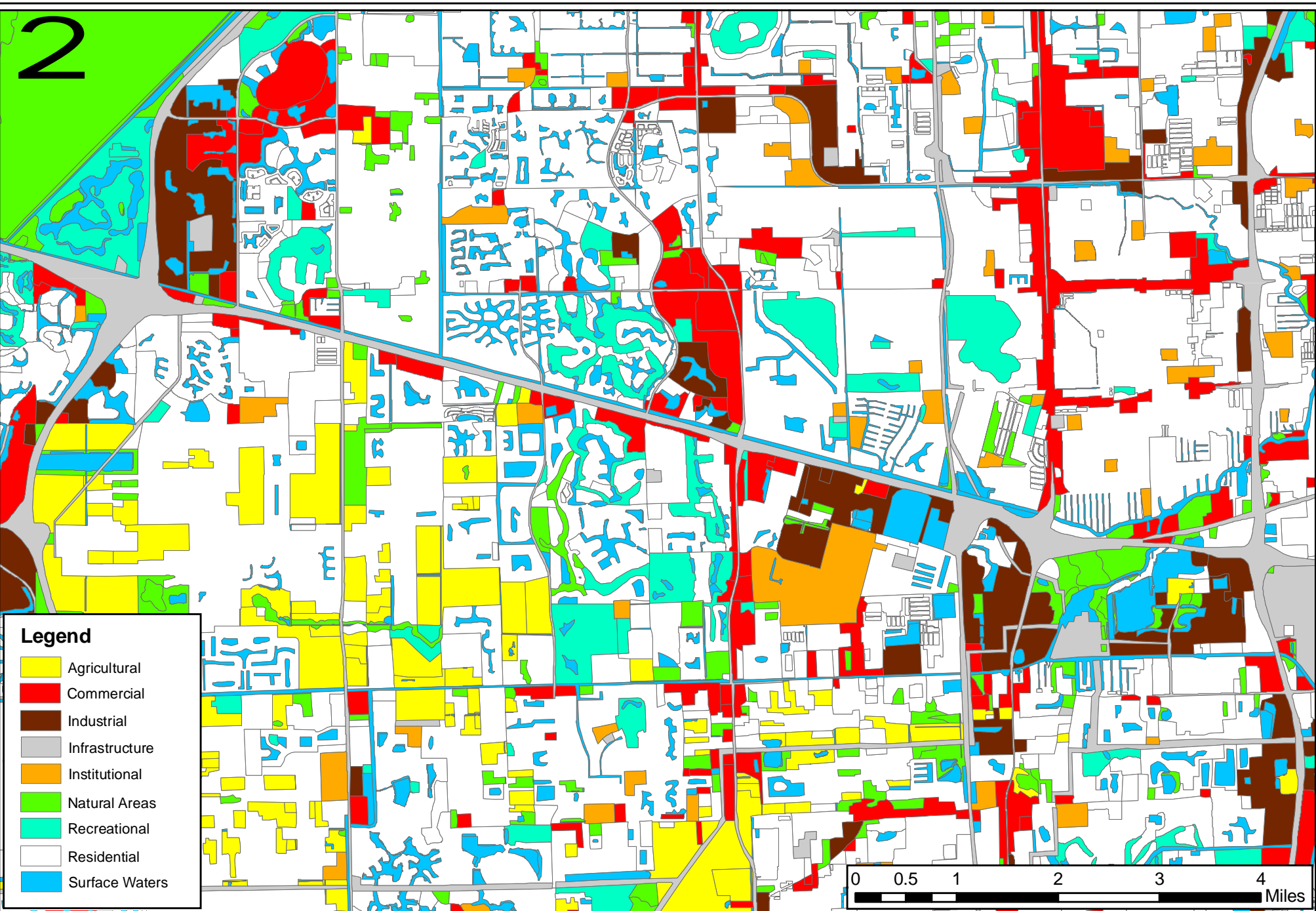
3.3 EXISTING AIR QUALITY

Broward County is located within the United States Environmental Protection Agency's (EPA) designated Southeast Florida Airshed which consists of Miami-Dade, Palm Beach and Broward Counties. The air quality in Broward County is classified in the good range of the Air Quality Index over 90% of the year. The main air pollutant of concern within the airshed is ozone. The major source of air pollution in the airshed is motor vehicle emissions. The Broward County Air Quality Division enforces federal, state, and local air pollution regulations and is responsible for the operation and maintenance of a comprehensive network of air quality monitoring stations throughout Broward County to make sure federal air pollution standards are met.

Broward County is currently designated as an attainment area for all state and federal air quality standards. The attainment designation indicates that pollutant concentration levels in the ambient air are below the National Ambient Air Quality Standards (NAAQS) for the six primary pollutants: carbon monoxide (CO), lead, nitrogen dioxide, ozone, sulphur dioxide, and particulate matter. However, the Southeast Florida Airshed that includes



2



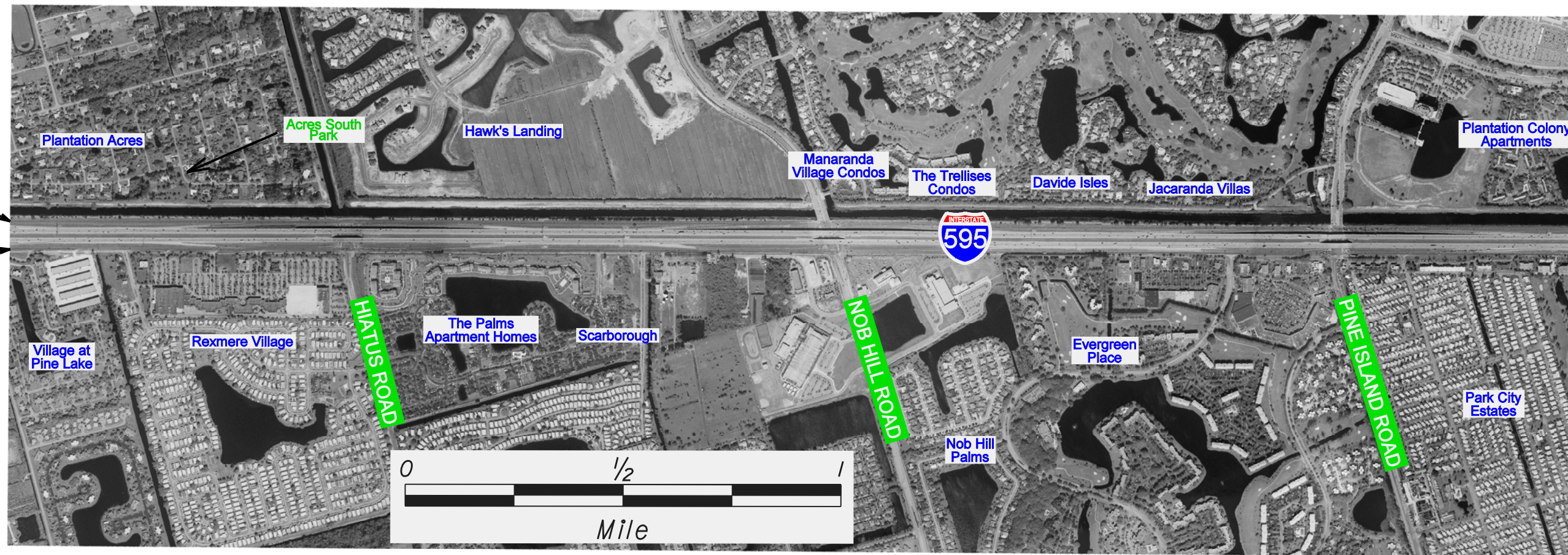
- Legend**
- Agricultural
 - Commercial
 - Industrial
 - Infrastructure
 - Institutional
 - Natural Areas
 - Recreational
 - Residential
 - Surface Waters

