



# **NOISE STUDY REPORT**

**for the**

**WEKIVA PARKWAY (SR 429)/SR 46 REALIGNMENT PROJECT  
DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY**

**Orange, Lake, and Seminole Counties, Florida**

**Financial Project ID: 238275 1 22 01 and 240200 1 22 01**

**Federal Aid Project Number: TBD**

**Prepared for**

**Orlando-Orange County Expressway Authority**

**and**

**Florida Department of Transportation, District Five**

**Prepared by**



**March 2012**

# Table of Contents

---

Section	Page
Executive Summary .....	vi
<b>1. Project Summary.....</b>	<b>1-1</b>
1.1 Project Background.....	1-1
1.2 Project Purpose and Need .....	1-3
1.3 Project Description.....	1-6
1.4 Analysis of Alignment Alternatives.....	1-7
1.4.1 Initial Alternatives .....	1-7
1.4.2 Viable Alternatives .....	1-8
1.4.3 Recommended Preferred Alternative .....	1-8
1.5 Purpose of the Noise Study Report.....	1-15
<b>2. Existing Conditions.....</b>	<b>2-1</b>
2.1 Existing Land Use.....	2-1
<b>3. Proposed Conditions.....</b>	<b>3-1</b>
3.1 Typical Sections.....	3-1
3.1.1 Limited Access Rural Expressway .....	3-1
3.1.2 Limited Access Rural Expressway with Service Road .....	3-1
3.1.3 Limited Access Urban Expressway with Frontage Roads .....	3-1
3.1.4 Controlled Access Urban Arterial .....	3-5
3.1.5 Rural Arterial.....	3-5
3.2 Future Land Use .....	3-8
<b>4. Methodology.....</b>	<b>4-1</b>
4.1 Noise Sensitive Sites .....	4-1
4.2 Noise Impact Evaluation .....	4-1
<b>5. Traffic Noise Analysis .....</b>	<b>5-2</b>
5.1 Measured Noise Levels.....	5-2
5.2 Noise Model .....	5-5
5.3 Noise Impact Analysis .....	5-5
5.3.1 Orange County Preferred Alternative .....	5-6
5.3.2 Lake County West Preferred Alternative .....	5-8
5.3.3 Lake County East Preferred Alternative.....	5-8
5.3.4 Seminole County Preferred Alternative .....	5-11
5.3.5 Summary of Noise Impacts .....	5-14
5.4 Noise Abatement .....	5-16
5.4.1 Orange County Preferred Alternative .....	5-18
5.4.2 Lake County West Preferred Alternative .....	5-29
5.4.3 Lake County East Preferred Alternative.....	5-36
5.4.4 Seminole County Preferred Alternative .....	5-38
5.4.5 Recommendations and Conclusions .....	5-54



<b>6. Construction Noise and Vibration .....</b>	<b>6-1</b>
6.1 Impact Assessment.....	6-1
6.2 Recommendations .....	6-1

## Appendices

### Appendix A Impact Tables

<b>List of Tables</b>	<b>Page</b>
Table ES-1 Summary of Preferred Alternative Noise Impacts .....	vii
Table 4-1 FHWA and FDOT Noise Abatement Criteria .....	4-2
Table 5-1 Existing Noise Levels.....	5-4
Table 5-2 Existing and Design Year Traffic Volumes.....	5-5
Table 5-3 Summary of Preferred Alternative Noise Impacts .....	5-14
Table 5-4 Barrier Analysis for Area North of Southfork Drive, West of Proposed Alignment.....	5-18
Table 5-5 Barrier Analysis for Area North of Yothers Road, West of Proposed Alignment.....	5-18
Table 5-6 Barrier Analysis for Area North of Ponkan Road, West of Proposed Alignment.....	5-20
Table 5-7 Barrier Analysis for Area Between Kelly Park Road and Ponkan Road.....	5-20
Table 5-8 Barrier Analysis for Area South of Kelly Park Road, East of Proposed Alignment.....	5-22
Table 5-9 Barrier Analysis for Kelly Park Road Area, West of Proposed Alignment.....	5-22
Table 5-10 Barrier Analysis for Smith Emery Subdivision .....	5-25
Table 5-11 Barrier Analysis for Smith Lake and Chaudoin Hills Subdivision .....	5-25
Table 5-12 Barrier Analysis for Area West of Plymouth Sorrento Road, North of Ondich Road and South of Proposed Alignment .....	5-25
Table 5-13 Barrier Analysis for Area West of Plymouth Sorrento Road and North of Proposed alignment.....	5-27
Table 5-14 Barrier Analysis for Area Near Lake County/Orange County Line .....	5-27
Table 5-15 Barrier Analysis for Area (1) South of Boch Road and North of Proposed Alignment.....	5-27

Table 5-16	Barrier Analysis for Area (2) South of Boch Road and North of Proposed Alignment.....	5-29
Table 5-17	Barrier Analysis for Area South of Proposed Alignment and North of Haas Road.....	5-29
Table 5-18	Barrier Analysis for Lake Franklin Park Subdivision .....	5-31
Table 5-19	Barrier Analysis for Southernaire Mobile Home Park, Cobble Hill Village and Dorset of Mount Dora.....	5-30
Table 5-20	Barrier Analysis for Summerbrooke at Mount Dora Subdivision.....	5-33
Table 5-21	Barrier Analysis for Top of the Hill and Hacienda Hill Subdivisions ...	5-33
Table 5-22	Barrier Analysis for Coronado Somerset Drive Area.....	5-36
Table 5-23	Barrier Analysis for Mount Plymouth Golf Club .....	5-36
Table 5-24	Barrier Analysis for Mount Plymouth Subdivision South of SR 46 .....	5-36
Table 5-25	Barrier Analysis for Area East of Old McDonald Road, North of Proposed Alignment .....	5-38
Table 5-26	Barrier Analysis for Area East of Wekiva River Road, South of Proposed Alignment.....	5-38
Table 5-27	Barrier Analysis for Area West of Lower Wekiva River Preserve and North of SR 46.....	5-42
Table 5-28	Barrier Analysis for Wekiva River Oaks, Estates at Wekiva Park and Foxspur .....	5-42
Table 5-29	Barrier Analysis for Markham Forest, Ross Lake Shores and Bella Foresta.....	5-45
Table 5-30	Barrier Analysis for Sylvan Glade.....	5-45
Table 5-31	Barrier Analysis for Area West of Florida Fancy Nursery .....	5-45
Table 5-32	Barrier Analysis for Twelve Oaks RV Resort .....	5-47
Table 5-33	Barrier Analysis for Alderene Park.....	5-47
Table 5-34	Barrier Analysis for Capri Cove .....	5-50
Table 5-35	Barrier Analysis for Lakeside Methodist Church .....	5-50
Table 5-36	Barrier Analysis for Academy of Learning.....	5-50
Table 5-37	Barrier Analysis for Residences South of Academy of Learning.....	5-52
Table 5-38	Barrier Analysis for Tall Trees .....	5-52
Table 5-39	Barrier Analysis for Ballantrae Apartments .....	5-54
Table 5-40	Summary of Noise Barrier Analysis .....	5-54

<b>List of Exhibits</b>	<b>Page</b>
Exhibit 1-1	Wekiva Parkway Study Area..... 1-2
Exhibit 1-2	Regional Transportation Network – Congested SIS Facilities ..... 1-4
Exhibit 1-3	Overall Preferred Alternative ..... 1-9
Exhibit 1-4	Orange County Preferred Alternative..... 1-11
Exhibit 1-5	Lake County West Preferred Alternative..... 1-12
Exhibit 1-6	Lake County East Preferred Alternative ..... 1-13
Exhibit 1-7	Seminole County Preferred Alternative..... 1-14
Exhibit 2-1	Existing Land Use..... 2-3
Exhibit 3-1A	Typical Section: Limited Access Rural Expressway ..... 3-2
Exhibit 3-1B	Typical Section: Limited Access Rural Expressway with Service Road .. 3-3
Exhibit 3-2	Typical Section: Urban Expressway with Frontage Roads..... 3-4
Exhibit 3-3	Typical Section: Controlled Access Urban Arterial ..... 3-6
Exhibit 3-4	Typical Section: Controlled Access Rural Arterial ..... 3-7
Exhibit 3-5	Future Land Use ..... 3-9
Exhibit 5-1	Noise Monitoring Locations ..... 5-3
Exhibit 5-2	Kelly Park Road Interchange Alignment with Orange County Alternative 1 and Systems Interchange Alternative 1..... 5-7
Exhibit 5-3	US 441/ SR 46 Interchange Alternative 2 with SR 46 North Widening and Lake County West Alternative 1..... 5-9
Exhibit 5-4	Neighborhood Lakes Alignment Alternative 1 and South Alignment with Service Road..... 5-10
Exhibit 5-5	CR 46A Realignment Alternative 1A..... 5-12
Exhibit 5-6	Seminole County SR 46 Corridor North Widening..... 5-13
Exhibit 5-7	SR 417/I-4 Interchange Connection Alternative B ..... 5-15
Exhibit 5-8	Southfork Drive to Yothers Road Area ..... 5-19
Exhibit 5-9	Ponkan Road to Kelly Park Road Area ..... 5-21
Exhibit 5-10	Kelly Park Road Area ..... 5-23
Exhibit 5-11	Smith Emery and Chaudoin Hills ..... 5-24
Exhibit 5-12	Area West of Plymouth Sorrento Road, North of Ondich Road and North/South of Proposed Alignment ..... 5-26

Exhibit 5-13	Area South of Boch Road, North of Haas Road and North/South of Proposed Alignment.....	5-28
Exhibit 5-14	Lake Franklin Park, Southernaire Mobile Home Park, Cobble Hill Village and Dorset of Mount Dora.....	5-30
Exhibit 5-15	Summerbrooke at Mount Dora .....	5-32
Exhibit 5-16	Top of the Hill and Hacienda Hill Subdivisions.....	5-34
Exhibit 5-17	Coronado Somerset Drive Area, East of Proposed Alignment.....	5-35
Exhibit 5-18	Mount Plymouth Golf Club and Mount Plymouth Subdivision South of SR 46.....	5-37
Exhibit 5-19	Area East of Old McDonald Road, North of Proposed Alignment.....	5-39
Exhibit 5-20	Area East of Wekiva River Road, South of Proposed Alignment.....	5-40
Exhibit 5-21	Area West of Lower Wekiva River Preserve, Wekiva River Oaks and Estates at Wekiva Park.....	5-41
Exhibit 5-22	Foxspur, Markham Forest and Ross Lake Shores.....	5-43
Exhibit 5-23	Bella Foresta .....	5-44
Exhibit 5-24	Sylvan Glade and Area West of Florida Fancy Nursery.....	5-46
Exhibit 5-25	Twelve Oaks RV Resort.....	5-48
Exhibit 5-26	Alderene Park and Capri Cove .....	5-49
Exhibit 5-27	Lakeside Methodist Church and Academy of Learning .....	5-51
Exhibit 5-28	Tall Trees and Ballantrae Apartments.....	5-53

# Executive Summary

---

The *Noise Study Report* for the Wekiva Parkway (SR 429)/SR 46 Realignment Project Development and Environment (PD&E) Study has been prepared in accordance with the requirements of amended Title 23 Code of Federal Regulations (CFR), Part 772 – *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (effective date July 13, 2011) and updated Chapter 17 in Part 2 of the Florida Department of Transportation (FDOT) *PD&E Manual*.

Field measurements were conducted at a total of 43 monitoring sites representative of noise-sensitive locations in the Wekiva Parkway (SR 429)/SR 46 Realignment study area. Simultaneous traffic counts were conducted during the noise level measurements, and the information was used to develop a noise model of the existing roadways using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5. Differences between measured noise levels and levels predicted by the computer noise model were examined to determine the validity of the FHWA TNM 2.5 to accurately predict noise levels for this proposed project.

Predicted noise levels determined for the existing, No Build, and Preferred Alternative indicate that noise impacts will occur in several areas. **Table ES-1** provides a noise impact summary for the Preferred Alternative. Noise abatement was evaluated for the Preferred Alternative and the results are documented in Section 5.4.

For a noise barrier to be considered as a viable mitigation measure, FDOT established criteria to evaluate feasibility and reasonableness. The feasibility of providing noise abatement is focused on the ability of the noise barrier to provide a noticeable insertion loss (reduce traffic noise levels by at least 5 decibels (dB(A)) at two or more impacted receptors), as well as constructability and maintenance factors. Reasonableness criteria include viewpoints of benefited property owners and residents, cost effectiveness, and ability of the barrier to meet the noise reduction design goal. The noise reduction design goal requires the barrier to achieve a 7 dB(A) traffic noise reduction at one or more benefited receptors. The cost of the noise barrier should not exceed \$42,000 per benefited receptor. This is the reasonable cost limit established by FDOT. A benefited noise sensitive site is defined as a site that would experience at least a 5 dB(A) reduction as a result of providing a noise barrier. The current unit cost used to evaluate economic reasonableness is \$30 per square foot, which covers barrier materials and labor.

A total of 99 benefited receivers in three distinct areas met the criteria for a noise barrier. Noise barriers were determined to not be a feasible and/or cost reasonable abatement measure at 187 noise sensitive sites identified as impacted by the proposed project. A summary by county and project area is also included in **Table ES-1**. FDOT and/or the Orlando-Orange County Expressway Authority have committed to conduct a more detailed noise analysis during the final design phase.

**TABLE ES-1**

Summary of Preferred Alternative Noise Impacts

<b>Project Area</b>	<b>Existing Residences</b>	<b>Planned/Permitted Residences</b>	<b>Non-Residential (Churches, Schools)</b>	<b>Total</b>	<b>Benefited Receivers</b>
<b>ORANGE COUNTY</b>					
Kelly Park Road Interchange Alignment with Systems Interchange Alternative 1 and Orange County Alternative 1	<b>66</b>	<b>0</b>	<b>0</b>	<b>66</b>	<b>0</b>
<b>LAKE COUNTY WEST</b>					
US 441/SR 46 Interchange Alternative 2 with SR 46 North Widening and Lake County West Alternative 1	<b>63</b>	<b>2</b>	<b>0</b>	<b>65</b>	<b>29</b>
<b>LAKE COUNTY EAST</b>					
Neighborhood Lakes Alternative 1	<b>12</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>
CR 46A Alternative 1A	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>
Southern Alignment Alternative with Service Road	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>
<b>SEMINOLE COUNTY</b>					
Wekiva Parkway with Frontage Roads, North Widening of SR 46 Corridor	<b>100</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>50</b>
Alternative B Connection to SR 417/I-4 Interchange	<b>31</b>	<b>0</b>	<b>2</b>	<b>33</b>	<b>20</b>

# 1. Project Summary

---

The Wekiva Parkway (SR 429)/SR 46 Realignment Project Development and Environment (PD&E) Study is jointly managed by the Florida Department of Transportation (FDOT), District Five and the Orlando-Orange County Expressway Authority (Expressway Authority). The proposed project would complete the Western Beltway (SR 429) around metropolitan Orlando, improve safety in the SR 46 travel corridor, and provide congestion relief on study area roadways; it includes significant measures to minimize harm to the environmentally sensitive Wekiva River Basin and enhance the connectivity of existing wildlife habitat corridors within the basin area.

## 1.1 Project Background

In 2004, the Florida Legislature enacted the *Wekiva Parkway and Protection Act*, Chapter 369, Part III, Florida Statutes (F.S.), in order to address the need for an expressway through the Wekiva River Basin by adopting the recommendations of the Wekiva Basin Area Task Force, the SR 429 Working Group, and the Wekiva River Basin Coordinating Committee. The legislation was the culmination of more than 20 years of discussions and various actions taken to complete the Western Beltway around metropolitan Orlando while protecting the fragile Wekiva River Basin and springshed. At the bill signing ceremony the Governor of Florida stated “This legislation represents unprecedented collaboration among diverse interests to safeguard the springs of the Wekiva and make Central Florida a better place to live and work. The parkway strikes a delicate balance between environmental protection and economic growth, providing relief for motorists and protection for Florida’s land and waters.”

The proposed Wekiva Parkway (SR 429) is one component of a comprehensive plan developed through Executive Orders, subsequent task force and committee findings of diverse stakeholders, and the resultant legislation. The strategic priorities address growth management and a sustainable environment, including master stormwater management, water supply protection, land use strategies, and land acquisition for conservation. The stakeholder’s findings and the subsequent legislation recognize the importance of the Wekiva Parkway since it would complete the Western Beltway (SR 429) around the Orlando metropolitan area and provide a safe, high capacity east-west travel facility between Lake County and Seminole County. A partial realignment of SR 46 in Lake County is integrated with the Wekiva Parkway project. The study area developed through the stakeholder’s findings, and subsequently recommended in the legislation, is depicted in **Exhibit 1-1**.







## 1.2 Project Purpose and Need

The purpose and need for the project were originally documented in the October, 1989 state-level Environmental Impact Statement (EIS) prepared by FDOT for the Northwest Beltway Study, Part B. In November 2002, FDOT again documented the purpose and need for the northwest portion of the Western Beltway (SR 429) in a presentation to the Wekiva Basin Area Task Force. The updated purpose and need for the project is summarized below.