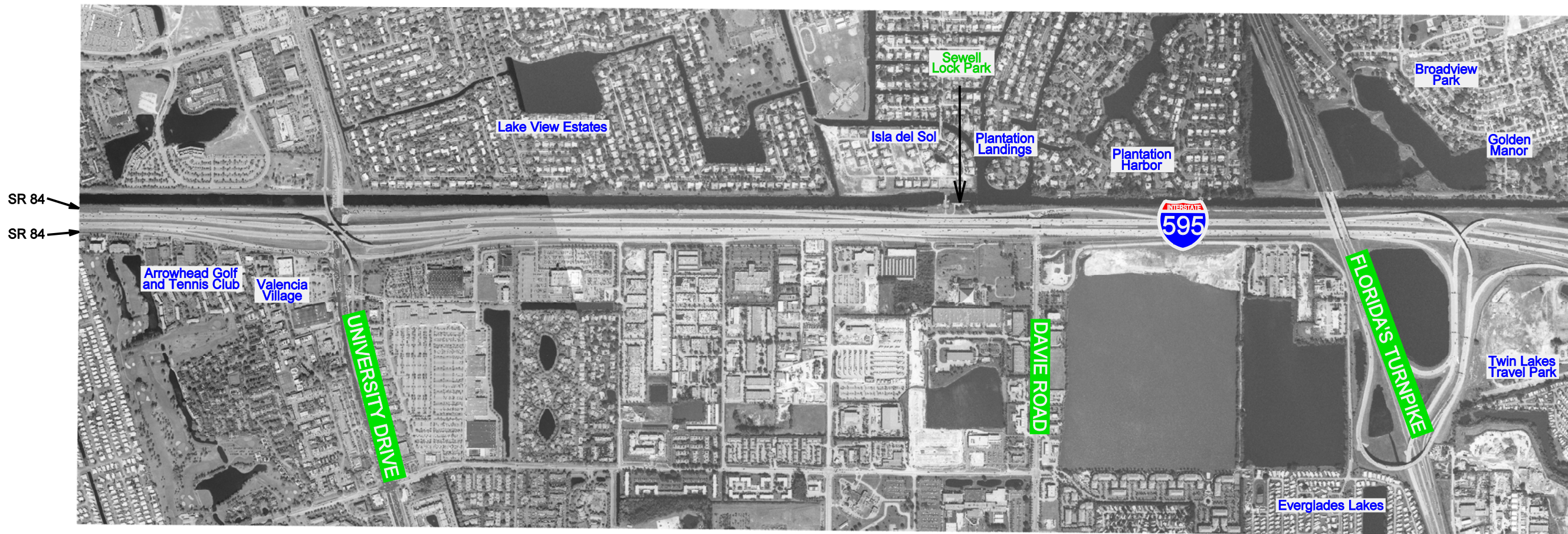
0 0.5 1 2 3 4 Miles

I-595 Project Development and Environment Study
Figure 3-1 Existing Land Use

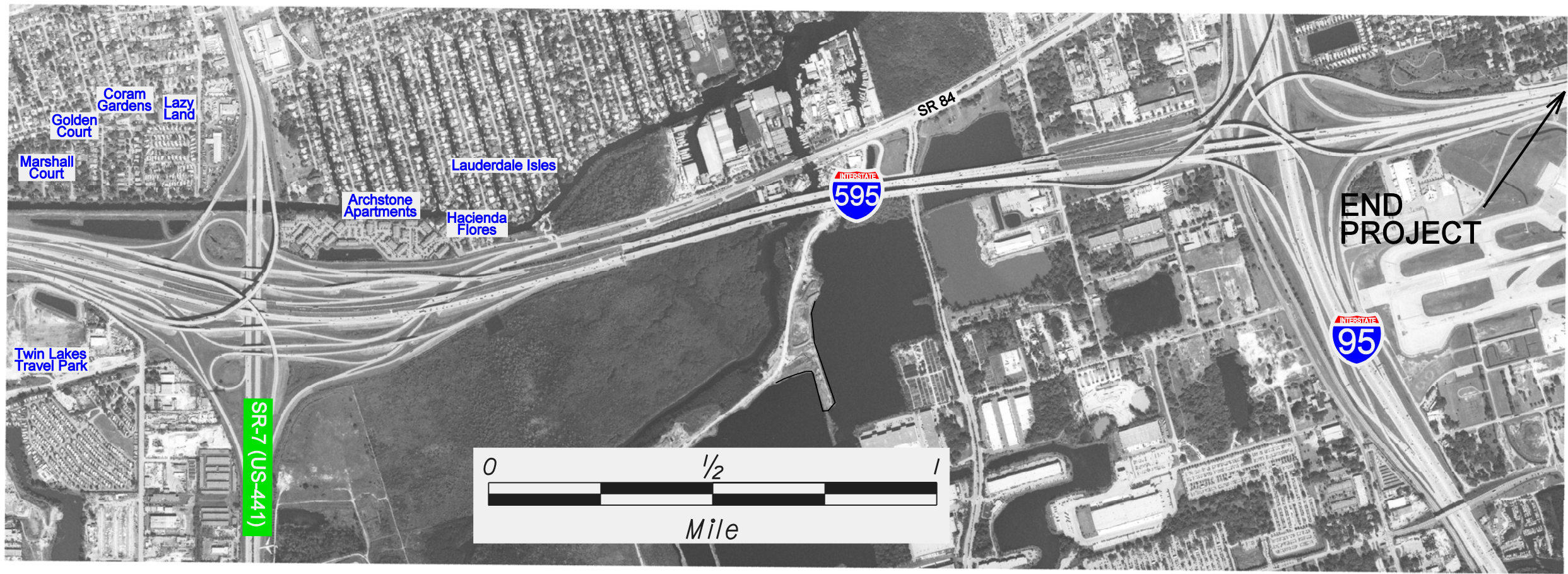


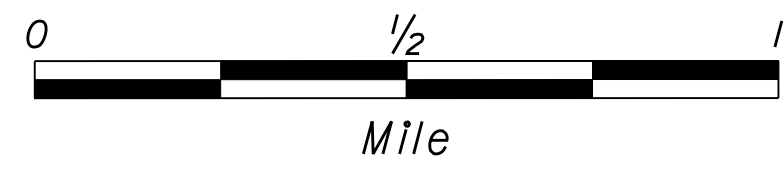
3-2



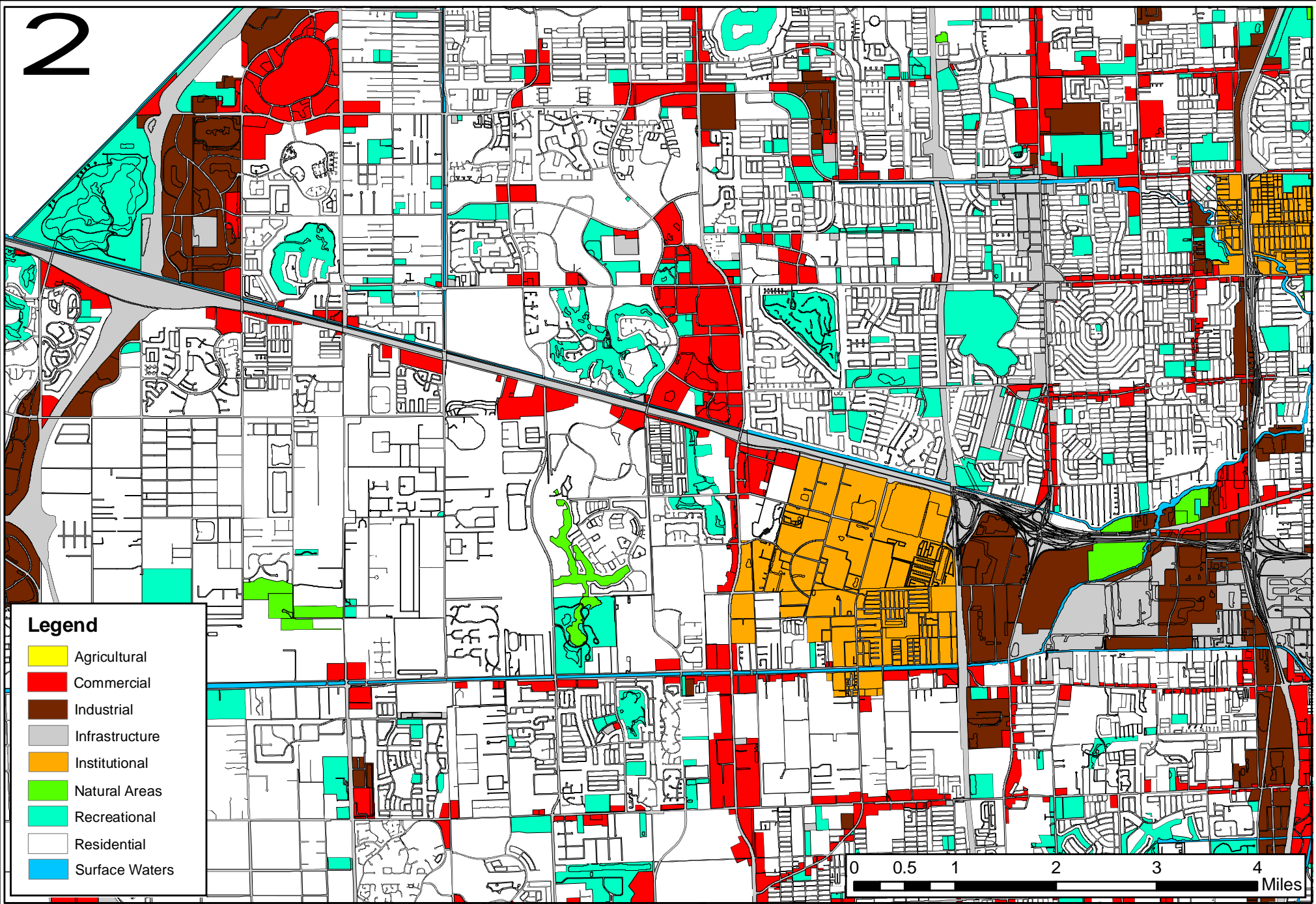


(See Sheet 3 of 3)





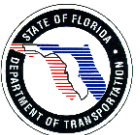
2



3-6



I-595 Project Development and Environment Study
Figure 3-3 Future Land Use





Broward County was designated as an ozone maintenance area under the criteria provided in the Clean Air Act Amendments of 1990 because it was previously an ozone nonattainment area. The Southeast Florida Airshed was originally designated as an ozone nonattainment area in 1979. Pursuant to the Clean Air Act Amendments of 1990, the Florida Department of Environmental Protection (FDEP) was required to develop an air quality maintenance plan for previous nonattainment areas that have come into compliance with the NAAQS. Subsequently, the FDEP has developed and submitted a request for redesignation to attainment status and a ten-year air quality maintenance plan to the EPA as an element of the State Implementation Plan (SIP). This request and the maintenance plan were subsequently approved and became effective on April 27, 1995. The underlying strategy of the maintenance plan to maintain compliance with the 1-hour ozone standard is to assure that current and future emissions of volatile organic compounds (VOC) and nitrogen oxides (NOx) remain at or below attainment year emission levels. The attainment year (1990) is the year that the area came into compliance with the NAAQS. Both peak 8-hour ozone values and the number of exceedances of the 8-hour ozone ambient standard have been reduced from the late 1970's and 1980's to the current period. All monitors in Broward County continue to be in compliance with the 8-hour ozone standard [2005 Attainment Status – Division of Air Resources (FDEP Website, September 29, 2005)].





4.0 AIR QUALITY ANALYSIS

The objective of the air quality analysis was to evaluate the potential impacts of the project on future air quality conditions in the project area. The study included: 1) an evaluation to identify the area along the project corridor which is likely to have the highest CO concentrations based on traffic volumes and proximity to air sensitive sites; 2) an analysis of CO concentrations based on FDOT's Air Quality Screening Model (CO Florida 2004, Version 2.0.5, August 20, 2004); and 3) a comparison of CO concentrations to determine if the emissions associated with the project alternatives would contribute to the exceedance of the NAAQS [i.e., levels that exceed the 1-hour or 8-hour NAAQS for CO, 35 parts per million (ppm) and 9 ppm, respectively]. FDOT's Air Quality Screening Model makes conservative worst-case assumptions about the project involving meteorology, traffic, and site conditions and provides an estimate of the 1-hour and 8-hour CO concentrations at a particular location.

4.1 METHODOLOGY

The No Project Alternative and Alternatives 1B and 2A were evaluated to determine which portion of the study area would have the highest CO concentrations. This evaluation included an assessment of peak-hour traffic volumes. Intersections/interchanges with the highest volume generally will produce the highest emissions. The traffic data used to identify the representative worst case location for CO analysis is summarized in Table 4-1. The volumes presented in Table 4-1 are based on the traffic data presented in the Project's Travel Demand Report (January 2004) and Section 6.0 of the PER and represent the design year (2034) volumes for Alternative 1B. Traffic volumes for Alternative 1B were used because they represent the worst case traffic volumes at these interchanges when compared to the No Project Alternative and Alternative 2A. AM peak hour traffic volumes were used versus PM peak hour volumes. AM peak hour volumes were used to represent worst case conditions because it is generally cooler in the mornings than afternoons and colder temperatures give a higher vehicle emission factor for CO. The interchange with the highest traffic volumes is located at University Drive/I-595 and SR 84. The total AM peak hour directional volume at this interchange is 17,000 vehicles per hour (vph). Nob Hill Road and Davie Road interchanges have the second and third highest AM peak hour directional volumes (16,402 and 15,466 vph, respectively).