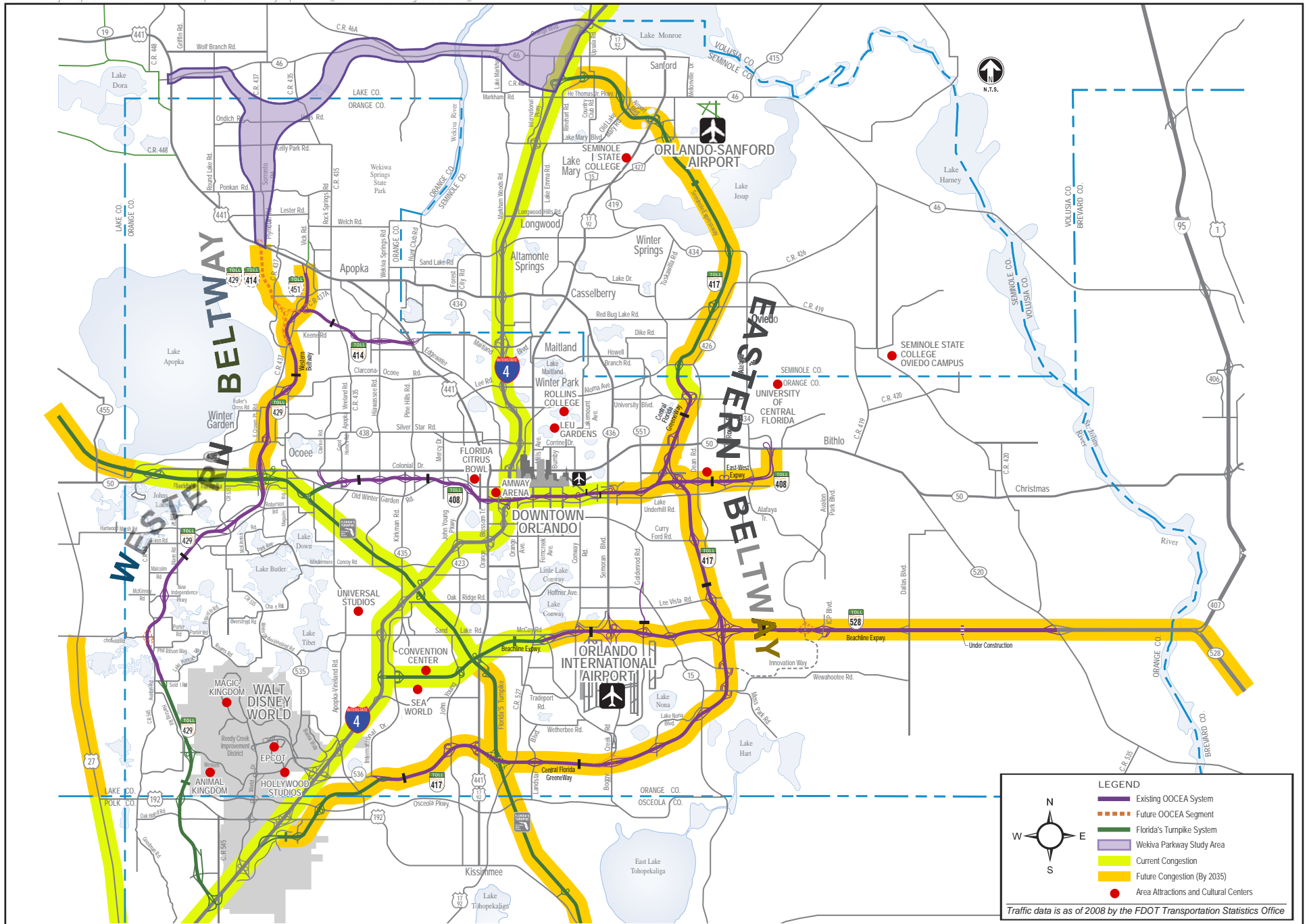
- **Complete the Western Beltway (SR 429) around Metropolitan Orlando**

The Wekiva Parkway will complete the Western Beltway (SR 429) from Interstate 4 (I-4) in Osceola County to I-4 in Seminole County. SR 429 currently terminates at US 441 in Apopka. The Wekiva Parkway will provide a system to system connection for regional mobility between the Eastern Beltway (SR 417), the Western Beltway (SR 429), and I-4.

The Wekiva Parkway is designated as a planned addition to Florida's Strategic Intermodal System (SIS). Florida's SIS is an integrated transportation network consisting of statewide and regionally significant transportation facilities, services, modes of transportation and linkages. The SIS was established to focus limited state resources on transportation facilities that are critical to Florida's economy and quality of life.

The regional transportation network in the metropolitan Orlando area currently consists of I-4 (SR 400), Florida's Turnpike, SR 408 (East-West Expressway), SR 528 (Beachline Expressway), SR 417 (Eastern Beltway), and completed portions of the Western Beltway (SR 429), all of which are heavily traveled SIS facilities. The Regional Transportation Network with the current and future heavily congested SIS corridors, based on 2008 Traffic Data by the FDOT Transportation Statistics Office, is shown in **Exhibit 1-2**. Heavy congestion in urban areas is considered bumper to bumper or stop and go traffic movement during peak periods (Level of Service [LOS] "E" or worse). For rural areas, passenger and truck traffic is so heavy during peak periods that changing lanes is very difficult (LOS "D" or worse). The future system includes all cost feasible improvements through 2035. All SIS facilities in the metropolitan Orlando area will be heavily congested by 2035, with the exception of portions of SR 429 (Western Beltway). The segments of SR 429 that are not projected to be heavily congested by 2035 include the recently constructed segment between I-4 in Osceola County and Florida's Turnpike in Orange County and the planned Wekiva Parkway.

Completion of the Western Beltway will allow regional traffic to bypass the most heavily congested segment of I-4 (from south of the Osceola/Orange County line to south of the Seminole/Volusia County line) which travels through the City of Orlando and is the main thoroughfare providing access to Walt Disney World, Sea World, Universal Studios, and other area attractions. In addition to providing relief to regional motorists, the completed Western Beltway will ease congestion on local roadways and provide a needed expressway connection between northwest Orange, eastern Lake, and western Seminole Counties.



**Exhibit 1-2**  
**Regional Transportation Network with Heavily Congested SIS Facilities**

- **Provide a Higher Capacity East-West Travel Facility in East Lake County and West Seminole County**

Most of the existing roadways within the study area consist primarily of local and collector roads. SR 46 is the only east-west connection between Lake County and Seminole County within the study area. SR 46 is a two-lane rural roadway that was constructed prior to current design standards. The majority of SR 46 through Lake and Seminole Counties consists of two 12-foot travel lanes with varying shoulder widths.

A safer, higher capacity east-west travel facility is needed. Many roads in the study area are currently operating at conditions below LOS "C". However, for SR 46 in east Lake County and west Seminole County, the existing LOS is "F", with annual average daily traffic of 23,700.

These LOS conditions, especially for SR 46, are projected to worsen significantly under the No-Build scenario. Growth in residential population and employment opportunities has contributed to an increasing travel demand in northwest Orange County, northern Lake County, and western Seminole County. Population and employment projections indicate that travel demand will continue to increase in the area for the foreseeable future. In the 2032 design year for the proposed project, the projected No-Build condition for SR 46 in east Lake County and west Seminole County is a further deteriorated LOS "F", with annual average daily traffic of 37,440. That would be a 58 percent increase in traffic on a facility that is currently operating at LOS "F".

The proposed project is a needed link between urbanized areas. Modes of transportation within the Wekiva Parkway study area are generally limited to personal vehicles and vehicles for hire. There are currently no public bus service routes within the study area. Much of the study area traverses rural residential and conservation lands; however, the corridor connects the urbanized areas of Apopka in Orange County, Mount Dora in Lake County, and Sanford in Seminole County. The proposed Wekiva Parkway project would meet increased travel demand from population growth in an environmentally sensitive and compatible manner.

- **Improve Safety to Reduce Vehicle Crash Fatalities**

Many of the study area roadways are two-lane roads that do not meet the current design standards for safety and capacity. That is a major contributing factor in the high crash and fatality rates, especially for SR 46 through Lake and Seminole Counties. According to FDOT Crash Data Reports from 2000 to 2004, there were 27 fatalities resulting from vehicle crashes on the 18.5 mile segment of SR 46 from US 441 near Mount Dora in Lake County to I-4 near Sanford in Seminole County. FDOT data indicates that in 2004 alone there were 10 fatalities and 117 injuries resulting from 95 vehicle crashes on that section of SR 46.

Public awareness of this safety issue has been raised through media attention, such as an *Orlando Sentinel* article on September 28, 2005 which described SR 46 in Lake County as "Central Florida's Deadliest Road". The *Sentinel* stated that, according to their analysis of regional crash data from FDOT and the Florida Highway Patrol, on a per mile basis the section of SR 46 through Lake County is the most dangerous roadway in Central Florida, and the section of SR 46 through Seminole County was described as the region's second most dangerous roadway. While such media reports are not the basis for decision-making,

they have heightened public interest in the need for a safer travel facility in east Lake County and west Seminole County.

As traffic volumes grow on these unimproved local roadways, it is reasonable to expect that a similar increase in traffic incidents would continue to occur. The proposed Wekiva Parkway and the widened and realigned sections of SR 46 would be designed and constructed in accordance with all current standards and would be available to those regional motorists desiring to bypass local traffic. A modern facility, coupled with the opportunity for segregation of trip types, would help to reduce the potential for traffic incidents and fatalities when compared to existing conditions.

- **Develop a Transportation Facility that Minimizes Impacts to the Wekiva Basin Area Resources and Specifically Improves Wildlife Habitat Connectivity Between Conservation Lands and Reduces Vehicle-Wildlife Conflicts**

The recognition of the importance of the Wekiva River basin, its habitat, wildlife, conservation and recreation values, the associated spring systems, and the connection to the Ocala National Forest elevates the protection of this resource to a primary component of the purpose and need for the Wekiva Parkway. There are numerous publicly held conservation and recreation lands within or in close proximity to the study area, including Rock Springs at Kelly Park, Wekiwa Springs State Park, Rock Springs Run State Reserve, Seminole State Forest, and Lower Wekiva River Preserve State Park. Vast areas of floodplains and wetlands, including the Wekiva Swamp south of SR 46 and the Seminole Swamp north of SR 46, are located west of the Wekiva River. The natural environment includes the Wekiva River Basin ecosystem, springshed, and an expansive wildlife habitat area that connects to the Ocala National Forest.

An additional safety concern in the study area is vehicle-wildlife conflict. Since much of the study area consists of sparsely populated rural residential areas and large tracts of state conservation land, there have historically been many conflicts between vehicles and wildlife on roadways, particularly SR 46 in east Lake County. Over the past 20 years, more than 50 Florida Black Bears, a state-listed threatened species, have been killed by collisions with vehicles on a six mile segment of SR 46 adjacent to the state conservation lands. From 1994 to 2005 on that same section of SR 46, 23 bears were killed by vehicles. Both the proposed Wekiva Parkway and a parallel service road in Lake County East incorporate three long wildlife bridges to enhance wildlife habitat connectivity between state conservation lands, which would greatly reduce the number of vehicle-wildlife conflicts.

## 1.3 Project Description

In early 2005, the Expressway Authority and FDOT began the Wekiva Parkway (SR 429)/SR 46 Realignment PD&E Study under joint management. The study addresses the following proposed project components:

- **The Wekiva Parkway**, a four-lane divided (expandable to six-lane divided) and six-lane divided limited access toll facility, which would begin in Orange County at the planned terminus of the John Land Apopka Expressway at US 441 just west of CR 437 and extend to the north/northeast into Lake County, turning east and crossing the Wekiva River into Seminole County and terminating at I-4. The approximate length

of the Wekiva Parkway is 20.94 miles, with 8.16 miles in Orange County, 7.37 miles in Lake County and 5.41 miles in Seminole County.

- **SR 46 Reconstruction and Realignment**, which would begin at the SR 46/US 441 interchange in Lake County and extend along the existing SR 46 corridor to the east, then turning southeast on a new alignment and entering Orange County with a systems interchange connection at the Wekiva Parkway. It is expected that the SR 46 improvements would provide six-lane divided controlled access along the existing alignment from US 441 to east of Round Lake Road, while the remaining alignment to the southeast is expected to be limited access. The approximate length of the SR 46 Reconstruction and Realignment is 4.79 miles, with 4.01 miles in Lake County and 0.78 mile in Orange County.
- **CR 46A Realignment**, a two-lane rural (expandable to four-lane rural) roadway, which would begin on existing CR 46A in east Lake County and extend to the south on a new alignment and tie into existing SR 46 with an access connection to the Wekiva Parkway. The approximate length of the CR 46A realignment is 2.72 miles.
- **Wekiva Parkway Access Improvements** would be required between the realignment of CR 46A in Lake County and Orange Boulevard in Seminole County to allow access to the private property along existing SR 46. A two-lane, non-tolled service road would be parallel to the Wekiva Parkway from north of the Wekiva Parkway interchange near Neighborhood Lakes to just east of the Wekiva River in Seminole County. Two-lane, one-way non-tolled frontage roads would be parallel to the Wekiva Parkway from east of the Wekiva River to Orange Boulevard in Seminole County. Those service and frontage roads would provide access to properties while also providing a non-tolled alternative for local trips.

## 1.4 Analysis of Alignment Alternatives

The following sections provide a brief summary of the process whereby the alignment alternatives for the proposed Wekiva Parkway (SR 429)/SR 46 Realignment project were developed and analyzed.

### 1.4.1 Initial Alternatives

Before the PD&E Study team developed initial alignment concepts in Orange, Lake, and Seminole Counties, a comprehensive data collection effort was undertaken within and adjacent to the study area. Controlled aerial photography of the corridor was used for base mapping. Along with property parcel lines/numbers, street names, geographic features and other identifiers, the data collected on such items as the locations of community facilities, public lands, known or potential historic sites, wetlands, floodplains, wildlife habitat, potential contamination sites, and others were put on the base map. Avoidance or minimization of impact to these facilities and sensitive areas, as well as homes and businesses, to the greatest extent possible was the primary focus in the development of the alignment alternatives. The initial alternatives were presented at three Public Workshops held in Orange, Lake, and Seminole Counties in November 2005.

## 1.4.2 Viable Alternatives

After the first public workshops and meetings with local and state governmental agencies and other stakeholders on the initial alternatives, the project team began the process of alternatives evaluation and refinement. The concepts and impact assessments developed in the initial alternatives phase of the study served as the basis for identification of potential viable alternatives. The initial alternatives presented at the public workshops in November 2005 were analyzed and evaluated in greater detail, their impacts were assessed more thoroughly, and they were scrutinized for negative aspects. This resulted in the elimination or modification of some alternatives and the further evaluation of others as potential viable alternatives. The viable alternatives were presented at July/August 2006 public workshops held in Orange, Lake, and Seminole Counties. Two documents (*Technical Memorandum – Development and Analysis of Initial Alternatives* and *Technical Memorandum – Identification and Evaluation of Viable Alternatives*) were prepared in December 2006 to provide information on the process that was completed during the initial and viable alternatives phases of the PD&E Study.

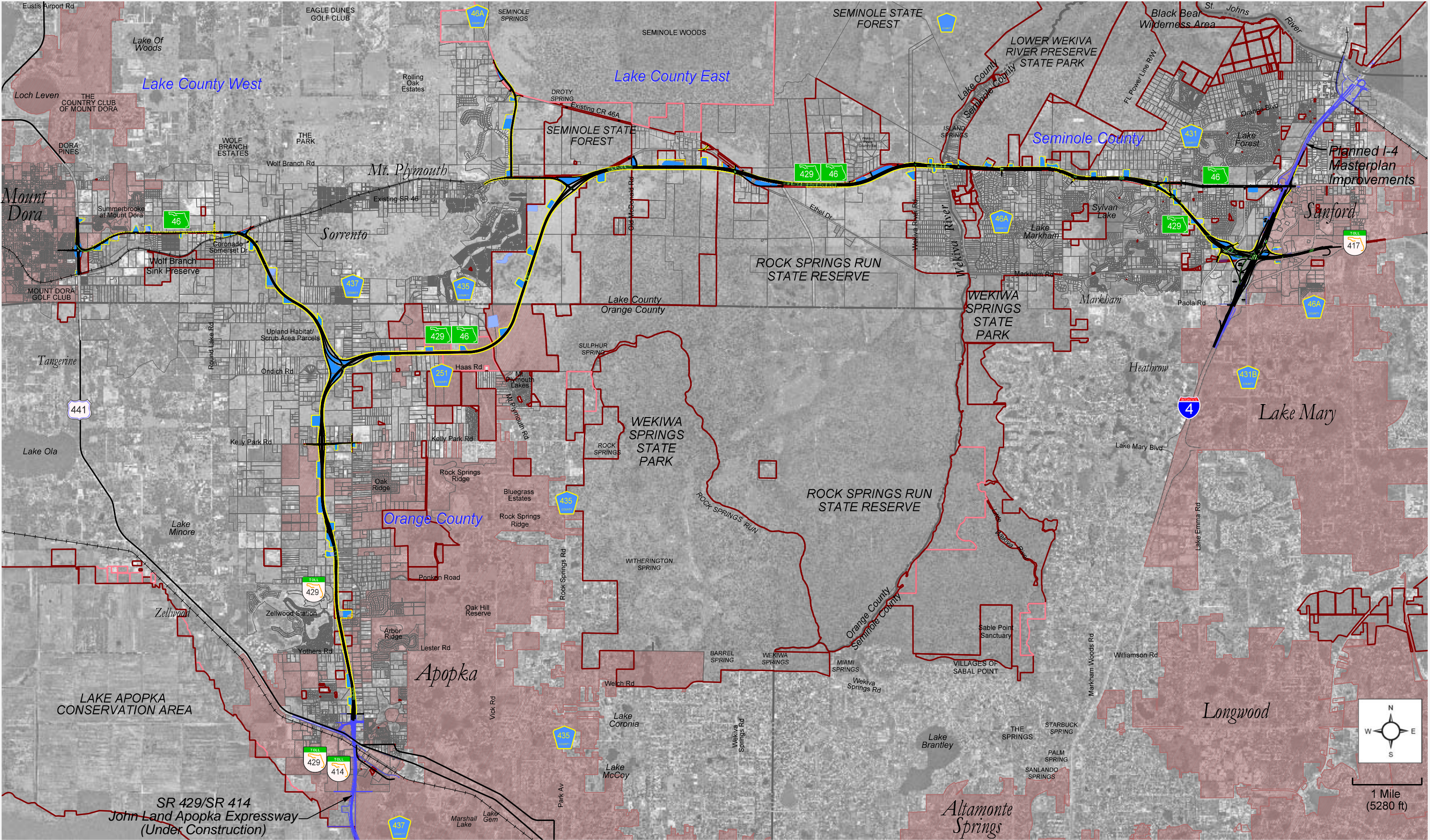
## 1.4.3 Recommended Preferred Alternative

Based upon comparative assessment of the results of the engineering/environmental analysis and the evaluation of impacts/costs, and after extensive coordination with multiple stakeholders, the Preferred Alternative was identified by the Expressway Authority and FDOT in April 2007. Subsequent coordination with state and local agencies, homeowners associations, and other stakeholders resulted in some refinements to that alternative.