The evaluation also considered the closest reasonable air quality receptor sites in the vicinity of signalized intersections. A reasonable receptor site is a place where people can reasonably be expected to spend a significant amount of time, such as a frequently used sidewalk or the front yard of a residence. A receptor site close to an intersection or interchange is expected to have high CO concentrations. Table 4-1 summarizes the distances to the nearest reasonable air quality site at each of the interchanges with signalized intersections. The closest reasonable air quality receptor site to SR 84/I-595 is located at the Flamingo Road interchange. A mobile home residence is located



Table 4-1 Evaluation Data for Identifying Representative Worst Case Air Quality Receptor Site for Analysis of CO Concentrations

Intersection/Interchange Location	Intersection Type (CO Florida 2004 Model)	Closest Air Quality Receiver (Community)	Distance (Feet) From Nearest East West Travel Lane (SR 84)	Design Year (2034) Worst Case Traffic Volumes (Alternative 1B)			
				AM Peak Hour Directional Volume (Vehicles Per Hour)			Total AM Peak Hour Directional Volume (Vehicles Per Hour)
				Northbound/ Southbound Intersection Approach	Eastbound/Westbound Ramp and SR 84 Intersection Approach	Mainline (I-595)	
SW 136th Avenue/I-595 and SR 84	Diamond Interchange	Single Family Residence (Sunshine Village Mobile Home Park)	300	2,052	1,307	9,550	12,909
Flamingo Road/I-595 and SR 84	Diamond Interchange	Single Family Residence (Kings Manor Estates)	35	3,060	1,307	9,720	14,087
Hiatus Road/I-595 and SR 84	Diamond Interchange	Apartment Patio (The Palms Apartment Homes)	125	1,741	586	10,110	12,437
Nob Hill Road/I-595 and SR 84	Diamond Interchange	Condominium Unit (Manaranda Village)	410	3,382	1,460	11,560	16,402
Pine Island Road/I-595 and SR 84	Diamond Interchange	Single Family Residence (Park City Estates)	220	3,711	2,703	9,010	15,424
University Drive/I-595 and SR 84	Diamond Interchange	Single Family Residence (Valencia Village)	50	3,119	3,651	10,230	17,000
Davie Road/I-595 and SR 84	T-Intersection	Single Family Residence (Plantation Harbor)	280	1,882	1,354	12,230	15,466

I:\I-595PD&EStudy\Air Quality\TrafficDataAirQuality.xls|Sheet2



Representative worst case site selected for analysis of CO concentrations based on traffic volumes and proximity of air sensitive sites



approximately 35 feet south of the nearest travel lane of SR 84 and 760 ft west of the nearest travel lane of Flamingo Road. The second closest site is the back yard of an apartment unit in Valencia Village, which is located 50 feet south of SR 84/I-595 and 740 ft west of University Drive.




Of the interchanges with signalized intersections, University Drive has the highest traffic volumes and one of the closest air quality receptor sites. The receptor site at the Flamingo Road interchange is closer; however, the traffic volume at this interchange is 2,913 vph less than at the University Drive interchange. Therefore, the worst-case location with the highest volume and closest receptor site is expected to occur at the University Drive interchange in the back yard of an apartment unit in Valencia Village. The location of this air quality receptor site (RS-1) is depicted on Figure 4-1. Site RS-1 represents the closest reasonable receptor site in the vicinity of the University Drive and I-595/SR 84 interchange. A residential unit further to the west associated with Arrowhead Golf and Tennis Club is 10 ft closer to the SR 84 travel lanes than Site RS-1. However, this site was not considered a reasonable receptor site because an existing 8 ft tall concrete privacy wall is located between SR 84 and this residential unit. The privacy wall would likely affect the dispersion of CO and lower the concentration of CO in this area. Figure 4-1 also depicts the roadway concept for Alternative 1B (Sheet 1 of 2) and the roadway concept for Alternative 2A (Sheet 2 of 2).

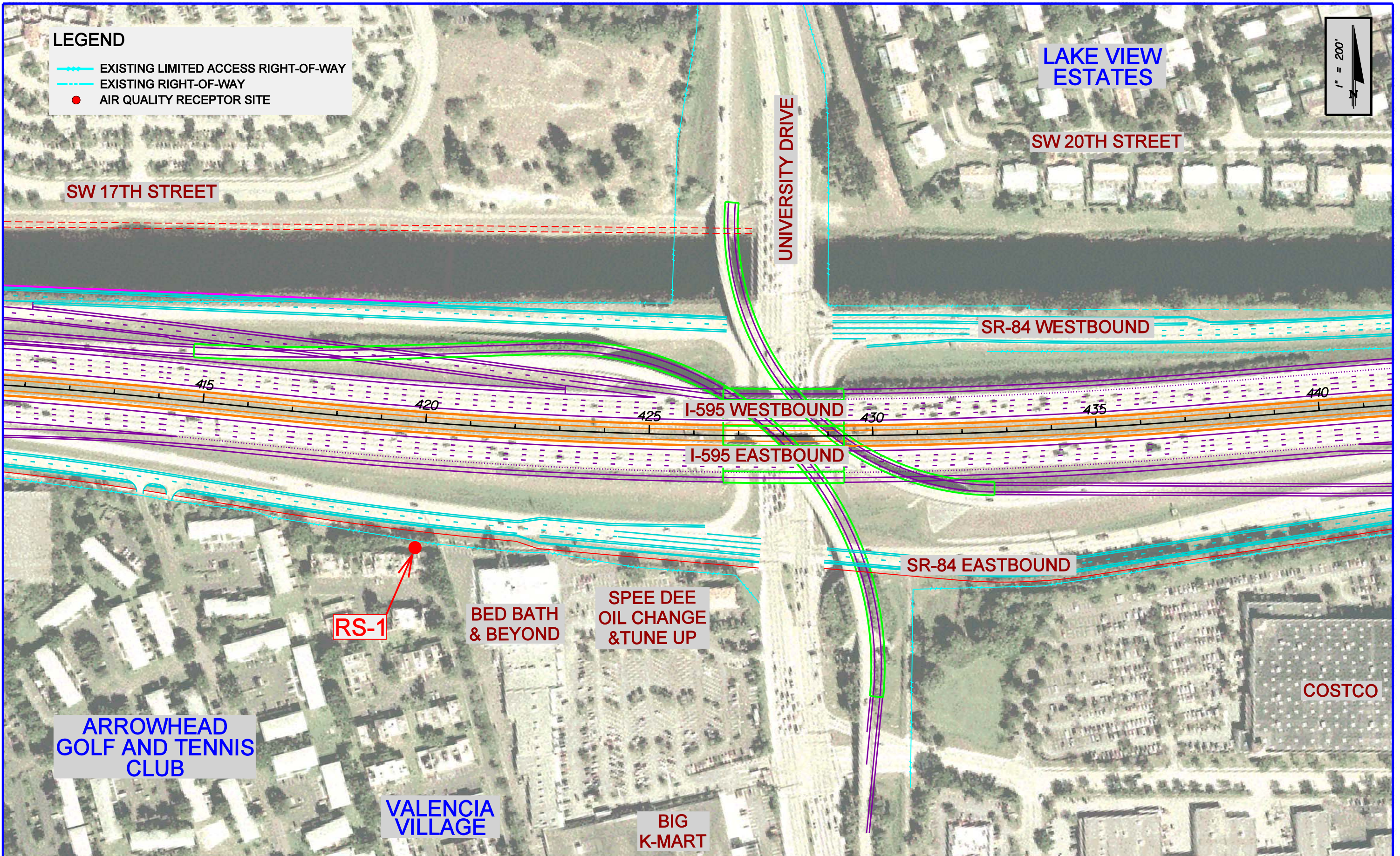
FDOT's Air Quality Screening Model was used to predict future CO concentrations at the representative worst case site for the No Project Alternative and Alternatives 1B and 2A for the first year the project will be open to traffic (2014) and the design year (2034). Because the closest signalized intersection is associated with an interchange (i.e., University Drive and I-595/SR 84), this area was modeled as a diamond interchange with a suburban land use category. Table 4-2 summarizes the traffic data used in the air quality analysis.

FDOT's Screening Model limits the peak-hour directional volume to 9,999 vph. Because I-595 represents a freeway with free flow conditions and does not involve an intersection, it is assumed that the project does not automatically fail the screening test because peak hour volume exceeded 10,000 vph, the limit for an intersection approach volume. To account for the CO emissions for the traffic volumes on I-595 mainline and on the reversible lanes, separate model runs were conducted and the emissions from each were summed to provide a total CO concentration at the closest reasonable receptor site. For the additional runs, only the emissions above the background contribution of 2.0 ppm were included in the total.



LEGEND

-  EXISTING LIMITED ACCESS RIGHT-OF-WAY
-  EXISTING RIGHT-OF-WAY
-  AIR QUALITY RECEPTOR SITE



LEGEND

- EXISTING LIMITED ACCESS RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- AIR QUALITY RECEPTOR SITE

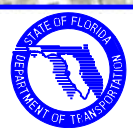
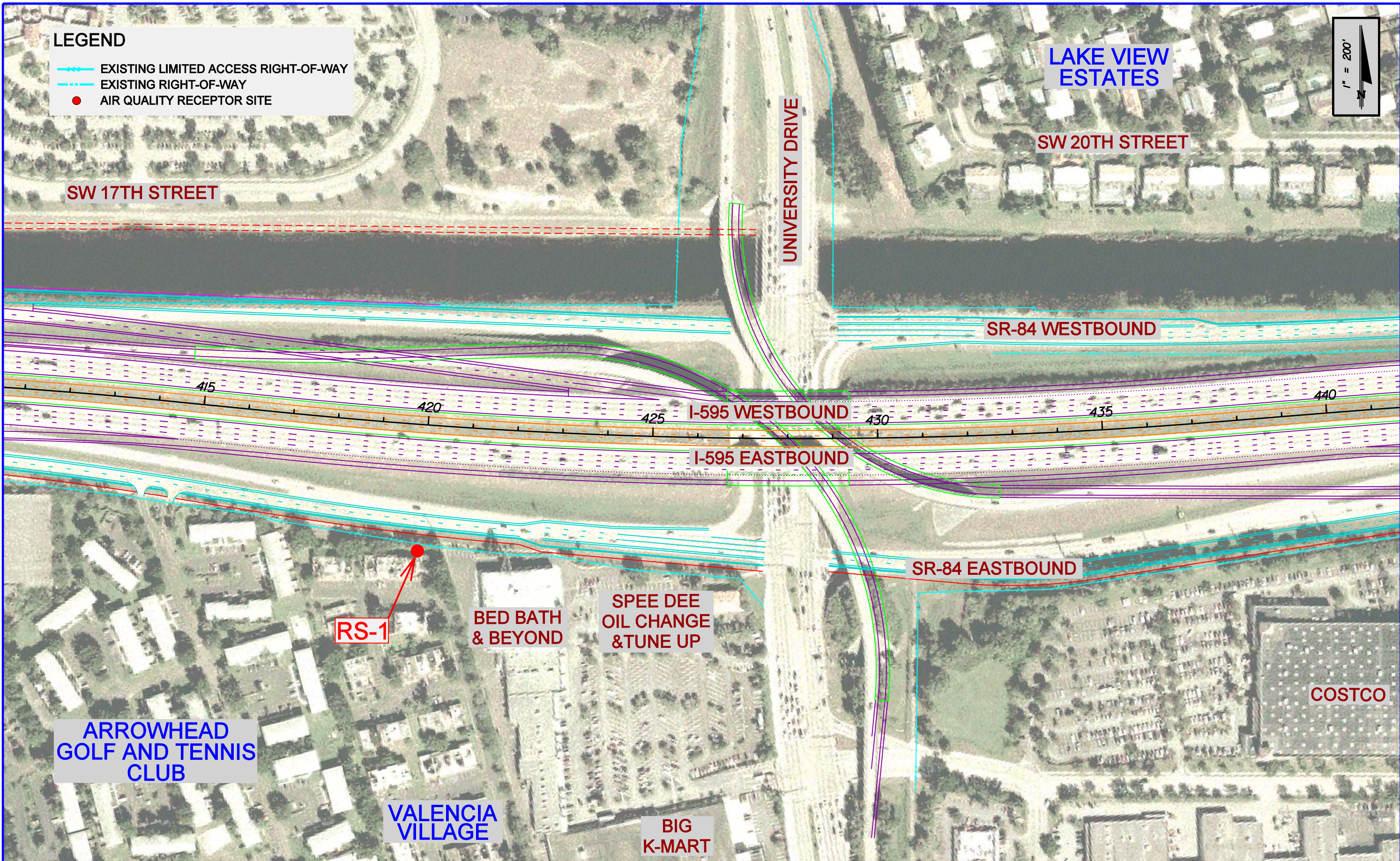
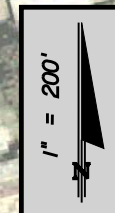


Table 4-2 Traffic Data

Roadway Type	Roadway (ID)	Roadway Segment ID	Roadway Segment	First Year Open (2014)				Design Year (2034)					
				No Build Alternative		Alternatives 1B and 2A		No Build Alternative		Alternative 1B		Alternative 2A	
				Vehicles per Hour	Cruise Speed (mph)	Vehicles per Hour	Cruise Speed (mph)	Vehicles per Hour	Cruise Speed (mph)	Vehicles per Hour	Cruise Speed (mph)	Vehicles per Hour	Cruise Speed (mph)
Freeway	I-595 Eastbound (1)	A	Through Traffic	7,822	65	6,574	65	12,630	65	8,630	65	7,488	65
		B	Exit Ramp Left Turn Lane (Northbound)	858	45	858	45	1,049	45	1,049	45	1,049	45
		C	Exit Ramp Right Turn/Through Lanes (Southbound/Eastbound)	2,335	45	2,335	45	1,301	45	1,301	45	1,301	45
	I-595 Westbound (2)	D	Through Traffic	7,232	65	7,877	65	10,230	65	10,230	65	10,230	65
		E	Exit Ramp Left Turn Lane (Southbound)	870	45	870	45	1,172	45	1,172	45	1,172	45
		F	Exit Ramp Right Turn/Through Lanes (Northbound/Westbound)	1,677	45	1,677	45	2,362	45	2,362	45	2,362	45
I-595 Reversible Lanes (1/2)	A1/D1	Reversible Lanes	--	--	--	--	--	--	4,000	65	5,142	65	
Arterial	University Drive Southbound (3)	G	Through Traffic	1,575	45	1,575	45	1,876	45	1,876	45	1,876	45
		H	Left Turn Lane (Entrance Ramp Eastbound I-595)	345	45	345	45	117	45	117	45	117	45
		I	Right Turn Lane (Entrance Ramp Westbound I-595)	435	45	435	45	645	45	645	45	645	45
	University Drive Northbound (4)	J	Through Traffic	1,112	45	1,112	45	1,466	45	1,466	45	1,466	45
		K	Left Turn Lane (Entrance Ramp Westbound I-595)	76	45	76	45	117	45	117	45	117	45
		L	Right Turn Lane (Entrance Ramp Eastbound I-595)	1,187	45	1,187	45	1,653	45	1,653	45	1,653	45

I:\I-595PD&EStudy\Air Quality\TrafficDataAirQuality.xls]Sheet1



4.2 AIR QUALITY EVALUATION AND RESULTS

The results of the screening test are summarized in Table 4-3. The CO Florida 2004 computer printout of the input data and results are included in Appendix B. The predicted worst-case 1-hour and 8-hour CO concentrations for the No Project Alternative and Alternatives 1B and 2A are below the NAAQS of 35 ppm for 1-hour concentrations and 9 ppm for 8-hour concentrations. Therefore, based on the results of FDOT’s Air Quality Screening Test, the proposed project will not cause or contribute to an exceedance of the 1-hour and 8-hour NAAQS for CO or have a significant adverse impact on air quality. In addition, because this project does not cause violations of any of the NAAQS, it is in conformance with the SIP.