Following the identification of the Preferred Alternative for the overall project, extensive discussions on funding options reached a crucial decision point in early 2009. Due to declining transportation dollars available to FDOT, it was determined that the preliminary estimated cost of the project (\$1.8 billion) would not be financially feasible to fund without tolls on the Wekiva Parkway in Lake and Seminole Counties. In response to residents in the east Lake County area who expressed concerns over paying a toll for a local trip, FDOT and the Expressway Authority analyzed options to provide a non-tolled alternative for local trips. After several meetings during mid to late 2009 with area residents, local government officials, the Florida Department of Environmental Protection, and representatives of the environmental stakeholder community, a two-lane, two-way service road concept parallel to the Wekiva Parkway was developed. To minimize impacts, the service road is proposed to be within the previously identified Wekiva Parkway right-of-way. The service road would extend from just north of the Wekiva Parkway interchange near Neighborhood Lakes to just east of the Wekiva River in Seminole County; that concept was presented at a Public Workshop in Lake County on December 17, 2009. Public comments resulting from the workshop were reviewed and incorporated into the preliminary design of the service road and the Wekiva Parkway mainline.

The overall recommended Preferred Alternative, depicted in **Exhibit 1-3**, was presented at three public hearing sessions held in Orange, Lake, and Seminole Counties in October 2010. After the Public Hearing, the Preferred Alternative was selected at duly noticed public meetings/hearings held by the Seminole County Expressway Authority Board on November 9, 2010, the Lake County Board of County Commissioners on December 7, 2010, and the Orlando-Orange County Expressway Authority Board on December 14, 2010.





LEGEND

- |   |                                       |                                   |
|---|---------------------------------------|-----------------------------------|
| PROPOSED BUILD ALTERNATIVE RIGHT-OF-WAY | PROPOSED BRIDGE                       | PUBLIC LAND                       |
| EXISTING RIGHT-OF-WAY                   | PROPOSED STORMWATER POND              | POTENTIAL PUBLIC LAND ACQUISITION |
| EXISTING PARCEL LINE                    | PROPOSED FLOODPLAIN COMPENSATION POND | MUNICIPAL BOUNDARY                |

Exhibit 1-3  
Overall Layout of Proposed Build Alternative



Early in the alternatives analysis phase of the PD&E Study, the project study area was divided into four general sub-areas, as described below, to aid in the analysis and understanding of the project segments:

- Orange County from the planned John Land Apopka Expressway/US 441 interchange north to the Lake County line;
- Lake County from US 441 to the Orange County line (referred to as Lake County West);
- Lake County from the Orange County line to the Seminole County line (referred to as Lake County East); and
- Seminole County from the Lake County line to I-4.

The recommended Preferred Alternative is described below for each of the four general project sub-areas.

**Orange County (see Exhibit 1-4)**

- Wekiva Parkway
  - Kelly Park Road Interchange Alternative
  - Orange County Alternative 1 (east of Plymouth Sorrento Road)
  - Systems Interchange Alternative 1
- SR 46 Realignment
  - Lake County West Alternative 1 (northwest to Lake County line)

**Lake County West (see Exhibit 1-5)**

- SR 46 Reconstruction and Realignment
  - US 441/SR 46 Interchange Modification Alternative 2
  - SR 46 North Widening Alternative from US 441 to east of Round Lake Road
  - Lake County West Alternative 1 (southeast to Orange County line)

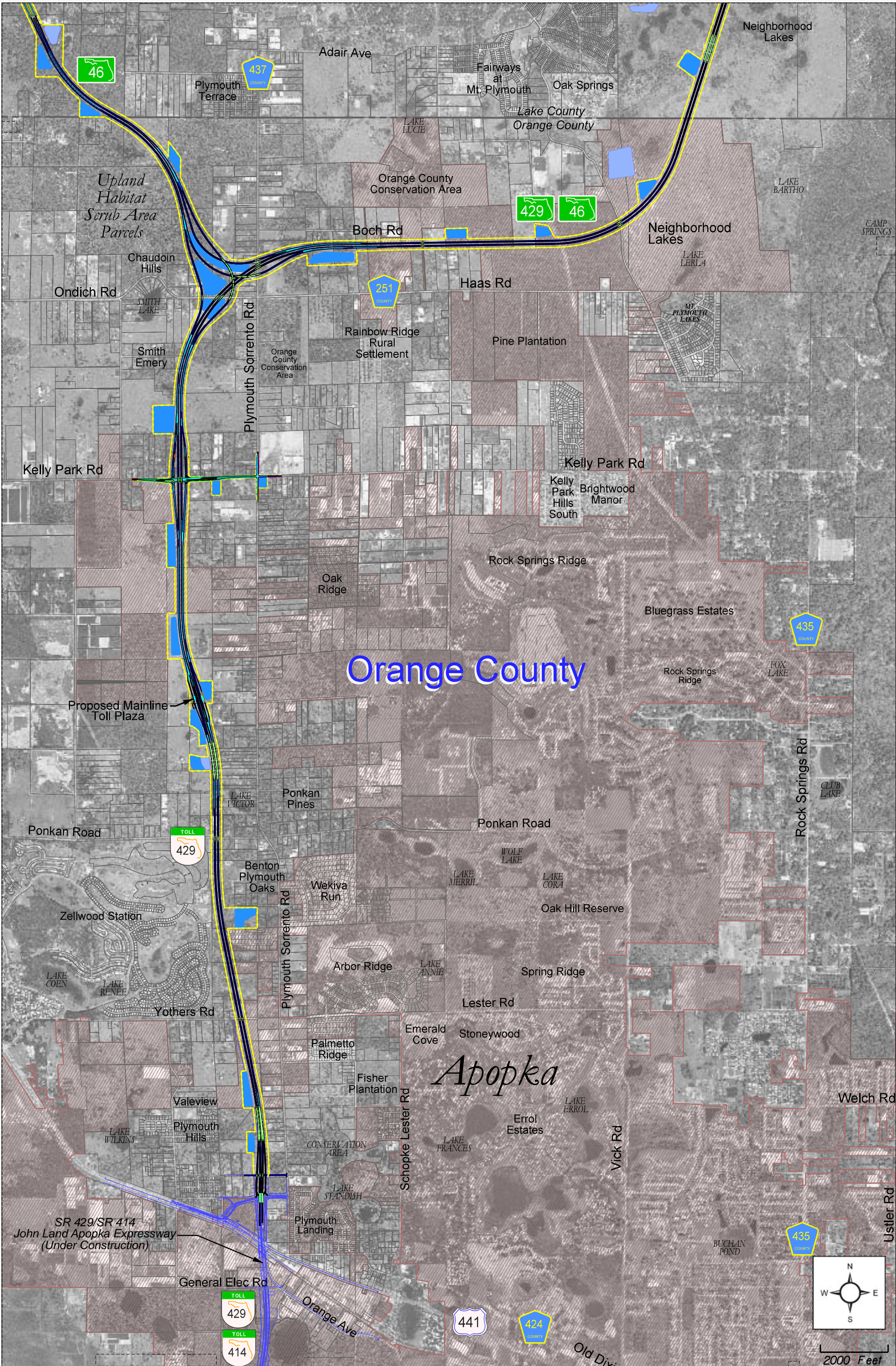
**Lake County East (see Exhibit 1-6)**

- Wekiva Parkway
  - Neighborhood Lakes Alignment Alternative 1
  - South (Red) Alignment Alternative 2, revised to incorporate the two-way, non-tolled Service Road within the Wekiva Parkway 300-foot limited-access right-of-way
- CR 46A Realignment
  - Alternative 1A, with SR 46 widening to the south

**Seminole County (see Exhibit 1-7)**

- Wekiva Parkway
  - North Widening Alternative from Wekiva River east to near Orange Avenue
  - SR 417/I-4 Interchange Modification Alternative B
- SR 46 Reconstruction
  - Widen to Six Lanes from Wekiva Parkway to the SR 46/I-4 Interchange





LEGEND








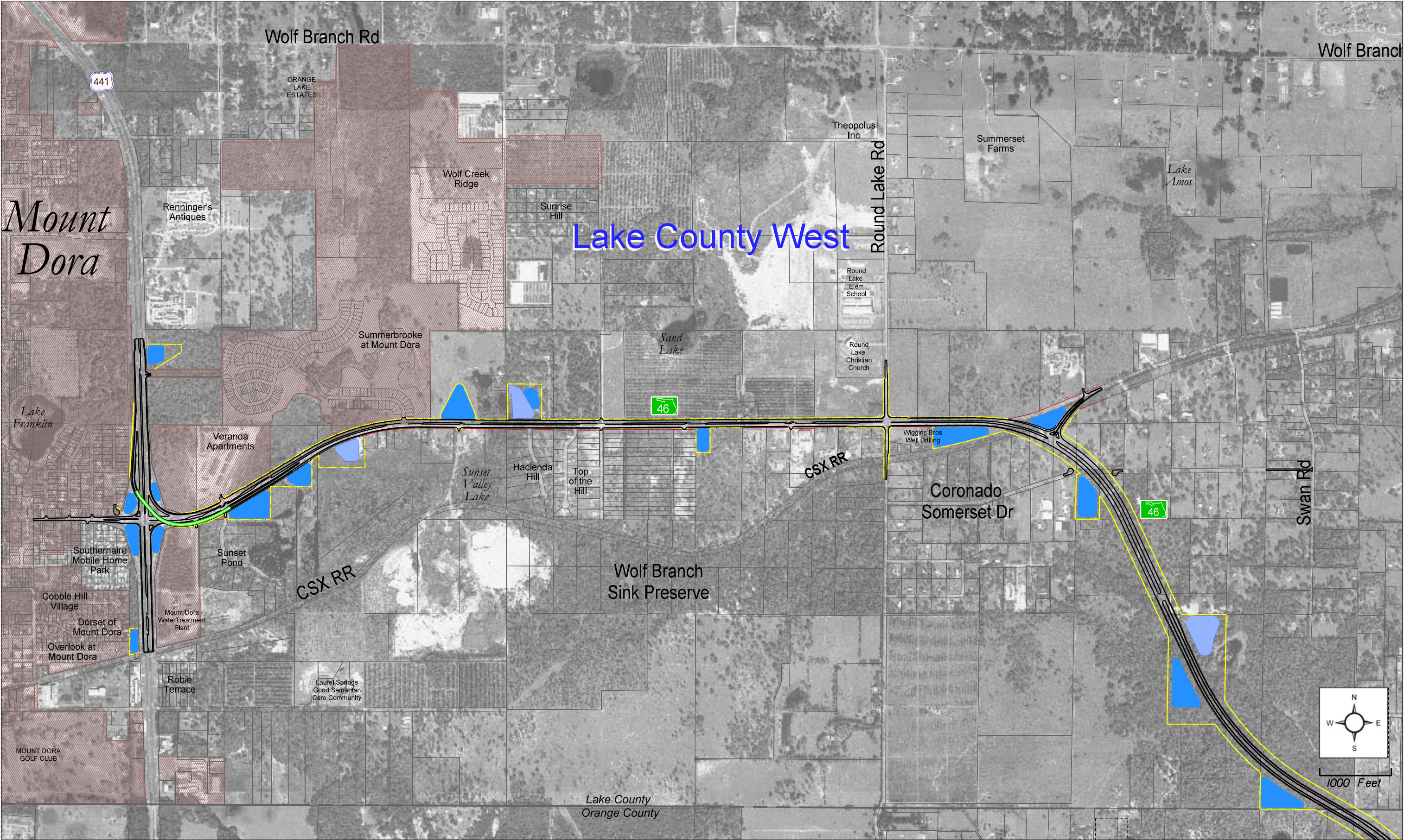
- |   |  |
|---|--|
|  Stormwater Ponds              |  Proposed Bridge                |
|  Floodplain Compensation Ponds |  Proposed Build Alternative R/W |
|  Municipal Boundaries          |  Existing R/W                   |
|   |  Existing Parcel Line           |

Exhibit 1-4  
Orange County Proposed Build Alternative





LEGEND








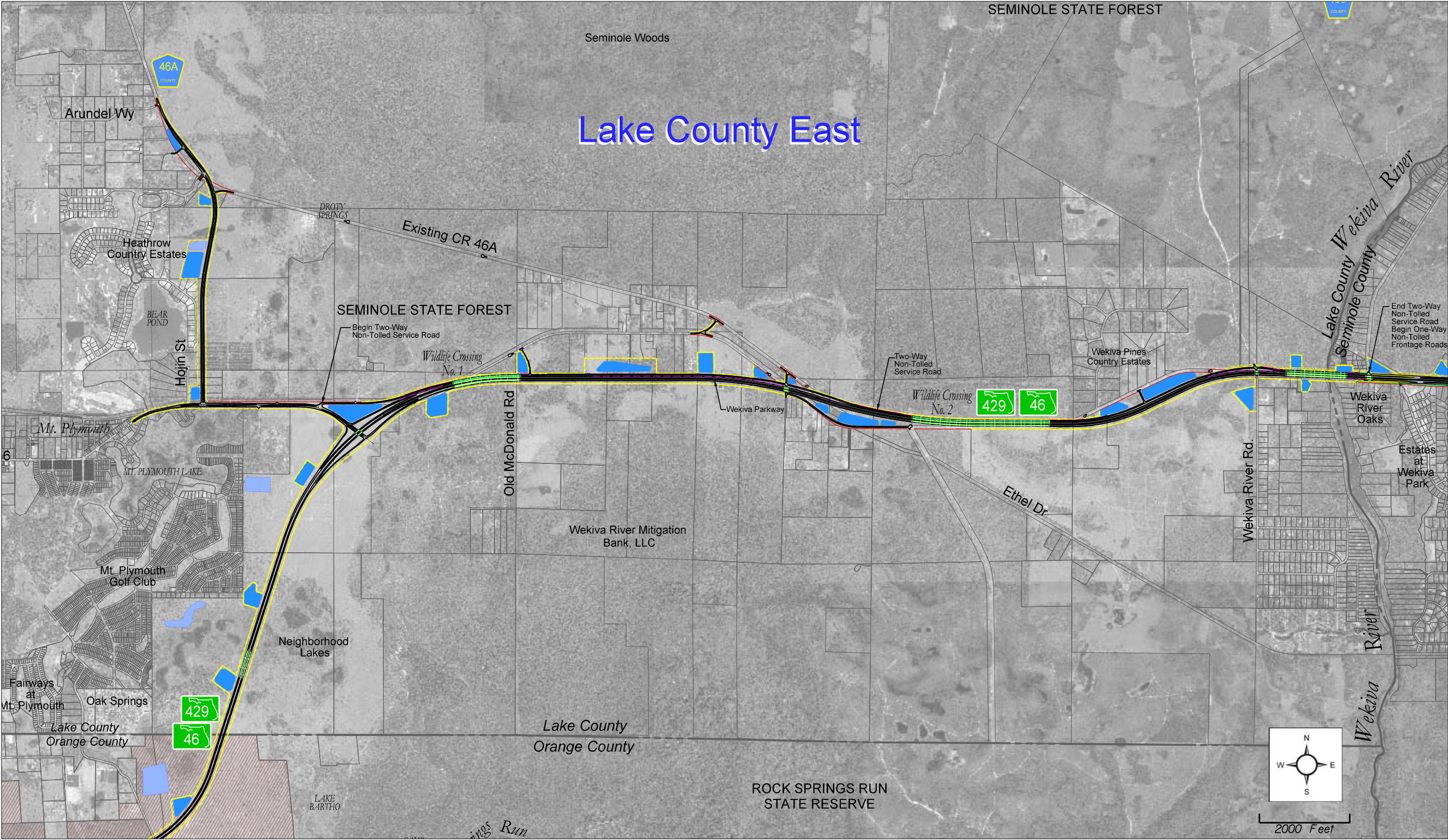
- |  |  |  |
|--|--|--|
|  Stormwater Ponds              |  Municipal Boundaries |  Proposed Build Alternative R/W |
|  Floodplain Compensation Ponds |  Proposed Bridge      |  Existing R/W                   |
|  |  |  Existing Parcel Line           |

Exhibit 1-5  
Lake County West Proposed Build Alternative



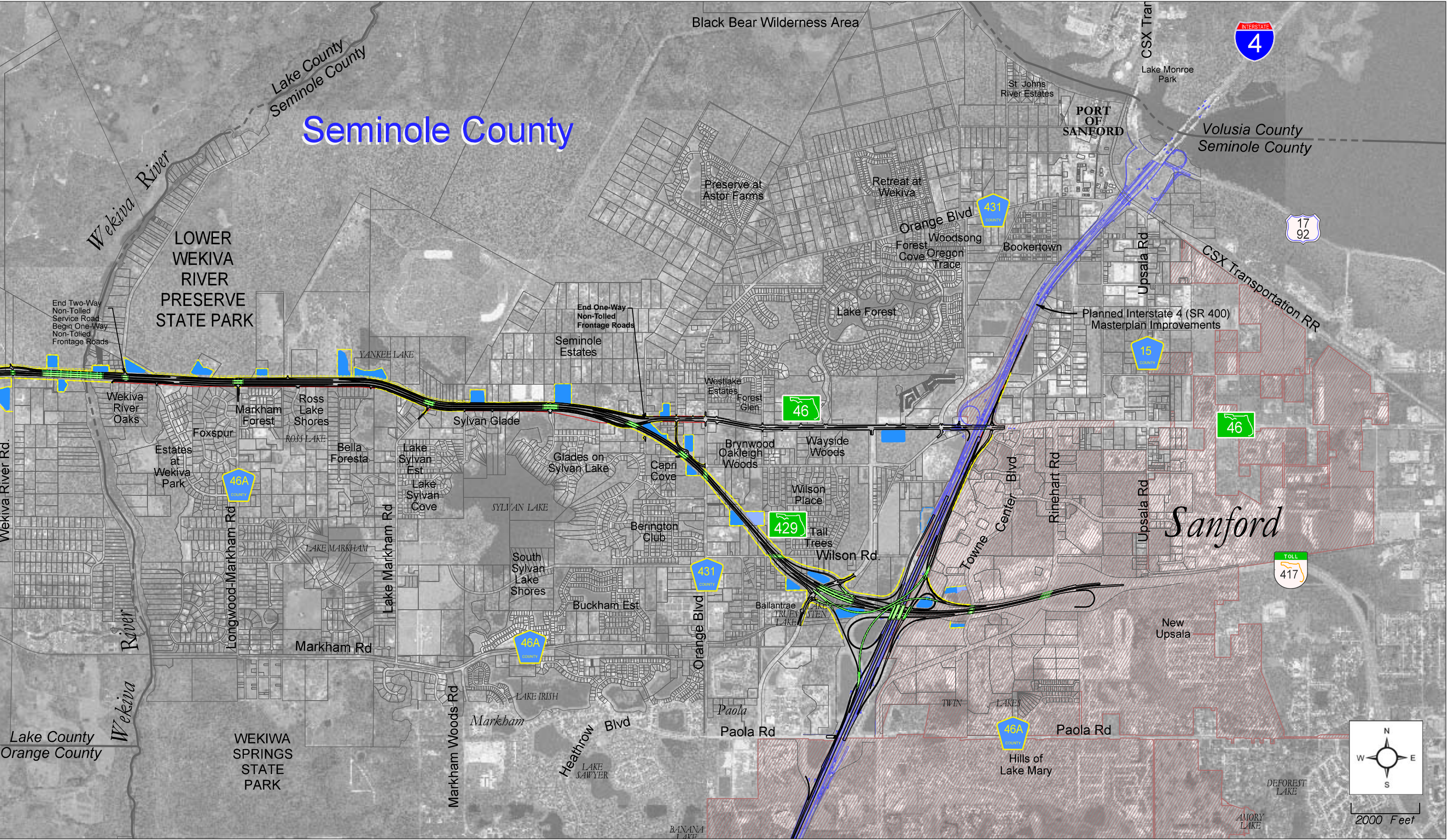


- LEGEND
- Stormwater Ponds
  - Floodplain Compensation Ponds
  - Municipal Boundaries
  - Proposed Bridge
  - Proposed Build Alternative R/W
  - Existing R/W
  - Existing Parcel Lines

**Exhibit 1-6**  
**Lake County East Proposed Build Alternative**







- LEGEND**
- Stormwater Ponds
  - Floodplain Compensation Ponds
  - Municipal Boundaries
  - Proposed Bridge
  - Proposed Build Alternative R/W
  - Existing R/W
  - Existing Parcel Lines

**Exhibit 1-7**  
**Seminole County Proposed Build Alternative**



## 1.5 Purpose of the Noise Study Report

The purpose of the *Noise Study Report* is to determine and document if the proposed project would generate noise impacts at noise sensitive sites along the proposed corridor. The process used for the noise analysis involves the following steps, which are described in greater detail in later sections of this report:

- Collect noise measurements and traffic data in the field to validate the noise prediction model;
- Prepare data inputs and run the noise prediction model for measurement site and compare data to confirm model accuracy;
- Prepare data inputs and run noise prediction model to establish existing and future noise levels for the Preferred Alternative;
- Compare model results to noise abatement criteria and determine which noise sensitive sites/areas are expected to experience noise impacts; and
- Examine noise abatement options at impacted noise sensitive sites/areas for the Preferred Alternative and determine feasibility and cost reasonableness of potential noise barriers.

## 2. Existing Conditions

---

### 2.1 Existing Land Use

Existing land use within the project corridor varies from county and state-owned conservation lands to High Intensity Planning (HIP) areas. Development within the study corridor is more concentrated at the southern limits of the project boundaries in Apopka and unincorporated Orange County, ; in Mount Dora, at the western limits of the corridor in Lake County West; and in Seminole County from Orange Boulevard to I-4. The remainder of the corridor consists of low density residential, agricultural, and State owned conservation lands, including Rock Springs Run State Reserve, Seminole State Forest, and Lower Wekiva River Preserve State Park. The boundaries of the Wekiva River Protection Area extend from CR 435 in Orange County to Orange Boulevard in Seminole County. The 1988 *Wekiva River Protection Act* ensures that the rural density and character of the lands within the Wekiva River Protection Area (WRPA) is preserved.

The Orange County portion of the corridor is characterized by low to medium density residential, agricultural, and commercial land uses. Apopka is known as the “indoor foliage capital of the world” and there are several plant nurseries and backyard greenhouses within the corridor. The corridor encompasses lands within unincorporated Orange County and the City of Apopka. This area has seen significant growth in recent years, and several new developments in various stages of completion are located within and adjacent to the project study corridor. Development in this area is denser in the vicinity of US 441. Subdivisions within the corridor include Plymouth Harbor, Palmetto Ridge, Arbor Ridge, Wekiva Run, Benton Plymouth Oaks, Ponkan Pines, Oak Ridge, Walmar, Smith Emery, and Chaudoin Hills. At the onset of this PD&E Study, Plymouth Harbor was composed of undeveloped parcels.

The portion of the study corridor from the Orange/Lake County line, north to SR 46 in Lake County West is characterized by rural low density residential and agricultural land uses. Land uses along the SR 46 corridor from US 441 to east of Round Lake Road consist of industrial, commercial, low to medium density residential, and a high density residential apartment complex within the Mount Dora city limits near the SR 46/US 441 interchange. Currently, the majority of the development along SR 46 is on the south side of the roadway. Subdivisions along the south side of SR 46 include Sunset Pond, Hacienda Hill, Top of the Hill, Hilltop Park, and Sunset Hills. Summerbrooke at Mount Dora is currently under construction on the north side of SR 46, just east of US 441.

The portion of the study corridor in Lake County East is within the WRPA and includes lands within Neighborhood Lakes, Rock Springs Run State Reserve, Seminole State Forest, and Wekiva River Mitigation Bank (formerly New Garden Coal). Both Neighborhood Lakes and the Wekiva River Mitigation Bank were identified for acquisition in the Wekiva Parkway and Protection Act. In July 2005, the state acquired a perpetual conservation easement over the mitigation bank to protect the land from future development, with the exception of the required right-of-way for the Wekiva Parkway. In December 2006, the

Governor and the Florida Cabinet approved the purchase of Neighborhood Lakes. This purchase secures right-of-way for the Wekiva Parkway and protects against future development. The land not needed for right-of-way will become conservation lands of the State of Florida. Development through this part of the corridor is adjacent to SR 46 and CR 46A, and consists of low density residential land uses and two plant nurseries.

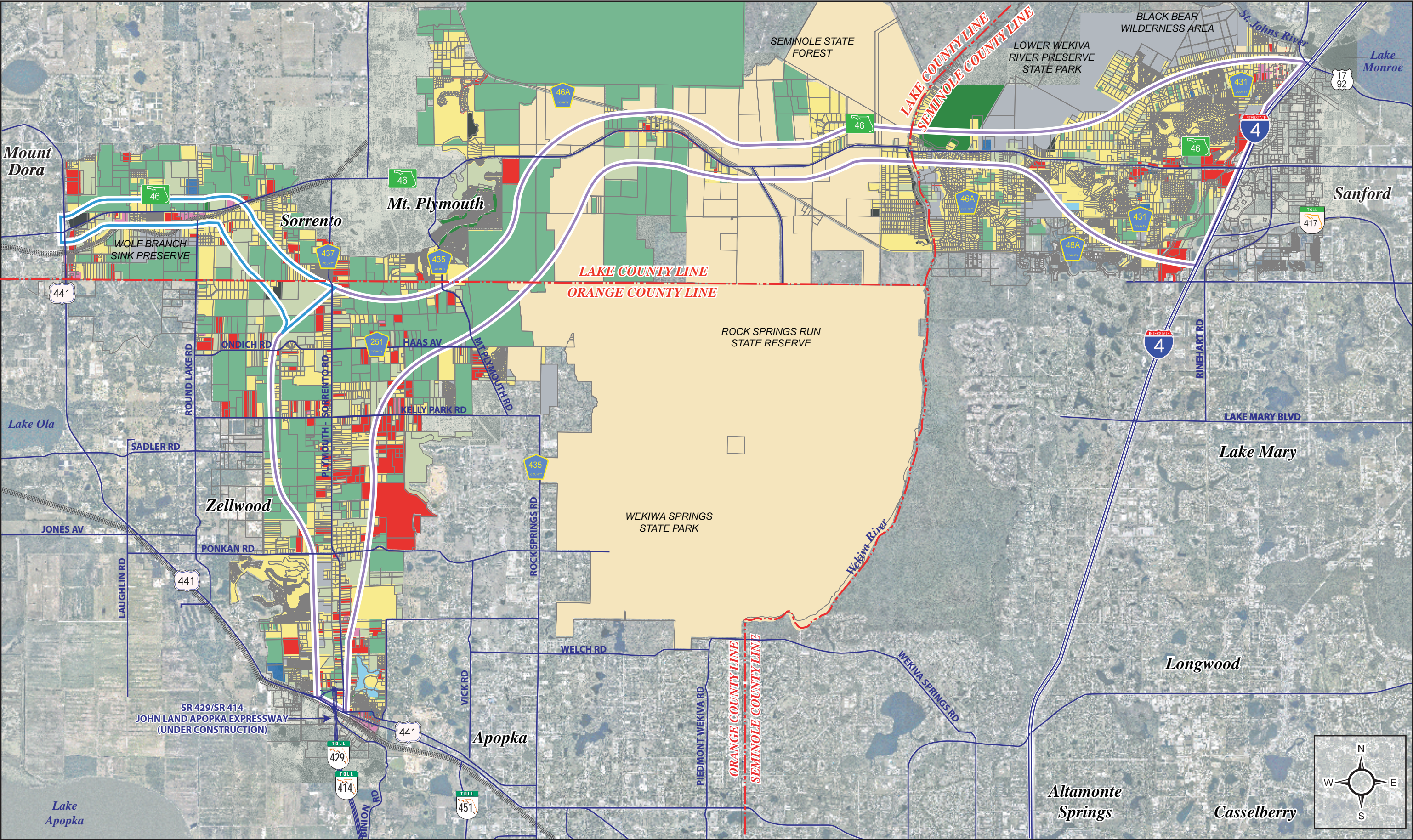
The area of Seminole County from Wekiva River to Orange Boulevard is within the WRPA. Land uses primarily consist of recreational, conservation, and suburban estates. The recreational land use designation represents the Lower Wekiva River Preserve State Park, adjacent to Wekiva River on the north side of SR 46. Seminole County owns large tracts of conservation land adjacent to Lower Wekiva River Preserve State Park which includes Yankee Lake and the associated wetlands and floodplains, the Northwest Regional Wastewater Treatment Facility, and Black Bear Wilderness Area north of the corridor. Other land uses along the north side of SR 46 within the WRPA include low- to medium-density residential, Florida Fancy Nursery, Vaughan's Nursery, and Twelve Oaks RV Resort.

Seminole County also owns a tract of land south of the SR 46 corridor that includes wetlands associated with Wekiva River, and the Wekiva Canoe Launch. Existing subdivisions along the south side of SR 46 within the WRPA include Wekiva River Oaks, Foxspur, Markham Forest, Ross Lake Shores, Bella Foresta (under construction), Grass Lake Estates (future), Sylvan Glade, and Sylvan Glade Estates. Other land uses include Rock Church (recently constructed), Designing Women Landscaping & Nursery, mobile homes, and Handyway Gas Station. Development between SR 46 and the I-4/SR 417 interchange includes Lakeside Fellowship United Methodist Church, Paola Wesleyan Church, Wilson Elementary School, Academy of Learning, Live Oak Animal Hospital, Ballantrae (formerly Cobblestone Crossing) Apartments, and several subdivisions including Capri Cove, Tall Trees, and Sylvan Lake.

East of Orange Boulevard to I-4, land uses include low to medium density residential, commercial, plant nurseries, and a HIP area located adjacent to I-4. The Seminole County HIP land use designation is a mixed used category intended to promote high density development, particularly target industry and high density residential developments along the North I-4/Lake Mary corridor to make the most efficient use of the infrastructure and services in place, to minimize urban sprawl, to promote target business in close proximity to the regional roadway network, and to support future mass transit systems.

The generalized existing land uses within the project corridor are shown in **Exhibit 2-1**.





**LEGEND**

Wekiva Parkway Study Corridor

SR 46 Realignment Study Corridor

Agricultural

Commercial

Conservation

County

Industrial

Institutional

No Data

Public Land

Recreational

Residential

Vacant

**Exhibit 2-1**  
**Generalized Existing Land Use**



## 3. Proposed Conditions

---

### 3.1 Typical Sections

The proposed project consists of several components as previously described in Section 1.3. The typical sections used for the various components are discussed in the following sections.

#### 3.1.1 Limited Access Rural Expressway

The four-lane, expandable to six-lane, limited access rural expressway typical section is shown in **Exhibit 3-1A**. This typical section is used for the Wekiva Parkway mainline through Orange County, in a portion of Lake County East north of the county line, and for the connection to the SR 417/I-4 Interchange in Seminole County. This typical section is also used for a portion of the realigned section of SR 46 in Lake County West.

The typical section consists of two 12-foot lanes in each direction separated by a 64-foot grassed median within a 300-foot limited access right-of-way. The inside shoulders will be 8 feet wide with 4 feet paved, sloped to the inside. The outside shoulders will be 12 feet wide with 10 feet paved, sloped to the outside. There is a minimum distance of 94 feet from the outside edge of travel to the limited access right-of-way line. This typical section is expandable to six lanes by widening to the inside.

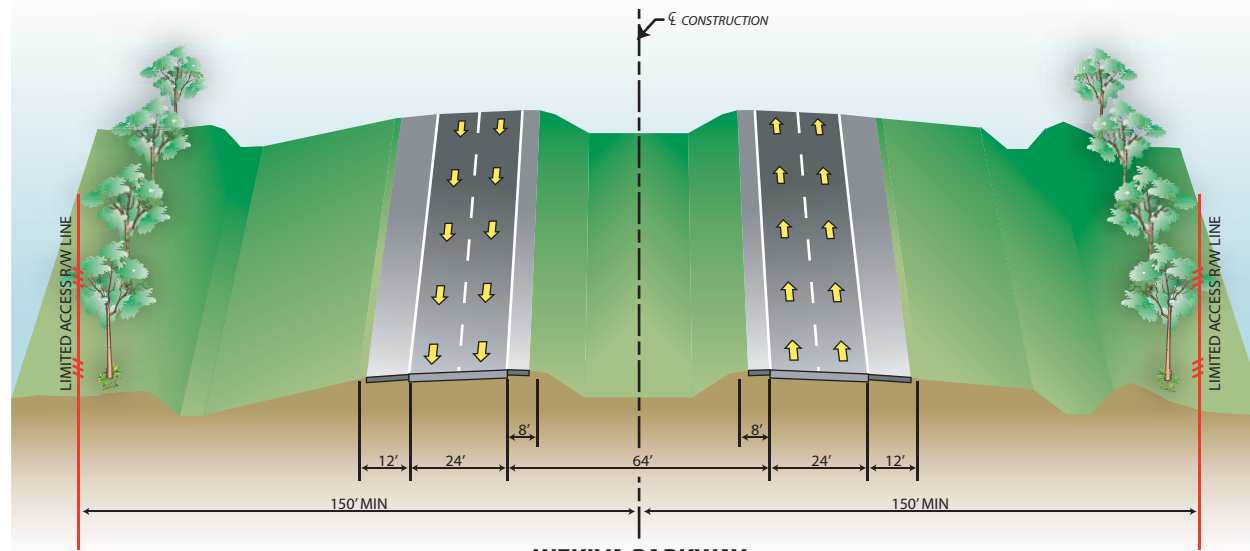
#### 3.1.2 Limited Access Rural Expressway with Service Road

This six-lane limited access rural expressway with service road typical section, shown in **Exhibit 3-1B**, is used for the Wekiva Parkway mainline through most of Lake County East. It generally extends from near Neighborhood Lakes eastward to the Wekiva River.

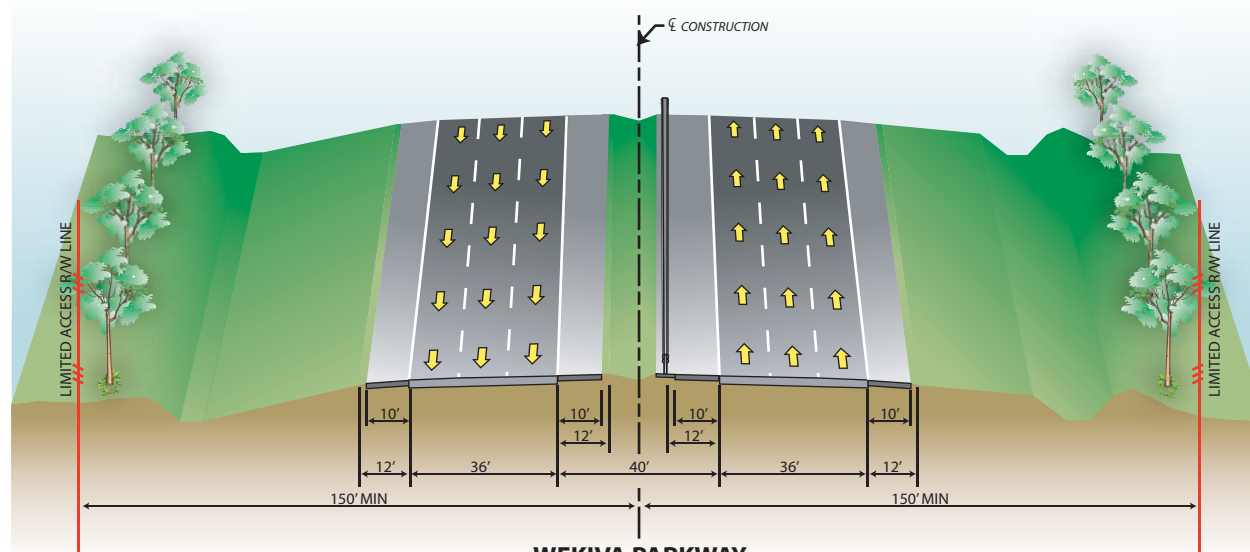
This typical section consists of three 12-foot lanes in each direction separated by a 40-foot grassed median and an undivided two way, two lane service road located on the north side of the expressway. The typical section is within a 300-foot limited access right-of-way. The inside and outside shoulders of the expressway will be 12 feet wide with 10 feet paved, sloped to the inside and outside respectively. The outside shoulder of the service road will be 10 feet with 5 feet paved and sloped to the outside.