Table 4-3. Predicted CO Concentrations

Alternative	Year	Distance (ft)*	Maximum 1-Hour CO Concentration (ppm)	Maximum 8-Hour CO Concentration (ppm)
No Project	First Year Open 2014	50	10.3	6.2
	Design Year 2034		12.9	7.0
Alternative 1B	First Year Open 2014	50	10.1	6.1
	Design Year 2034		14.9	7.4
Alternative 2A	First Year Open 2014	50	10.1	6.1
	Design Year 2034		15.5	6.8

*Note: Distance to the nearest air quality receptor site from the edge of nearest travel lane (i.e., SR 84).





5.0 CONSTRUCTION

Construction activities will cause minor short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to all State and local regulations and to the latest edition of the FDOT's *Standard Specifications for Road and Bridge Construction*.





6.0 COORDINATION

Federal, state, and local agencies were provided with an opportunity to comment on this project during the Advance Notification phase of the project. There were no adverse comments regarding air quality.

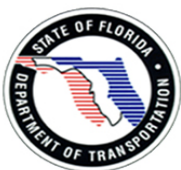
The project is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.





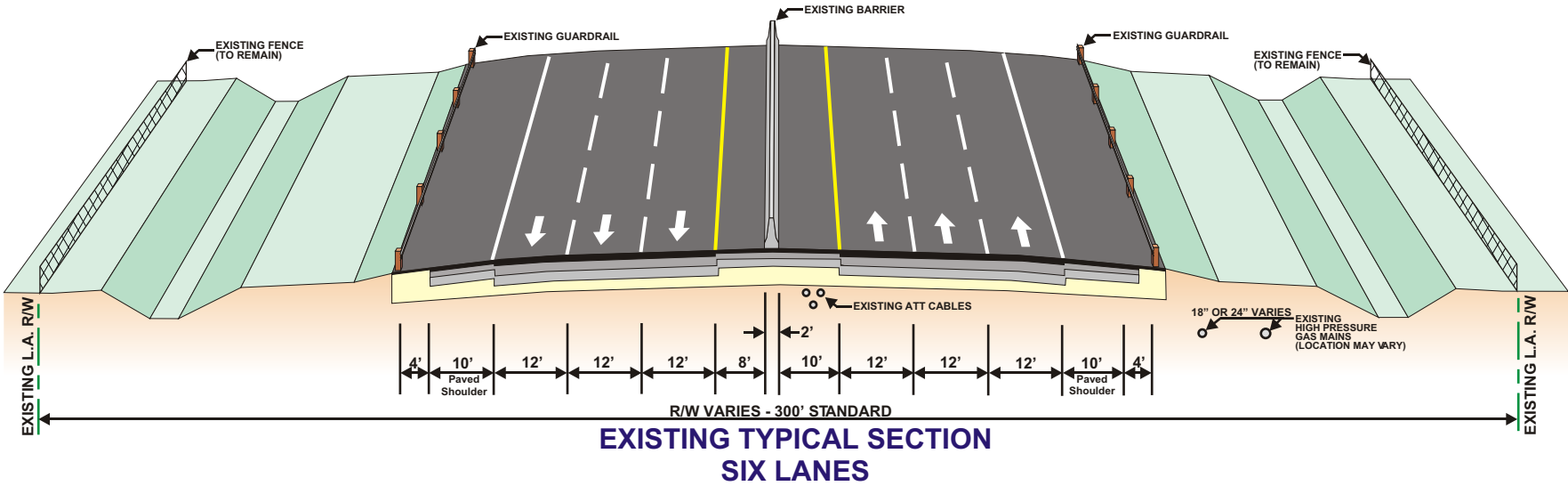
APPENDIX A

**EXISTING AND PROPOSED TYPICAL SECTIONS
WIDENING FLORIDA'S TURNPIKE PROJECT FROM GRIFFIN ROAD
TO NORTH OF SUNRISE BOULEVARD
FINANCIAL PROJECT ID NO.: 406094-1
NOISE STUDY REPORT (JULY 8, 2005)**



FLORIDA'S TURNPIKE FROM GRIFFIN ROAD TO NORTH OF SUNRISE BOULEVARD LOOKING NORTH

A-1



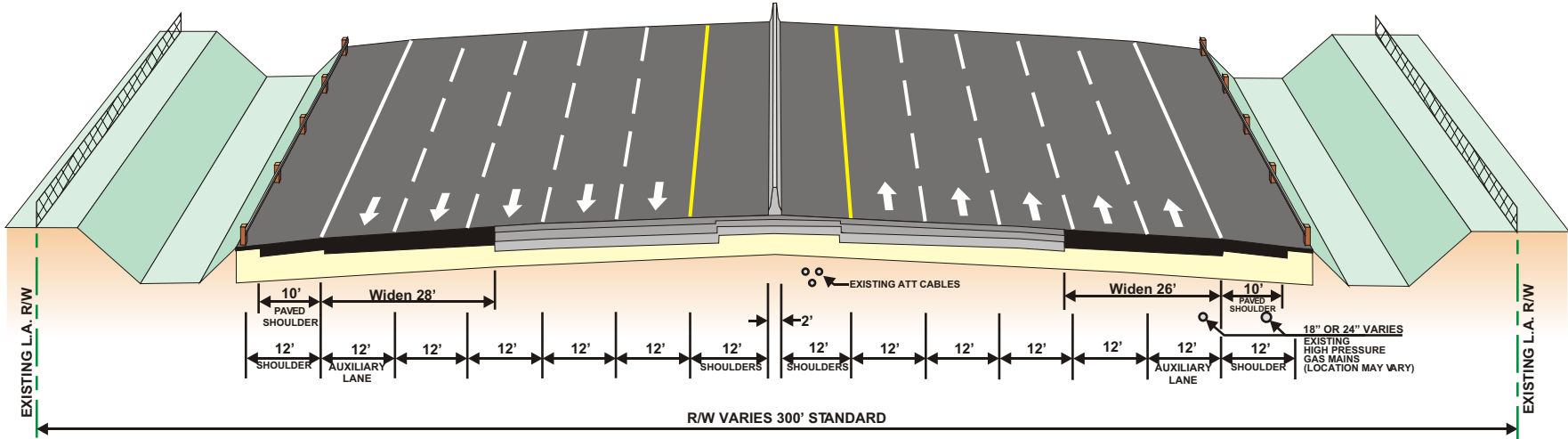
**WIDENING FLORIDA'S TURNPIKE FROM
GRIFFIN ROAD TO NORTH OF SUNRISE BOULEVARD
FINANCIAL PROJECT NO.: 406094-1**



**FIGURE 2-1. FLORIDA'S TURNPIKE
EXISTING TYPICAL SECTION**

FLORIDA'S TURNPIKE FROM GRIFFIN ROAD TO NORTH OF SUNRISE BOULEVARD LOOKING NORTH

A-2



**PROPOSED TYPICAL SECTION
EIGHT LANES WITH TWO AUXILIARY LANES**

**WIDENING FLORIDA'S TURNPIKE FROM
GRIFFIN ROAD TO NORTH OF SUNRISE BOULEVARD
FINANCIAL PROJECT NO.: 406094-1**



**FIGURE 2-3. FLORIDA'S TURNPIKE
PROPOSED TYPICAL SECTION**



APPENDIX B
AIR QUALITY SCREENING MODEL RESULTS
CO Florida 2004 (Version 2.0.5)