#### 3.1.3 Limited Access Urban Expressway with Frontage Roads

**Exhibit 3-2** depicts the typical section for a four-lane, expandable to six-lane, limited access urban expressway with frontage roads. This typical section is used along the SR 46 corridor in Seminole County from the Wekiva River Bridge to east of Orange Avenue, where the Wekiva Parkway turns to the south on a new alignment to the SR 417/I-4 Interchange. The right-of-way width for the limited access urban expressway with frontage roads typical section is 260 feet. The distance from the centerline to the left (north) limited access right-of-way line is 128 feet, and to the right (south) is 132 feet to accommodate the wider sidewalk



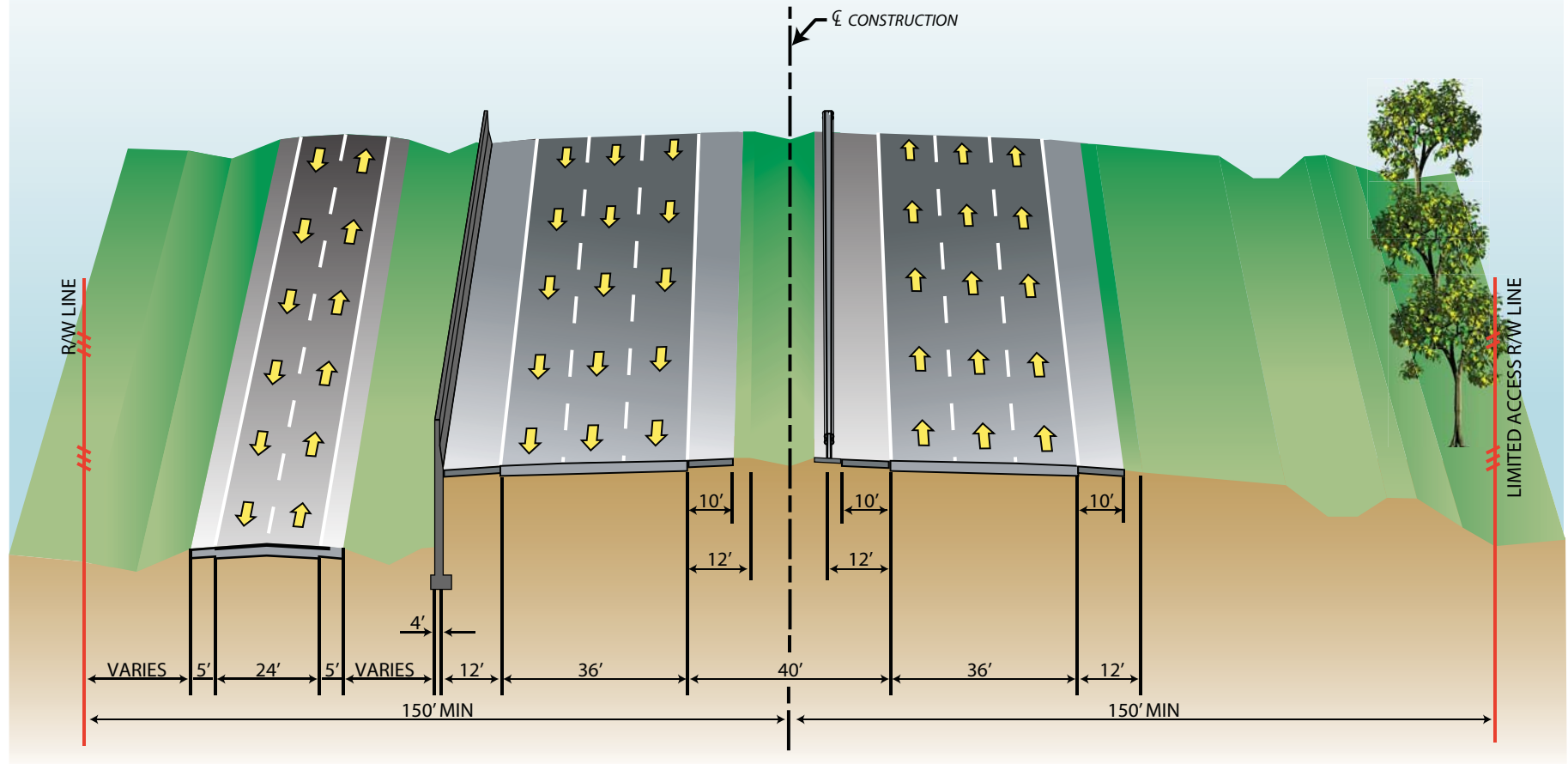
**WEKIVA PARKWAY  
4-LANE EXPRESSWAY**



**WEKIVA PARKWAY  
ULTIMATE 6-LANE EXPRESSWAY**



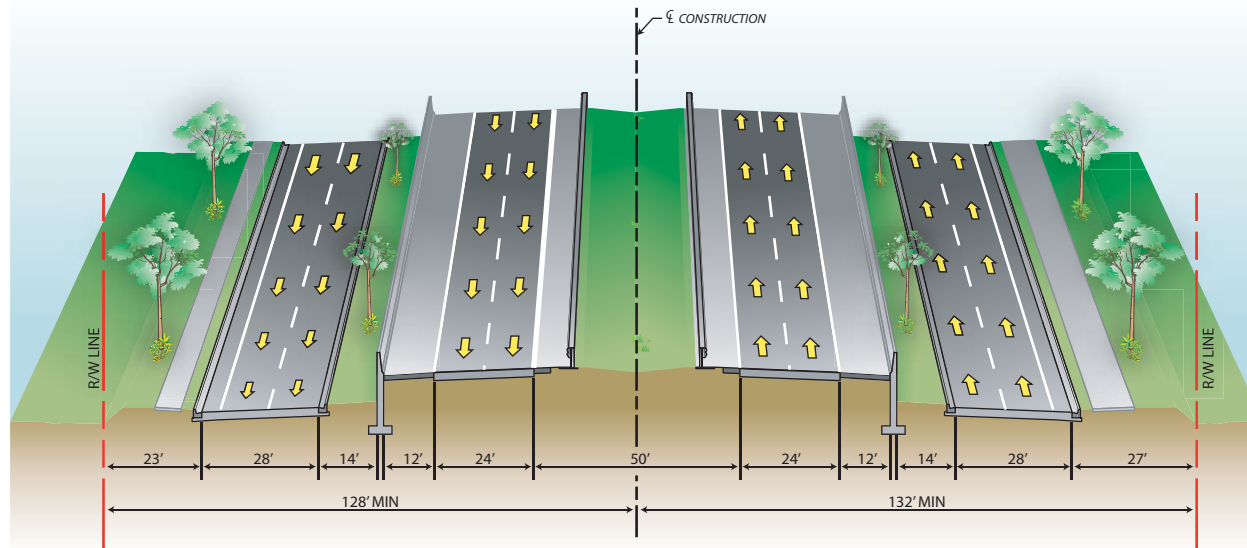
**Exhibit 3-1A  
Proposed Typical Sections  
Limited Access  
Rural Expressway**



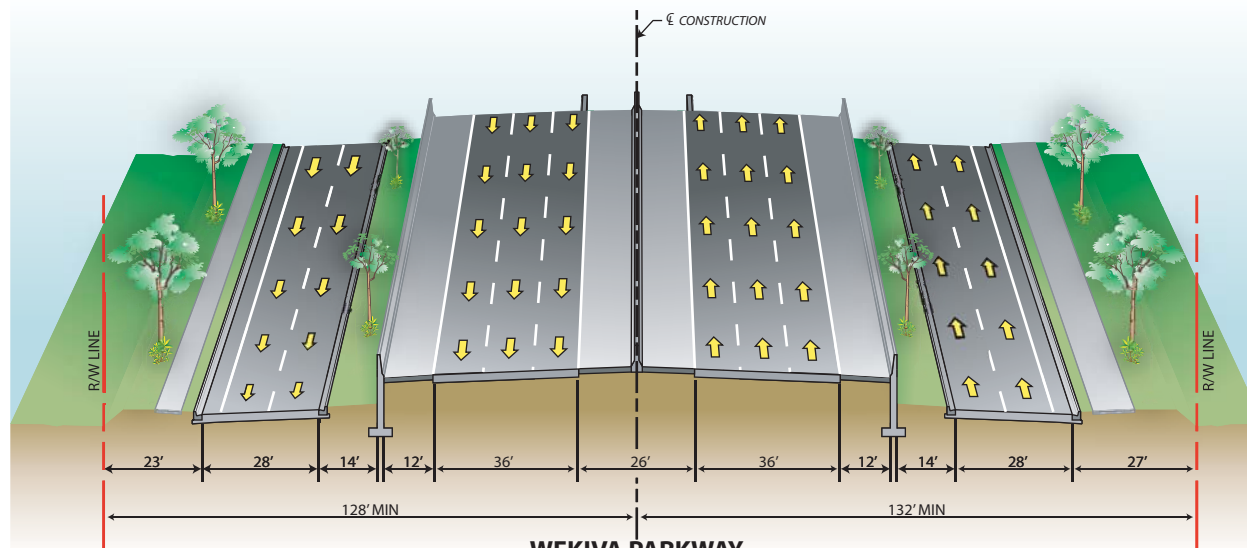
**WEKIVA PARKWAY**  
**ULTIMATE 6-LANE EXPRESSWAY WITH SERVICE ROAD ON NORTH SIDE**



**Exhibit 3-1B**  
**Proposed Typical Sections**  
**Limited Access Rural**  
**Expressway w/ Service Rd**



**WEKIVA PARKWAY  
4-LANE EXPRESSWAY WITH FRONTAGE ROADS**



**WEKIVA PARKWAY  
ULTIMATE 6-LANE EXPRESSWAY WITH FRONTAGE ROADS**



**Exhibit 3-2  
Proposed Typical Sections  
Limited Access Urban  
Expressway w/ Frontage Roads**

requested by Seminole County. The minimum distance from the edge of travel of the frontage roads to the controlled access right-of-way line is 23 feet to the north, and 27 feet to the south.

The elevated mainline portion of the typical section consists of two 12-foot lanes in each direction separated by a 50-foot grassed median. The inside shoulders are eight feet wide, sloped to the inside. The outside shoulders are 12 feet wide, sloped to the outside. The mainline is expandable to six lanes by widening to the inside, with 12-foot inside shoulders separated by median barrier.

The at-grade, controlled access two-lane frontage roads are separated from the elevated mainline by a 14-foot buffer. The frontage road portion of the typical section has two 12-foot wide travel lanes with a four-foot bicycle lane, and curb and gutter. A 3-foot sod strip separates the roadway from the sidewalk, which is 5 feet wide on the north side of the roadway, and 10 feet wide on the south side of the roadway.

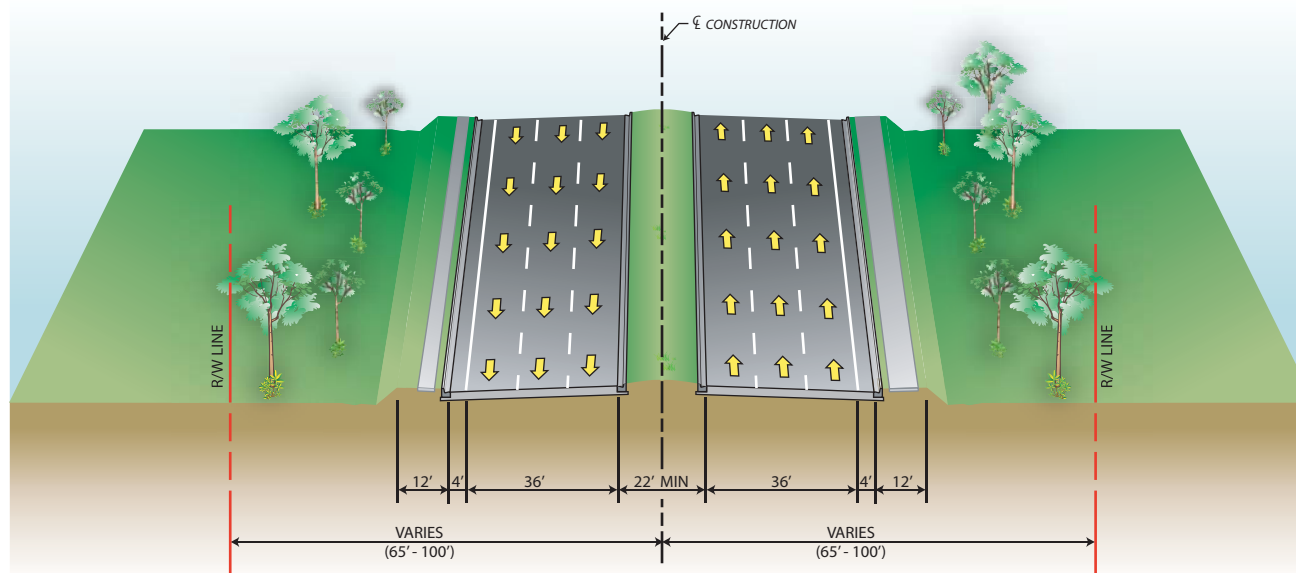
### **3.1.4 Controlled Access Urban Arterial**

**Exhibit 3-3** depicts the typical section for the SR 46 corridor improvements in Lake County West from the US 441/SR 46 interchange to east of Round Lake Road, and in Seminole County from east of Orange Avenue to I-4. The proposed right-of-way width for the SR 46 reconstruction in Lake County West is 130 feet. In Seminole County, from east of Orange Avenue to the I-4/SR 46 interchange, the existing four-lane typical section will be widened to six lanes within the existing 200-foot right-of-way.

The urban, curb and gutter typical section consists of three 12-foot travel lanes in each direction separated by a 22-foot raised grassed median. A four-foot bicycle lane is provided in each direction. A three-foot sod strip separates the back of curb from the sidewalk, which is five-feet wide on both sides of the roadway in Lake County West. In Seminole County, the sidewalks continue from the Wekiva Parkway Urban Expressway with Frontage Roads typical section: five feet wide on the north side of the roadway and 10 feet wide on the south side of the roadway. There is a minimum distance of 18 feet from the edge of travel to the right-of-way line.

### **3.1.5 Rural Arterial**

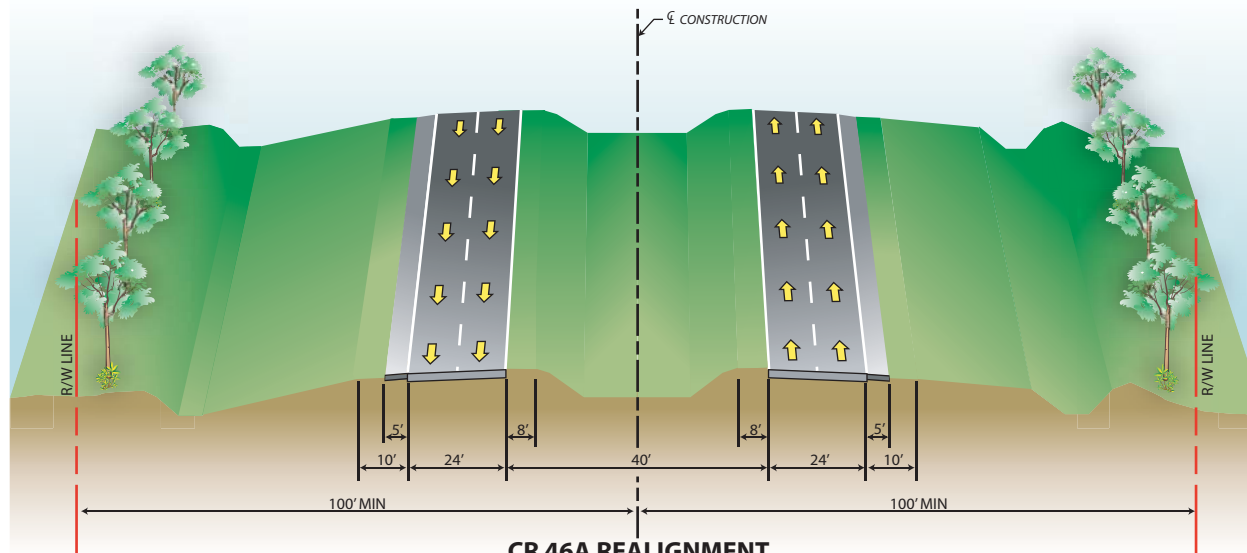
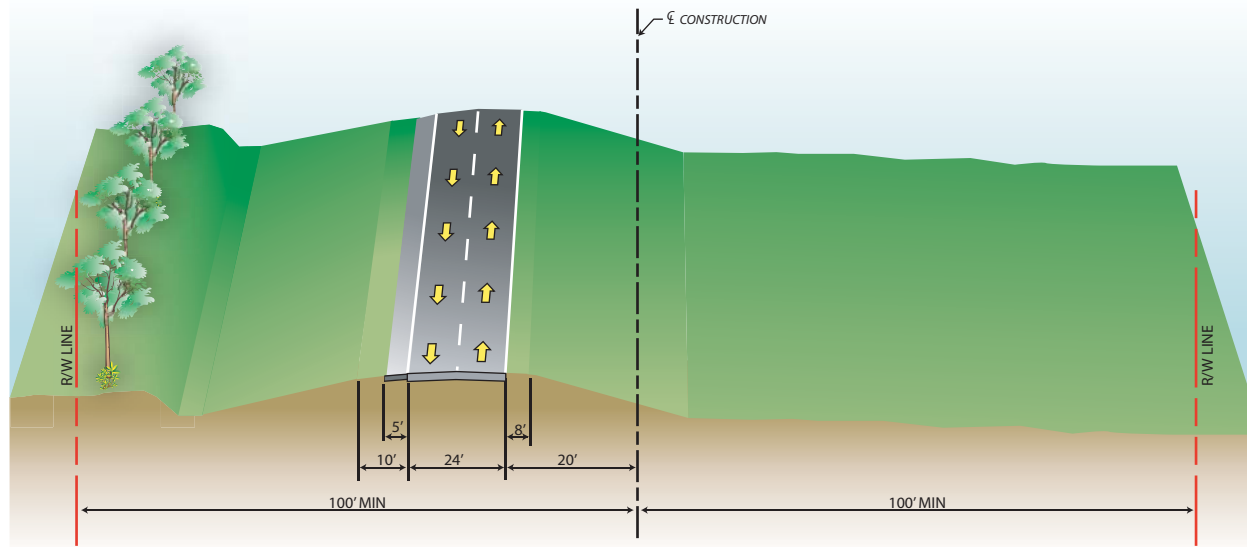
**Exhibit 3-4** depicts the typical section for the CR 46A Realignment in Lake County East. The proposed roadway is a two-lane rural section expandable to four lanes. Initially, two 12-foot travel lanes will be built to one side of the 200-foot right-of-way centerline. The outside shoulders are 10 feet wide with five feet paved while the inside shoulders are 8 feet wide, unpaved. For the four-lane typical section, the travel lanes are separated by a 40-foot grassed median. The inside shoulders are 8 feet wide, unpaved, and the outside shoulders are 12-feet wide with 5 feet paved. There is a minimum distance of 56 feet from the edge of travel to the right-of-way line.



**SR 46 CORRIDOR IMPROVEMENTS  
6-LANE DIVIDED URBAN SECTION**



**Exhibit 3-3  
Proposed Typical Sections  
Controlled Access  
Urban Arterial**



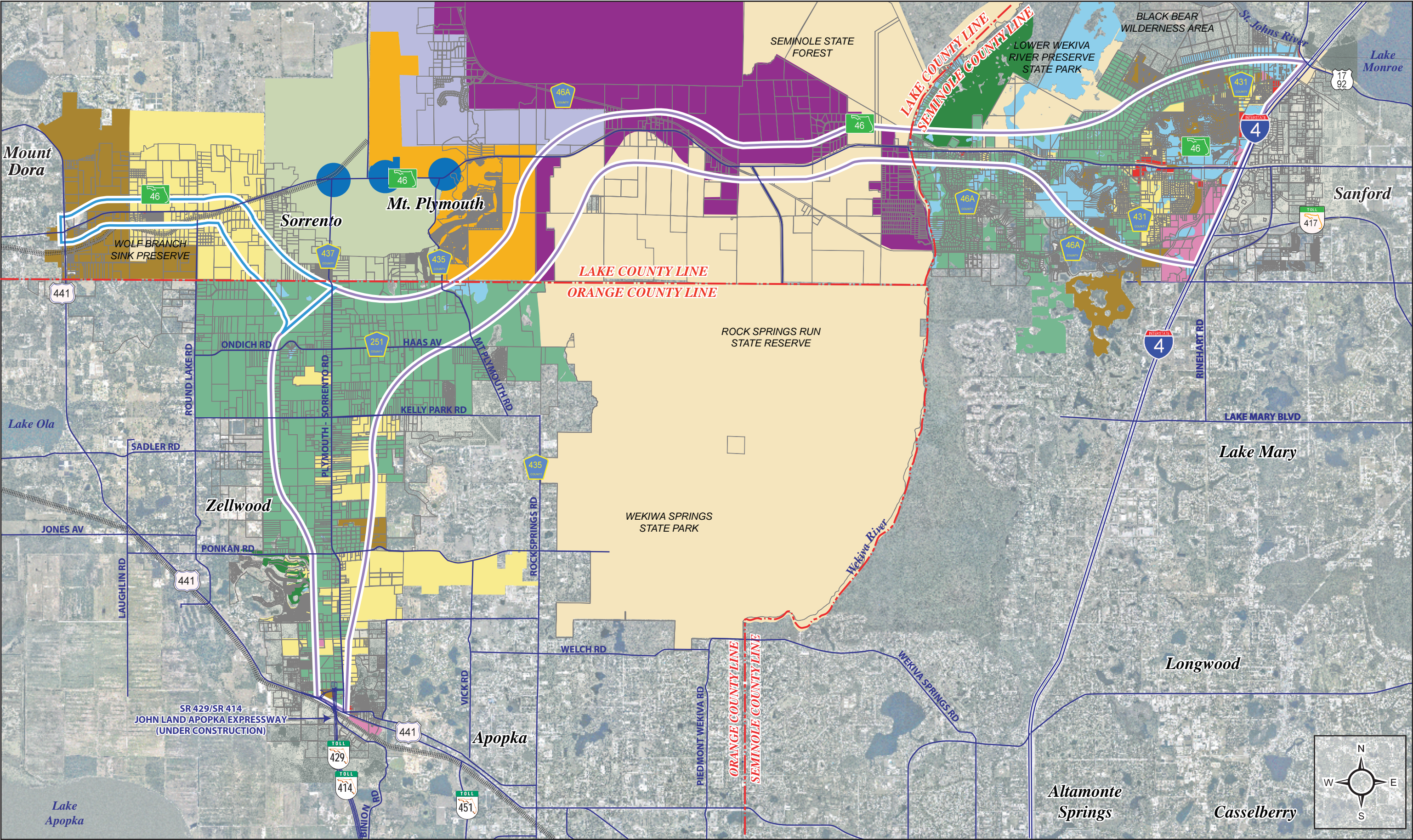
**Exhibit 3-4**  
**Proposed Typical Sections**  
**Controlled Access**  
**Rural Arterial**

## 3.2 Future Land Use

Future land use data were collected from Orange, Lake, and Seminole Counties, the City of Apopka, and the City of Mount Dora. As presented in **Exhibit 3-5**, the study area is projected to be characterized by various patterns, which include conservation, residential, industrial, institutional, commercial, rural, and agricultural land use types.

Future land uses within the Wekiva Parkway study corridor are governed by the legislation of the *Wekiva Parkway and Protection Act*, Chapter 369, Part III, F.S. The Act allows for building the Wekiva Parkway while protecting the natural resources of the Wekiva River Basin. Chapter 369.321 (1) legislates that “local governments within which the Wekiva Parkway is planned shall amend their local government comprehensive plan to include the Wekiva Parkway.” In addition, local governments hosting an interchange on the Wekiva Parkway must adopt an interchange land use plan to address appropriate land uses and compatible development. The legislation also directs local governments to amend their comprehensive plans to optimize open space and promote development patterns that protect the Most Effective Recharge Areas, karst features, and sensitive natural habitats.





**LEGEND**

Wekiva Parkway Study Corridor

SR 46 Realignment Study Corridor

Commercial

Conservation

Industrial

Mixed Use

Neighborhood Commercial

Public Resource

Sending Area

Receiving Area

Residential

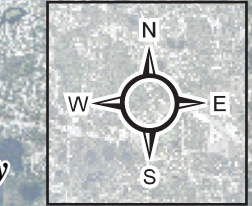
Rural

Urban Compact Node (UCN) Non Wekiva

Urban Compact Node (UCN) Wekiva

Recreational

**Exhibit 3-5**  
**Generalized Future Land Use**





## 4. Methodology

---

The objective of this noise analysis is to identify noise sensitive sites adjacent to the project corridor and compare and evaluate predicted traffic noise levels at these sites for the No Build condition and the Build condition for the Preferred Alternative to determine where noise impacts are expected.

### 4.1 Noise Sensitive Sites

A noise sensitive site is any property (i.e., owner occupied, rented, or leased) where frequent exterior human use occurs and where a lowered noise level would be of benefit. An evaluation of the project corridor revealed that noise sensitive sites are primarily comprised of single-family residences along Plymouth Sorrento Road in Orange County and SR 46 in Lake and Seminole Counties. There are also some noise sensitive sites along the alignment of the connector to the SR 417/I-4 interchange in Seminole County, including multi-family residences, single-family residences, and schools.

### 4.2 Noise Impact Evaluation

The *Noise Study Report* for the Wekiva Parkway/SR 46 Realignment PD&E Study has been prepared in accordance with the requirements of amended Title 23 Code of Federal Regulations (CFR), Part 772 – *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (effective date July 13, 2011) and updated Chapter 17 in Part 2 of the *FDOT PD&E Manual*. FHWA and FDOT consider traffic noise impacts to occur based on two criteria. If the predicted noise levels approach or exceed the Noise Abatement Criteria (NAC), or if the predicted noise levels substantially exceed existing noise levels, then a noise impact will occur and noise abatement shall be considered. FDOT defines the term “approach” as noise levels within 1 dB(A) of the FHWA NAC. A substantial noise increase is defined as 15 dB(A) or more above the existing noise level as a direct result of the transportation improvement project in question.

FDOT’s *PD&E Manual* organizes noise sensitive land uses into activity categories and establishes a noise threshold to define when a noise impact occurs at a particular location. An hourly sound level that approaches or exceeds the noise abatement criteria is considered an impact. The Activity Category B criteria in 23 CFR 772 applies to single-family (including mobile home parks) and multi-family residences. The Activity Category C criteria applies to churches, schools, recreation areas and similar uses. The abatement level for both Categories B and C is an hourly sound level that approaches or exceeds 67 dB(A) hourly equivalent sound level (Leq). The above-described NAC are determined at the exterior of structures during peak noise conditions.

For Activity Categories B and C, which apply to the noise sensitive sites along the project study area, the FDOT approach criteria translates to 66 dB(A). **Table 4-1** presents the FHWA and FDOT NAC used for determining the noise standard for specific land uses.

**TABLE 4-1**  
FHWA and FDOT Noise Abatement Criteria

<b>Noise Abatement Criteria<sup>1</sup></b>			
Hourly A-Weighted Sound Level-decibels (dB(A))			
<b>Activity Category</b>	<b>Abatement Level (in L<sub>Aeq1h</sub>)</b>		<b>Description of Activity Category</b>
	<b>FHWA</b>	<b>FDOT<sup>2</sup></b>	
A	57	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is continue to serve its intended purpose.
B	67	67 (Exterior)	Single-family (including mobile home parks) and multifamily residences.
C	67	67 (Exterior)	Includes active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, golf courses, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	--	51 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	72 (Exterior)	Includes hotels, motels, offices, restaurants/bars, and other developed lands, properties not included in Activity Category A-D or F.
F		N/A	Includes agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G		N/A	Undeveloped lands that are not permitted.

<sup>1</sup> Based on Table 1 of 23 CFR Part 772.

<sup>2</sup> FDOT defines approach as within 1 decibel of the NAC. FDOT defines that a substantial noise increase occurs when the existing noise level is predicted to be exceeded by 15 decibels or more as a result of the transportation improvement project. When this occurs, the requirement for abatement consideration will be followed.



## 5. Traffic Noise Analysis

---

### 5.1 Measured Noise Levels

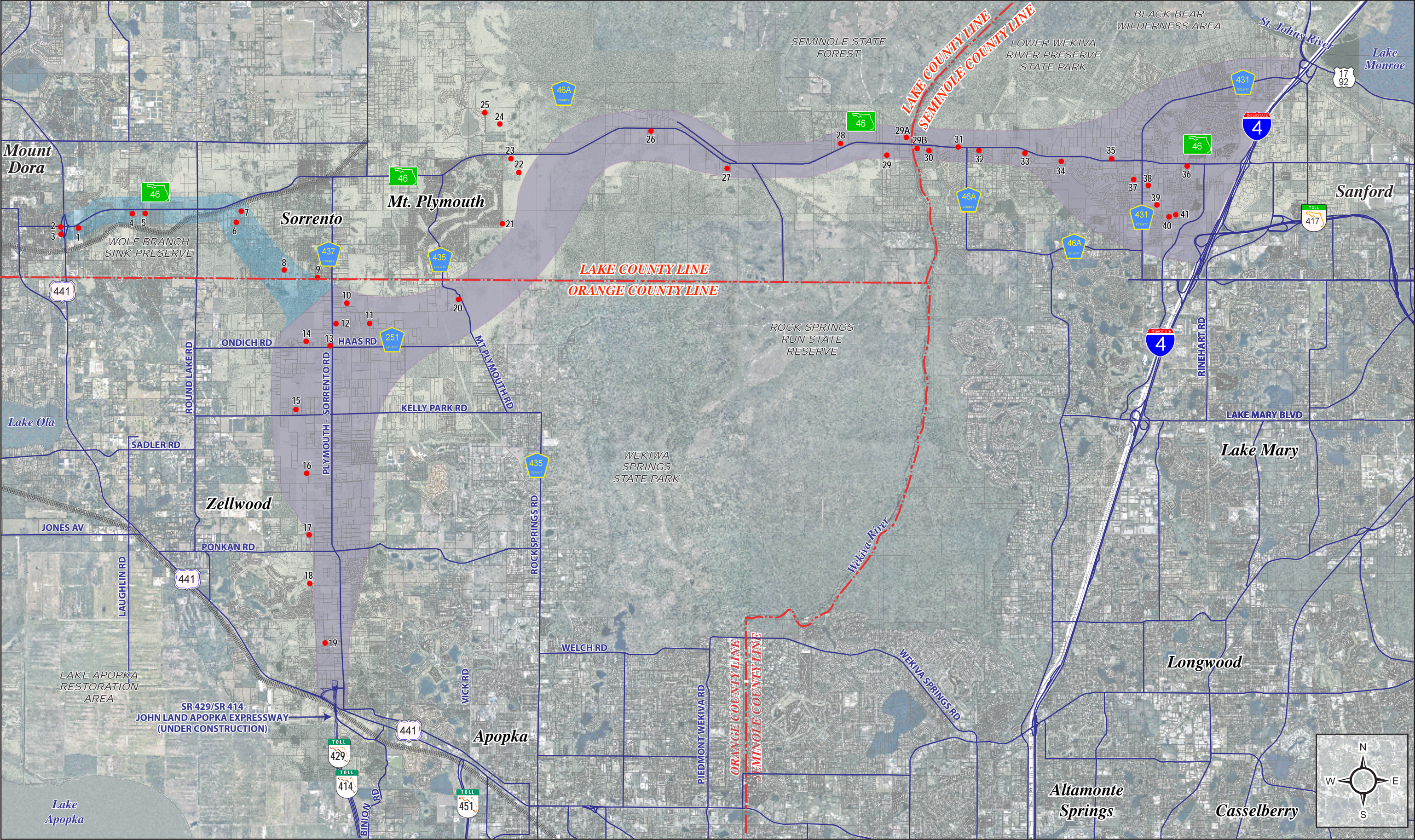
Field measurements were conducted according to procedures described in *Measurement of Highway-Related Noise, Report No. FHWA-PD-96-046* (FHWA, 1996). Concurrent with noise measurements, traffic counts along with posted speed limits were taken and notation was made of weather conditions and any unusual noise events (i.e., sirens, barking dogs, aircraft, etc.). Noise levels were measured using a Bruel and Kjaer (B&K) Type 2236 Larson Davis 820 SLM precision sound level meter equipped with a B&K 4188 ½" 2138 microphone. A B&K Model 4231 acoustical calibrator was used to calibrate the sound level meter before each measurement to ensure the accuracy of the measurements. This instrumentation complies with the requirements of the American National Standards Institute (ANSI) and International Electrotechnical Commission (IEC) for Type I (precision) sound-level equipment. All the systems that were used are laboratory calibrated within a 12-month period prior to the measurements.

Three short-term noise level measurements were conducted at each of the 43 sites in order to determine the existing background noise levels within the project study area. The measurements were taken during the morning and afternoon traffic periods to characterize the daily noise exposure along the project corridor. The monitoring locations (M1 through M41), as presented in **Exhibit 5-1**, are representative of the noise-sensitive locations in the project study area. **Table 5-1** summarizes the results of the noise levels measured and their comparison to levels predicted by the computer noise model.

The purpose of the noise level measurements was to validate the use of TNM in predicting traffic noise exposure within the study area. The noise level prediction model is approved for use if measured and predicted noise levels are within the FDOT tolerance standard of 3 dB(A). The ability of the FHWA TNM to accurately predict noise levels for this project was confirmed.

As presented in Table 5-1, the noise levels predicted by the computer model at the majority of the monitoring locations are within the expected 3 dB(A) of the measured noise levels. The small differences between the measured and predicted noise levels indicate that the TNM may be used to accurately calculate traffic noise exposure at areas adjacent to the roadway.