CO Florida 2004

Project: I-595 PD&E Study - No Project First Year Open (2014)
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2014
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 11015 veh/hour
 Max Arterial Traffic: 2375 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	East-West Distance	North-South Distance
Receptor Name	from Intersection	from Intersection
Height		
-----	-----	-----
6 Default Rec 1	50	1020
6 Default Rec 2	50	50
6 Default Rec 3	50	50
6 Default Rec 4	150	50
6 Default Rec 5	50	-1020
6 Default Rec 6	50	-50
6 Default Rec 7	50	-50
6 Default Rec 8	150	-50
6 Default Rec 9	-50	-1020
6 Default Rec 10	-50	-50
6 Default Rec 11	-50	-50
6 Default Rec 12	-150	-50
6 Default Rec 13	-50	1020
6 Default Rec 14	-50	50
6 Default Rec 15	-50	50
6 Default Rec 16	-150	50
6 RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	11.0	6.6
Default Rec 2	10.3	6.2
Default Rec 3	10.3	6.2
Default Rec 4	8.5	5.1
Default Rec 5	11.8	7.1
Default Rec 6	9.1	5.5
Default Rec 7	9.1	5.5
Default Rec 8	8.1	4.9
Default Rec 9	11.0	6.6
Default Rec 10	10.3	6.2
Default Rec 11	10.3	6.2
Default Rec 12	8.5	5.1
Default Rec 13	11.8	7.1
Default Rec 14	9.1	5.5
Default Rec 15	9.1	5.5
Default Rec 16	8.1	4.9
RS-1	10.3	6.2

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternatives 1B and 2A First Year Open (2014)
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2014
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 10424 veh/hour
 Max Arterial Traffic: 2375 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
6	Default Rec 1	50	1020
6	Default Rec 2	50	50
6	Default Rec 3	50	50
6	Default Rec 4	150	50
6	Default Rec 5	50	-1020
6	Default Rec 6	50	-50
6	Default Rec 7	50	-50
6	Default Rec 8	150	-50
6	Default Rec 9	-50	-1020
6	Default Rec 10	-50	-50
6	Default Rec 11	-50	-50
6	Default Rec 12	-150	-50
6	Default Rec 13	-50	1020
6	Default Rec 14	-50	50
6	Default Rec 15	-50	50
6	Default Rec 16	-150	50
6	RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
-----	-----	-----
Default Rec 1	10.9	6.6
Default Rec 2	10.1	6.1
Default Rec 3	10.1	6.1
Default Rec 4	8.3	5.0
Default Rec 5	11.6	7.0
Default Rec 6	9.0	5.4
Default Rec 7	9.0	5.4
Default Rec 8	7.9	4.8
Default Rec 9	10.9	6.6
Default Rec 10	10.1	6.1
Default Rec 11	10.1	6.1
Default Rec 12	8.3	5.0
Default Rec 13	11.6	7.0
Default Rec 14	9.0	5.4
Default Rec 15	9.0	5.4
Default Rec 16	7.9	4.8
RS-1	10.1	6.1

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - No Project Design Year (2034) 1 of 2
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 13533 veh/hour
 Max Arterial Traffic: 3236 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
6	Default Rec 1	50	1020
6	Default Rec 2	50	50
6	Default Rec 3	50	50
6	Default Rec 4	150	50
6	Default Rec 5	50	-1020
6	Default Rec 6	50	-50
6	Default Rec 7	50	-50
6	Default Rec 8	150	-50
6	Default Rec 9	-50	-1020
6	Default Rec 10	-50	-50
6	Default Rec 11	-50	-50
6	Default Rec 12	-150	-50
6	Default Rec 13	-50	1020
6	Default Rec 14	-50	50
6	Default Rec 15	-50	50
6	Default Rec 16	-150	50
6	RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	11.1	6.7
Default Rec 2	10.3	6.2
Default Rec 3	10.3	6.2
Default Rec 4	8.7	5.2
Default Rec 5	12.0	7.2
Default Rec 6	9.2	5.5
Default Rec 7	9.2	5.5
Default Rec 8	8.2	4.9
Default Rec 9	11.1	6.7
Default Rec 10	10.3	6.2
Default Rec 11	10.3	6.2
Default Rec 12	8.7	5.2
Default Rec 13	12.0	7.2
Default Rec 14	9.2	5.5
Default Rec 15	9.2	5.5
Default Rec 16	8.2	4.9
RS-1	10.4	6.3

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - No Project Design Year (2034) 2 of 2
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 2633 veh/hour
 Max Arterial Traffic: 3 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	East-West Distance	North-South Distance
Receptor Name	from Intersection	from Intersection
Height		
-----	-----	-----
6 Default Rec 1	50	1020
6 Default Rec 2	50	50
6 Default Rec 3	50	50
6 Default Rec 4	150	50
6 Default Rec 5	50	-1020
6 Default Rec 6	50	-50
6 Default Rec 7	50	-50
6 Default Rec 8	150	-50
6 Default Rec 9	-50	-1020
6 Default Rec 10	-50	-50
6 Default Rec 11	-50	-50
6 Default Rec 12	-150	-50
6 Default Rec 13	-50	1020
6 Default Rec 14	-50	50
6 Default Rec 15	-50	50
6 Default Rec 16	-150	50
6 RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	4.9	3.0
Default Rec 2	4.1	2.5
Default Rec 3	4.1	2.5
Default Rec 4	3.9	2.4
Default Rec 5	4.9	3.0
Default Rec 6	4.1	2.5
Default Rec 7	4.1	2.5
Default Rec 8	3.9	2.4
Default Rec 9	4.9	3.0
Default Rec 10	4.1	2.5
Default Rec 11	4.1	2.5
Default Rec 12	3.9	2.4
Default Rec 13	4.9	3.0
Default Rec 14	4.1	2.5
Default Rec 15	4.1	2.5
Default Rec 16	3.9	2.4
RS-1	4.5	2.7

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternative 1B Design Year (2034) 1 of 3
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 13533 veh/hour
 Max Arterial Traffic: 3236 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
6	Default Rec 1	50	1020
6	Default Rec 2	50	50
6	Default Rec 3	50	50
6	Default Rec 4	150	50
6	Default Rec 5	50	-1020
6	Default Rec 6	50	-50
6	Default Rec 7	50	-50
6	Default Rec 8	150	-50
6	Default Rec 9	-50	-1020
6	Default Rec 10	-50	-50
6	Default Rec 11	-50	-50
6	Default Rec 12	-150	-50
6	Default Rec 13	-50	1020
6	Default Rec 14	-50	50
6	Default Rec 15	-50	50
6	Default Rec 16	-150	50
6	RS-1	-50	740

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	11.1	6.7
Default Rec 2	10.3	6.2
Default Rec 3	10.3	6.2
Default Rec 4	8.7	5.2
Default Rec 5	12.0	7.2
Default Rec 6	9.2	5.5
Default Rec 7	9.2	5.5
Default Rec 8	8.2	4.9
Default Rec 9	11.1	6.7
Default Rec 10	10.3	6.2
Default Rec 11	10.3	6.2
Default Rec 12	8.7	5.2
Default Rec 13	12.0	7.2
Default Rec 14	9.2	5.5
Default Rec 15	9.2	5.5
Default Rec 16	8.2	4.9
RS-1	10.3	6.2