LEGEND

- Wekiiva Parkway Study Area
- SR 46 Realignment Study Area
- Noise Monitoring Locations

Exhibit 5-1  
Noise Monitoring Locations



**TABLE 5-1**  
Existing Noise Levels

<b>Monitoring Location</b>	<b>Description</b>	<b>Measured Leq (dBA)</b>	<b>Predicted Leq (dB(A))*</b>	<b>Difference (dB(A))*</b>
M1	101 Pond Road	54.9 (AM)	57.2	+2.3
M2	180 Stanley Bell Drive	64.5 (AM)	66.1	+1.6
M3	29 Collins Court-Southernaire Mobile Home Park	64.8 (AM)	66.0	+1.2
M4	30943 Buttercup Lane	64.8 (AM)	66.8	+2.0
M5	30947 Vista View	69.8 (AM)	70.2	+0.4
M6	22541 Coronado Drive	45.5 (AM)	-	-
M7	22540 SR 46	60.9 (PM)	60.5	-0.4
M8	23244 Oak Lane	39.4 (AM)	-	-
M9	30002 Azalea Avenue	48.6 (AM)	-	-
M10	6501 Plymouth Sorrento Road	47.5 (PM)	-	-
M11	2424 Boch Road	42.7 (PM)	-	-
M12	6303 Plymouth Sorrento Road	48.2 (PM)	49.5	+1.3
M13	5910 Plymouth Sorrento Road	59.7 (PM)	57.6	-2.1
M14	3435 Ondich Road	44.1 (PM)	46.0	+1.9
M15	3449 West Kelly Park Road	51.4 (PM)	53.8	+2.4
M16	4476 Plymouth Sorrento Road	42.3 (PM)	-	-
M17	3145 North Phils Lane	42.9 (PM)	-	-
M18	2473 Putter Road-Zellwood Station	46.4 (PM)	-	-
M19	Formerly Stanton Ridge	42.8 (PM)	-	-
M20	6604 Mt. Plymouth Road	47.2 (AM)	44.0	-3.2
M21	30825 Duxbury Avenue	37.8 (AM)	-	-
M22	Camp Challenge-Easter Seals-Rear	46.6 (PM)	-	-
M23	Camp Challenge-Easter Seals-Front	69.6 (PM)	69.0	-0.6
M24	26423 SR 46	42.1 (PM)	-	-
M25	Heathrow Country Estates	46.7 (PM)	-	-
M26	28714 SR 46	57.4 (PM)	53.5	-3.9
M27	29610 SR 46	72.2 (AM)	69.3	-2.9
M28	31343 SR 46	51.6 (PM)	50.2	-1.4
M29	31852 Wekiva River Road	54.8 (AM)	51.8	-3.0
MS29A	Wekiva River, N of SR 46	66.0 (AM)	62.2	-3.8
MS29B	Wekiva River, S of SR 46	56.8 (AM)	-	-
M30	180 River Oaks Circle	58.4 (AM)	56.5	-1.9
M31	8400 SR 46	60.5 (AM)	60.9	+0.4
M32	8206 Emerald Forest Court	63.3 (AM)	60.8	-2.5
M33	Future site of Venetian Shore Estates	69.4 (AM)	66.4	-3.0
M34	7010 Glade Road	61.6 (PM)	62.8	+1.2
M35	351 Sunbelt Circle-Twelve Oaks RV Resort	64.1 (PM)	63.5	-0.6
M36	Publix parking lot	69.8 (PM)	68.9	-0.9
M37	201 Capri Cove	47.8 (PM)	-	-
M38	Lakeside Fellowship Church	54.0 (PM)	-	-
M39	Wilson Elementary School	49.6 (PM)	-	-
M40	1455 Pacific Avenue	53.0 (PM)	-	-
M41	Tall Trees-Near Wilson Road	54.3 (PM)	-	-

\* For those monitoring locations with no entry, no existing traffic data was available.



## 5.2 Noise Model

Existing and future noise levels were predicted using the FHWA TNM, Version 2.5, computerized highway noise prediction model. The noise levels for the design year (2032) Preferred Alternative were calculated and compared to the existing condition noise levels at noise sensitive sites along the project corridor.

To predict traffic noise levels using TNM, certain input parameters are needed. These include detailed roadway geometry, receiver locations, propagation characteristics, topography, and traffic data. In some cases shielding effects of existing structures and property line walls had to be taken into account in order to draw a realistic comparison of the model to actual site conditions; however, in most cases, such effects were not considered in the final analysis of noise conditions because evaluated receivers are close to the roadway and devoid of any intervening shielding factors. Projected existing conditions and design year average daily traffic (ADT) volumes, vehicle classifications, and speeds for each segment were obtained from the project traffic consultant's *Design Traffic Report* (HNTB, September 2010). The traffic data used for this noise study is summarized in **Table 5-2**.

**TABLE 5-2**  
Existing and Design Year Traffic Volumes

Existing and 2032 No Build*		2032 Build*	
Facility	DHV	Facility	DHV
4-Lane Arterial (State-Class I)	1,810	Freeway 4-Lane	2,940
4-Lane Urban (Non State Major)	1,120	Freeway 6-Lane	4,550
2-Lane Rural (State-Class I)	720	Arterial 6-Lane	2,720
		1 Lane Ramp	804
		2 Lane Ramp	3,000
Daily Truck= 11.58 % (arterials)		Daily Truck= 11.58 % (arterials)	
Peak Truck= 5.78 % (assumed half of daily truck)		Peak Truck= 5.78 % (assumed half of daily truck)	

\*LOS C directional volumes by facility type and vehicle mix percentages provided by project traffic consultant.

For modeling purposes, noise level predictions are made for the traffic characteristics that yield the worst hourly traffic noise on a regular basis. Typically, the worst hourly traffic volume is the peak LOS C.

The project area was closely inspected in order to accurately model the roadway and receiver locations. During the field inspection, site-specific features which may affect the acoustical condition at each location, such as existing terrain features, building structures, existing barriers, intervening ground types, and roadway and receiver elevations were noted. The Noise Study Methodology has been approved by FDOT and the Expressway Authority.

## 5.3 Noise Impact Analysis

Existing and future peak-hour traffic noise levels for the Existing, No Build, and Preferred Alternative were predicted for noise sensitive receivers at nearly 300 representative receptors within the project study corridor. These locations provided representative data to evaluate noise levels and potential noise impacts throughout the study area. Impact Tables presenting the comparison of the noise levels for the existing (2005), future No-Build (2032),

and future Build (2032) conditions within the four general project areas are provided in **Appendix A**.

The following subsections provide descriptions of the Preferred Alternative potential noise impacts evaluated for each project area (Orange County, Lake County West, Lake County East, and Seminole County), along with exhibits depicting the locations of the noise receptors used in the model.

### **5.3.1 Orange County Preferred Alternative**

The monitoring and receptor locations for the Preferred Alternative in the Orange County project area are shown in **Exhibit 5-2**.

The noise model predicted a total of 66 receptors would be impacted by this alternative. This includes three impacted residences north of Southfork Drive and west of Plymouth Sorrento Road; five impacted residences near Yothers Road and the Heritage Homes subdivision; one impacted receptor near the Benton Plymouth Oaks subdivision; eight impacted residences in the Lake Victor area north of Ponkan Road and west of Plymouth Sorrento Road; two isolated rural residences south of the proposed Mainline Toll Plaza; four impacted residences west of the Gospel Stable Church and Bay Ridge Cemetery; two impacted residences north of Kelly Park Road and west of the proposed alignment; four impacted residences in Smith Emery subdivision; seven impacted residences in Chaudoin Hills; two impacted residences near the intersection of Ondich/Haas Road and Plymouth Sorrento Road; six impacted residences along Plymouth Sorrento Road and north of the proposed alignment; seven impacted residences along Boch Road and north of the proposed alignment; ten impacted rural residences north of Haas Road and south of the proposed alignment; and two impacted residences near the Orange/Lake County line. Existing noise levels in this location of the project area range from 35 dB(A) to 60 dB(A). No Build noise levels would range from 37 dB(A) to 63 dB(A). Predicted 2032 noise levels under the Build condition range from 51 dB(A) to 68 dB(A), with increases above existing levels of up to 26 dB(A).







### 5.3.2 Lake County West Preferred Alternative

The monitoring and receptor locations for the Preferred Alternative in the Lake County West project area are shown in **Exhibit 5-3**.

The noise model predicted a total of 65 existing and planned residences would be impacted by this alternative. This includes 11 existing residences in the Lake Franklin Park subdivision; 29 residences in the Southernaire Mobile Home Park, Cobble Hill Village subdivision and Dorset of Mount Dora subdivision; four planned (with building permits) and existing residences in the Summerbrooke at Mount Dora subdivision; one residence in Sunset Pond subdivision; four residences in the Hacienda Hill and Top of the Hill subdivisions; two residences near Coronado Somerset Drive, and other scattered homes along the alignment. Existing noise levels in this location of the project area range from 39 dB(A) to 65 dB(A). No Build noise levels would range from 39 dB(A) to 67 dB(A). Predicted 2032 noise levels under the Build condition range from 48 dB(A) to 72 dB(A), with increases above existing levels of up to 20 dB(A).

### 5.3.3 Lake County East Preferred Alternative

The Lake County East project area is addressed in two sections for the purpose of the noise impact analysis: 1) Neighborhood Lakes Alternative 1 and South Alignment Alternative with Service Road and 2) CR 46A Realignment Alternative 1A, as discussed in the following subsections.

#### **Neighborhood Lakes Alternative 1 and South Alignment Alternative with Service Road**

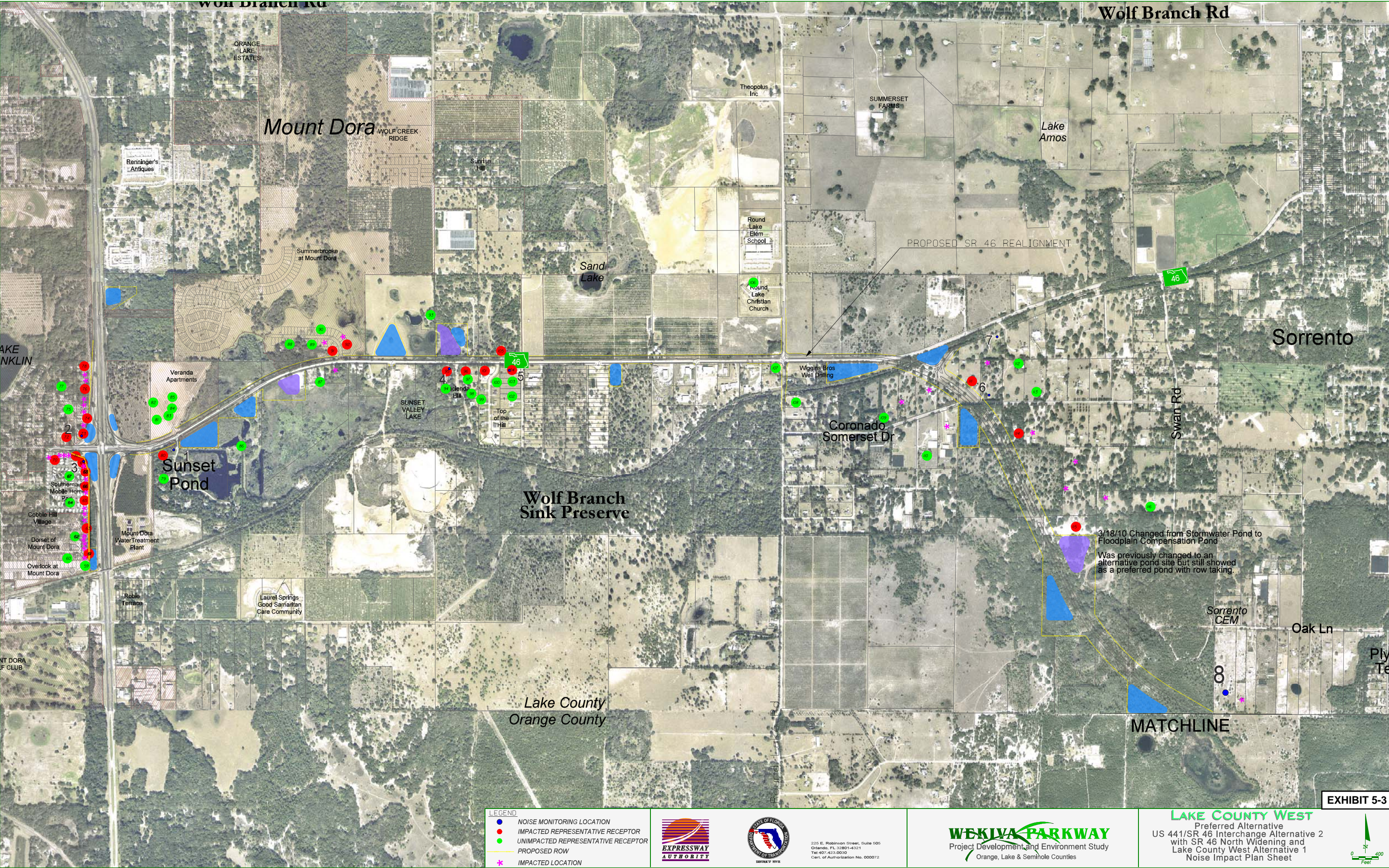
The monitoring and receptor locations for these components of the Preferred Alternative in the Lake County East project area are shown in **Exhibit 5-4**.

The noise model predicted a total of 17 receptors would be impacted by this alternative. 12 homes located along Baird Avenue and Duxbury Avenue in the Mount Plymouth Golf Club subdivision would be impacted by this alternative. In addition, five scattered residences would be impacted by noise. This includes two residences located on the north side of the alignment east of Old McDonald Road, one residence located near the existing SR 46/CR 46A intersection, and two residences located east of Wekiva River Road and south of the proposed alignment. Existing noise levels in this location of the project area range from 38 dB(A) to 57 dB(A). No Build noise levels would range from 38 dB(A) to 57 dB(A). Predicted 2032 noise levels under the Build condition range from 48 dB(A) to 68 dB(A), with increases above existing levels of up to 18 dB(A).

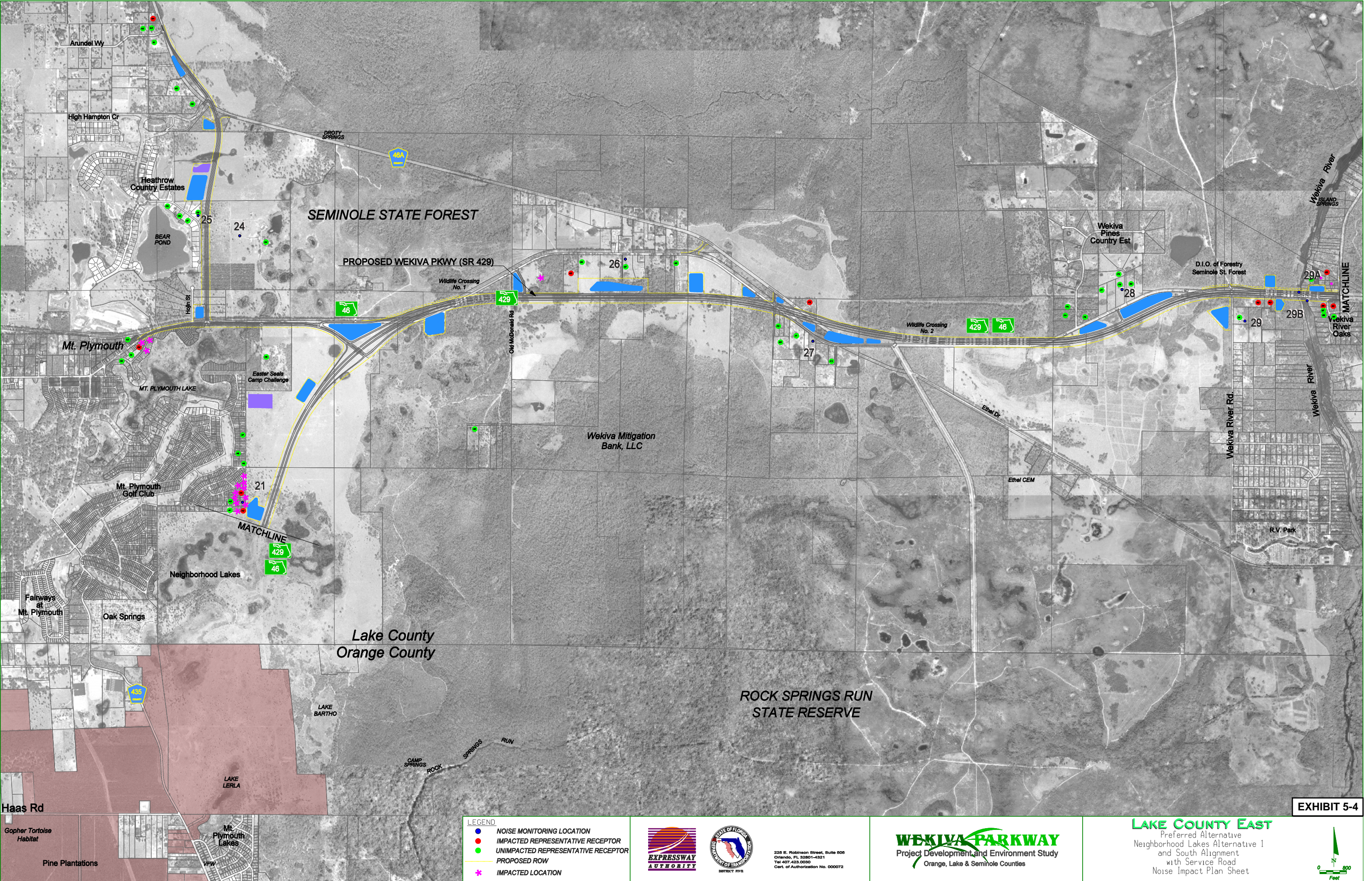
#### **Wekiva River**

The Wekiva River is located at the eastern end of this project area. Since the Wekiva River is a designated Wild & Scenic River, ambient noise data was gathered at two monitoring sites on either side of the river. As shown in **Exhibit 5-4** (and later in **Exhibit 5-19**), monitoring station 29A is on the west side of the river north of the existing SR 46 bridge and monitoring station 29B is on the east side of the river south of the existing bridge. Monitoring station 29A is located at the river shore line approximately 150 feet north of the edge of westbound travel on the existing SR 46 bridge. Monitoring station 29B is located near the river shore line approximately 180 feet south of the edge of eastbound travel on the existing bridge. The existing ambient noise level at monitoring station 29A is 62.2 dB(A) and the projected 2032 Build noise level is 66.7 dB(A). The existing ambient noise level at monitoring station 29B is 56.8 dB(A) and the projected 2032 Build noise level is 66.0 dB(A). The noise impact analysis









**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- PROPOSED ROW
- \* IMPACTED LOCATION



225 E. Robinson Street, Suite 606  
Orlando, FL 32801-4321  
Tel 407.423.0030  
Cert. of Authorization No. 000072

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties

**LAKE COUNTY EAST**  
Preferred Alternative  
Neighborhood Lakes Alternative 1  
and South Alignment  
with Service Road  
Noise Impact Plan Sheet

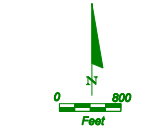


EXHIBIT 5-4



at the river for the Build alternative was further developed and evaluated in a bridge design charrette process with the National Park Service (NPS) and FHWA in 2011 to allow completion of the Wekiva Wild & Scenic River Addendum to the Programmatic Section 4(f) Evaluation (CH2MHILL, October 2011). A Technical Memorandum entitled *Concept Level Studies for the Proposed Wekiva River Bridges* (CH2MHILL, August 8, 2011) was prepared to document the conceptual bridge design process, including the noise evaluation, and includes summaries of the charrette meetings. NPS provided full Section 4(f) concurrence for the Wekiva River bridges in October 2011, subject to an ultimate Section 7(a) Evaluation and Determination during final design. CR 46A Realignment Alternative

#### **CR 46A Realignment Alternative 1A**

The monitoring and receptor locations for this component of the Preferred Alternative in the Lake County East project area are shown in **Exhibit 5-5**.