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternative 1B Design Year (2034) 2 of 3
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 233 veh/hour
 Max Arterial Traffic: 3 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
6	Default Rec 1	50	1020
6	Default Rec 2	50	50
6	Default Rec 3	50	50
6	Default Rec 4	150	50
6	Default Rec 5	50	-1020
6	Default Rec 6	50	-50
6	Default Rec 7	50	-50
6	Default Rec 8	150	-50
6	Default Rec 9	-50	-1020
6	Default Rec 10	-50	-50
6	Default Rec 11	-50	-50
6	Default Rec 12	-150	-50
6	Default Rec 13	-50	1020
6	Default Rec 14	-50	50
6	Default Rec 15	-50	50
6	Default Rec 16	-150	50
6	RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	3.5	2.1
Default Rec 2	3.3	2.0
Default Rec 3	3.3	2.0
Default Rec 4	3.3	2.0
Default Rec 5	3.5	2.1
Default Rec 6	3.3	2.0
Default Rec 7	3.3	2.0
Default Rec 8	3.3	2.0
Default Rec 9	3.5	2.1
Default Rec 10	3.3	2.0
Default Rec 11	3.3	2.0
Default Rec 12	3.3	2.0
Default Rec 13	3.5	2.1
Default Rec 14	3.3	2.0
Default Rec 15	3.3	2.0
Default Rec 16	3.3	2.0
RS-1	3.4	2.1

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternative 1B Design Year (2034) 3 of 3
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 4002 veh/hour
 Max Arterial Traffic: 3 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
6	Default Rec 1	266	1020
6	Default Rec 2	266	50
6	Default Rec 3	50	266
6	Default Rec 4	150	266
6	Default Rec 5	266	-1020
6	Default Rec 6	266	-50
6	Default Rec 7	50	-266
6	Default Rec 8	150	-266
6	Default Rec 9	-266	-1020
6	Default Rec 10	-266	-50
6	Default Rec 11	-50	-266
6	Default Rec 12	-150	-266
6	Default Rec 13	-266	1020
6	Default Rec 14	-266	50
6	Default Rec 15	-50	266
6	Default Rec 16	-150	266
6	RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	4.3	2.6
Default Rec 2	4.1	2.5
Default Rec 3	4.7	2.8
Default Rec 4	4.3	2.6
Default Rec 5	4.3	2.6
Default Rec 6	4.1	2.5
Default Rec 7	4.7	2.8
Default Rec 8	4.3	2.6
Default Rec 9	4.3	2.6
Default Rec 10	4.1	2.5
Default Rec 11	4.7	2.8
Default Rec 12	4.3	2.6
Default Rec 13	4.3	2.6
Default Rec 14	4.1	2.5
Default Rec 15	4.7	2.8
Default Rec 16	4.3	2.6
RS-1	5.2	3.1

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternative 2A Design Year (2034) 1 of 3
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 13533 veh/hour
 Max Arterial Traffic: 3236 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
6	Default Rec 1	50	1020
6	Default Rec 2	50	50
6	Default Rec 3	50	50
6	Default Rec 4	150	50
6	Default Rec 5	50	-1020
6	Default Rec 6	50	-50
6	Default Rec 7	50	-50
6	Default Rec 8	150	-50
6	Default Rec 9	-50	-1020
6	Default Rec 10	-50	-50
6	Default Rec 11	-50	-50
6	Default Rec 12	-150	-50
6	Default Rec 13	-50	1020
6	Default Rec 14	-50	50
6	Default Rec 15	-50	50
6	Default Rec 16	-150	50
6	RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	11.1	6.7
Default Rec 2	10.3	6.2
Default Rec 3	10.3	6.2
Default Rec 4	8.7	5.2
Default Rec 5	12.0	7.2
Default Rec 6	9.2	5.5
Default Rec 7	9.2	5.5
Default Rec 8	8.2	4.9
Default Rec 9	11.1	6.7
Default Rec 10	10.3	6.2
Default Rec 11	10.3	6.2
Default Rec 12	8.7	5.2
Default Rec 13	12.0	7.2
Default Rec 14	9.2	5.5
Default Rec 15	9.2	5.5
Default Rec 16	8.2	4.9
RS-1	10.4	6.3

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternative 2A Design Year (2034) 2 of 3
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 233 veh/hour
 Max Arterial Traffic: 3 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	East-West Distance	North-South Distance
Receptor Name	from Intersection	from Intersection
Height		
-----	-----	-----
6 Default Rec 1	50	1020
6 Default Rec 2	50	50
6 Default Rec 3	50	50
6 Default Rec 4	150	50
6 Default Rec 5	50	-1020
6 Default Rec 6	50	-50
6 Default Rec 7	50	-50
6 Default Rec 8	150	-50
6 Default Rec 9	-50	-1020
6 Default Rec 10	-50	-50
6 Default Rec 11	-50	-50
6 Default Rec 12	-150	-50
6 Default Rec 13	-50	1020
6 Default Rec 14	-50	50
6 Default Rec 15	-50	50
6 Default Rec 16	-150	50
6 RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	3.5	2.1
Default Rec 2	3.3	2.0
Default Rec 3	3.3	2.0
Default Rec 4	3.3	2.0
Default Rec 5	3.5	2.1
Default Rec 6	3.3	2.0
Default Rec 7	3.3	2.0
Default Rec 8	3.3	2.0
Default Rec 9	3.5	2.1
Default Rec 10	3.3	2.0
Default Rec 11	3.3	2.0
Default Rec 12	3.3	2.0
Default Rec 13	3.5	2.1
Default Rec 14	3.3	2.0
Default Rec 15	3.3	2.0
Default Rec 16	3.3	2.0
RS-1	3.4	2.1

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE
PREDICTED

**

CO Florida 2004

Project: I-595 PD&E Study - Alternative 2A Design Year (2034) 3 of 3
 Facility: I-595/SR 84 and University Drive
 Analyst: Rick Langlass

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: 2034
 Intersection Type: Diamond Interchange
 Max Freeway Traffic: 5144 veh/hour
 Max Arterial Traffic: 3 veh/hour
 Freeway Speed: 65
 Arterial Speed: 45

Receptor Data (all distances are in feet):

Receptor	Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection
Height			
6	Default Rec 1	260	1020
6	Default Rec 2	260	50
6	Default Rec 3	50	260
6	Default Rec 4	150	260
6	Default Rec 5	260	-1020
6	Default Rec 6	260	-50
6	Default Rec 7	50	-260
6	Default Rec 8	150	-260
6	Default Rec 9	-260	-1020
6	Default Rec 10	-260	-50
6	Default Rec 11	-50	-260
6	Default Rec 12	-150	-260
6	Default Rec 13	-260	1020
6	Default Rec 14	-260	50
6	Default Rec 15	-50	260
6	Default Rec 16	-150	260
6	RS-1	-50	750

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	4.6	2.8
Default Rec 2	4.2	2.5
Default Rec 3	5.0	3.0
Default Rec 4	4.6	2.8
Default Rec 5	4.6	2.8
Default Rec 6	4.2	2.5
Default Rec 7	5.0	3.0
Default Rec 8	4.6	2.8
Default Rec 9	4.6	2.8
Default Rec 10	4.2	2.5
Default Rec 11	5.0	3.0
Default Rec 12	4.6	2.8
Default Rec 13	4.6	2.8
Default Rec 14	4.2	2.5
Default Rec 15	5.0	3.0
Default Rec 16	4.6	2.8
RS-1	5.7	3.4

**

PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED

**