The noise model predicted a total of five receptors would be impacted by this alternative. There are four residences in the small Mount Plymouth subdivision south of existing SR 46 that would be impacted by this alternative. An additional isolated impacted residence is located along existing CR 46A near Arundel Way. Existing noise levels in this location of the project area range from 42 dB(A) to 57 dB(A). No Build noise levels would range from 42 dB(A) to 57 dB(A). Predicted 2032 noise levels under the Build condition range from 51 dB(A) to 67 dB(A), with increases above existing levels of up to 14 dB(A).

### **5.3.4 Seminole County Preferred Alternative**

The Seminole County project area is addressed in two sections for the purpose of the noise impact analysis: 1) SR 46 Corridor North Widening Alternative and 2) SR 417/I-4 Interchange Connection Alternative B, as discussed in the following subsections.

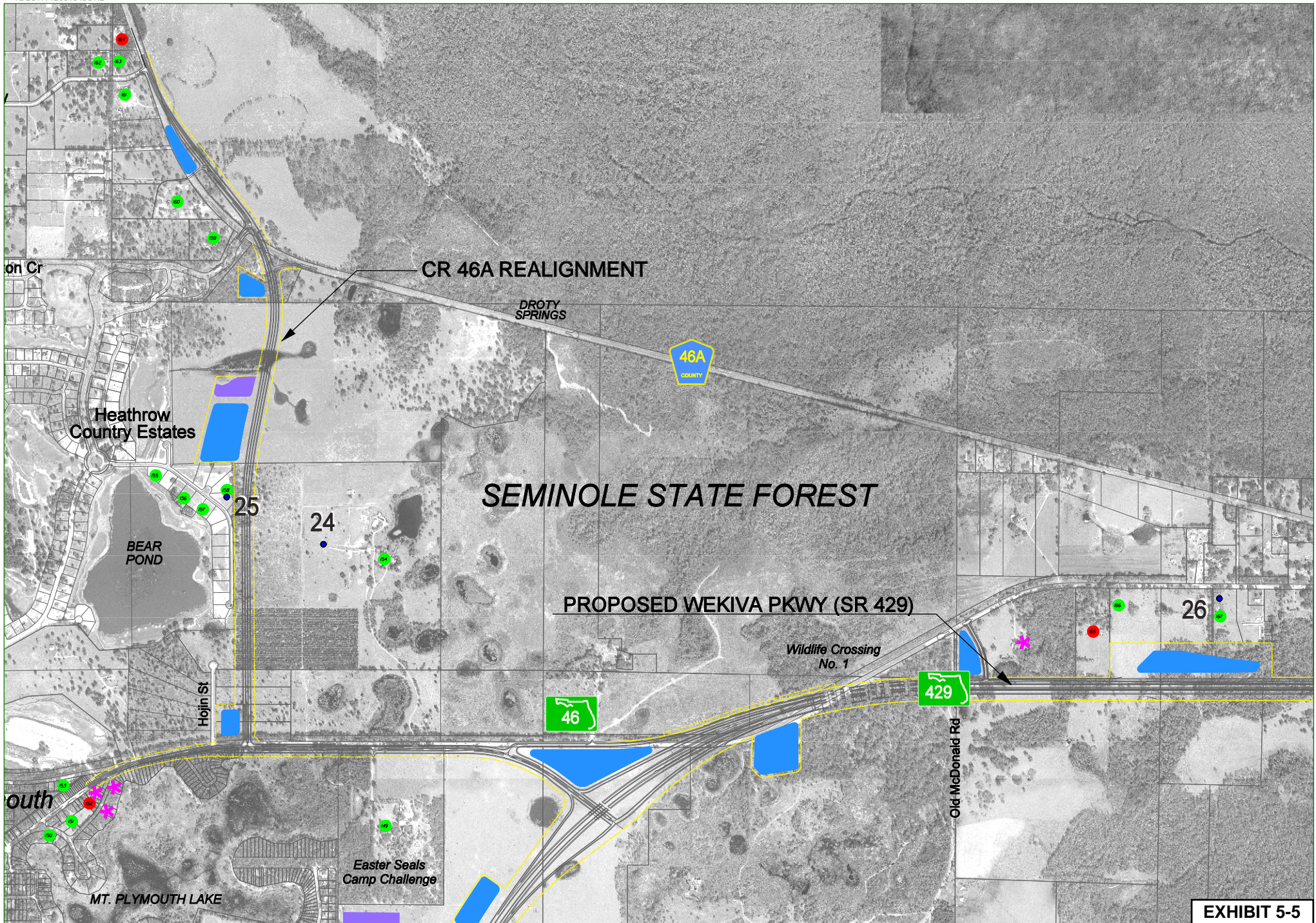
#### **SR 46 Corridor North Widening Alternative**

The monitoring and receptor locations for this component of the Preferred Alternative in the Seminole County project area are shown in **Exhibit 5-6**.

The noise model predicted a total of 50 single family residences in or near subdivisions and approximately 50 mobile homes on rental spaces in the Twelve Oaks RV Resort would be impacted by this alternative. No RVs were counted among these 50 residences. Only assumed permanently occupied dwellings were counted. Impacts to the single family residences include three impacted residences just west of the Lower Wekiva River Preserve State Park north of existing SR 46, six impacted residences at Wekiva River Oaks; two impacted residences at the Estates at Wekiva Park; three impacted residences at Foxspur; eight impacted residences at Markham Forest; three impacted residences at Ross Lake Shores; four impacted residences at Bella Foresta; six impacted residences at Sylvan Glade; five impacted residences near Florida Fancy Nursery; two impacted residences off existing SR 46 and South Center Road; seven impacted residences at Capri Cove subdivision; and one single impacted residence north of the Capri Cove subdivision.

Existing noise levels in this location of the project area range from 40 dB(A) to 67 dB(A). No Build noise levels would range from 41 dB(A) to 60 dB(A). Predicted 2032 noise levels under the Build condition range from 52 dB(A) to 70 dB(A), with increases above existing levels of up to 16 dB(A).





**EXHIBIT 5-5**

- LEGEND**
- NOISE MONITORING LOCATION
  - IMPACTED REPRESENTATIVE RECEPTOR
  - UNIMPACTED REPRESENTATIVE RECEPTOR
  - PROPOSED ROW
  - ★ IMPACTED LOCATION



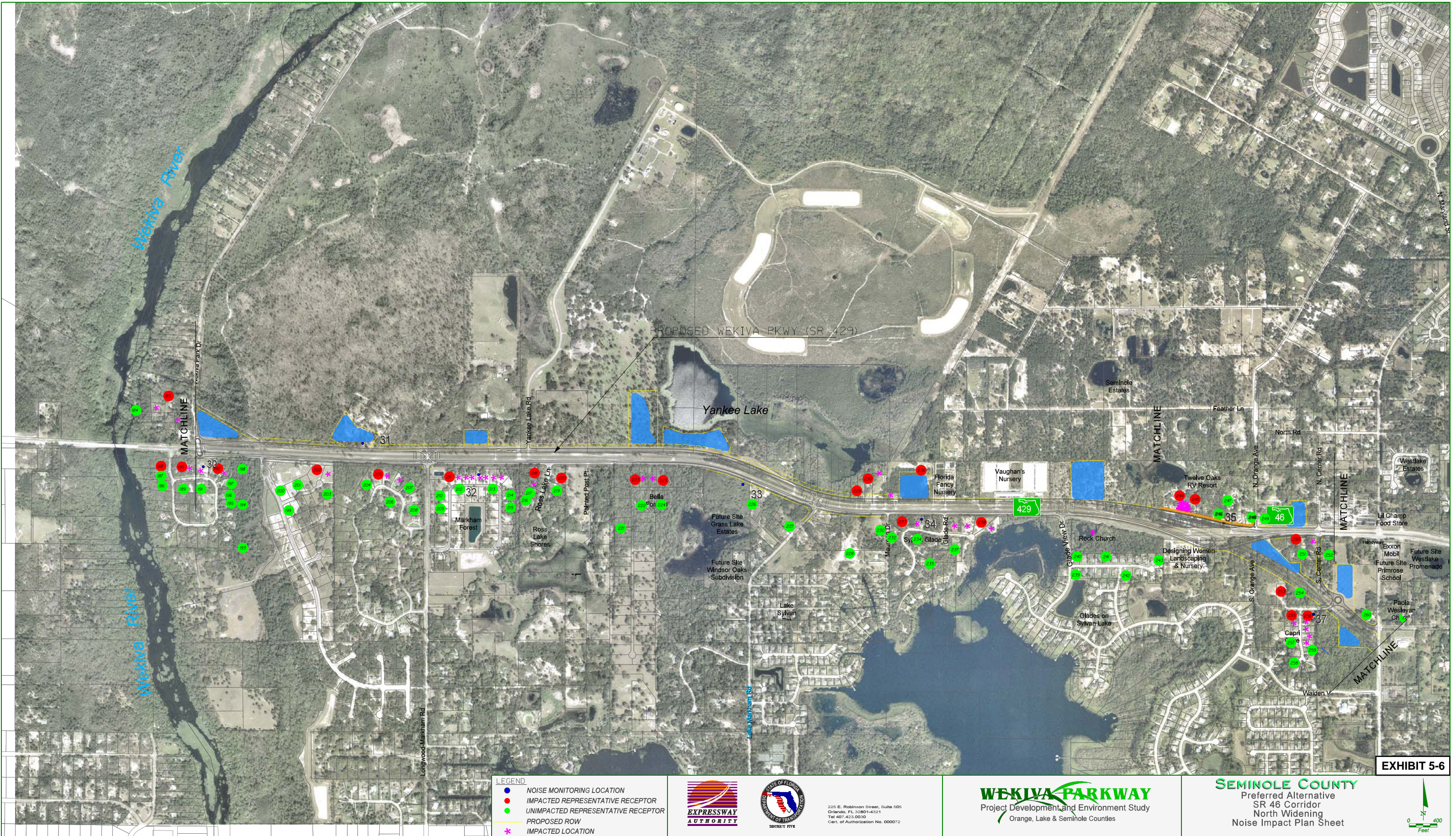
228 E. Robinson Street, Suite 505  
Orlando, FL 32801-4311  
Tel 407-433-0300  
Florida License No. 000072

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**LAKE COUNTY EAST**  
Preferred Alternative  
CR 46A Realignment Alternative 1A  
Noise Impact Plan Sheet





**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- PROPOSED ROW
- ★ IMPACTED LOCATION



225 E. Robinson Street, Suite 505  
Orlando, FL 32801-4321  
Tel 407.423.0030  
Cert. of Authorization No. 000072

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties

**SEMINOLE COUNTY**  
Preferred Alternative  
SR 46 Corridor  
North Widening  
Noise Impact Plan Sheet

**EXHIBIT 5-6**



### 5.3.4.1 SR 417/I-4 Interchange Connection Alternative B

The monitoring and receptor locations for this component of the Preferred Alternative in the Seminole County project area are shown in **Exhibit 5-7**.

The noise model predicted a total of 31 residences, one church, and one private school would be impacted by this alternative. This includes one impacted church (Lakeside Methodist); one impacted school (Academy of Learning); three impacted residences along Orange Boulevard west of the proposed alignment; eight impacted residences at Tall Trees subdivision; and 20 impacted apartments at Ballantrae (formerly known as Cobblestone Crossing). Existing noise levels in this location of the project area range from 45 dB(A) to 67 dB(A). No Build noise levels would range from 46 dB(A) to 67 dB(A). Predicted 2032 noise levels under the Build condition range from 54 dB(A) to 68 dB(A), with increases above existing levels of up to 18 dB(A).

### 5.3.5 Summary of Noise Impacts

**Table 5-3** provides a summary of predicted noise impacts for the Preferred Alternative evaluated in each project area. As discussed in Section 5.4, the noise abatement analysis indicates that there are 99 benefited receivers which meet the criteria for a noise barrier. Noise barriers were determined to not be a feasible and/or cost reasonable abatement measure at 187 noise sensitive sites identified as impacted by the proposed project.

**TABLE 5-3**  
Summary of Preferred Alternative Noise Impacts

Project Area	Existing Residences	Planned/Permitted Residences	Non-Residential (Churches, Schools)	Total	Benefited Receivers
<b>ORANGE COUNTY</b>					
Kelly Park Road Interchange Alignment with Systems Interchange Alternative 1 and Orange County Alternative 1	66	0	0	66	0
<b>LAKE COUNTY WEST</b>					
US 441/SR 46 Interchange Alternative 2 with SR 46 North Widening and Lake County West Alternative 1	63	2	0	65	29
<b>LAKE COUNTY EAST</b>					
Neighborhood Lakes Alternative 1	12	0	0	12	0
CR 46A Alternative 1A	5	0	0	5	0
Southern Alignment Alternative with Service Road	5	0	0	5	0
<b>SEMINOLE COUNTY</b>					
Wekiva Parkway with Frontage Roads, North Widening of SR 46 Corridor	100	0	0	100	50
Alternative B Connection to SR 417/I-4 Interchange	31	0	2	33	20



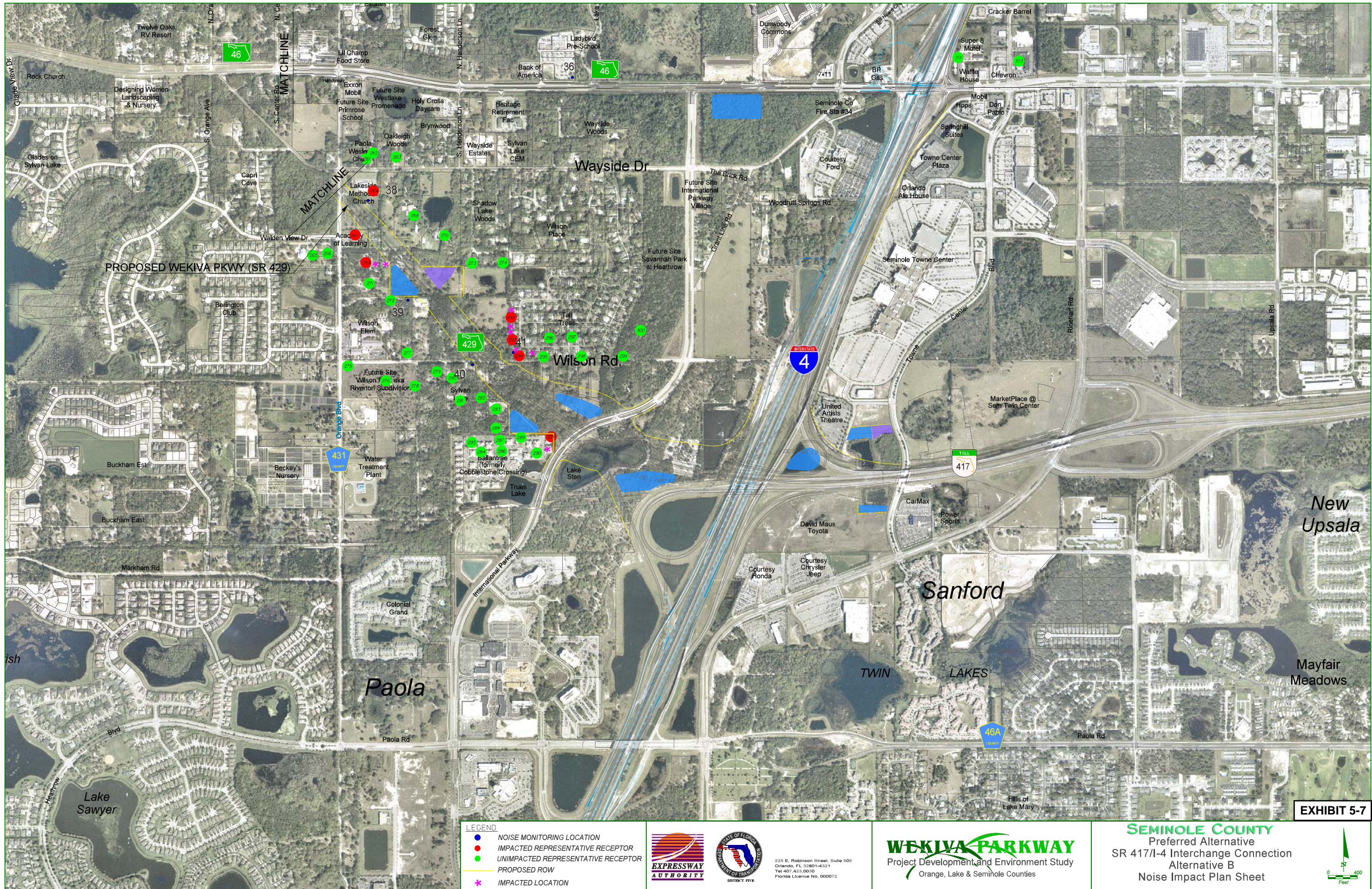


EXHIBIT 5-7

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- PROPOSED ROW
- \* IMPACTED LOCATION

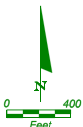


225 E. Robinson Street, Suite 505  
Orlando, FL 32801-4321  
Tel: 407.423.0010  
Florida License No. 000072



**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties

**SEMINOLE COUNTY**  
Preferred Alternative  
SR 417/I-4 Interchange Connection  
Alternative B  
Noise Impact Plan Sheet



0 400  
Feet



## 5.4 Noise Abatement

Potential traffic noise mitigation measures that may be considered for the project include the following:

- Construction of noise barriers within the proposed right-of-way;
- Modifying the proposed horizontal and/or vertical alignment of the roadway;
- Acquisition of property to serve as buffer zones to preempt development that would be adversely impacted by traffic noise;
- Modifying speed limits, and;
- Restricting truck traffic.

Of the above mitigation measures, the noise barrier option is the most practical and effective choice. Modification of roadway horizontal or vertical alignments for the purpose of noise reduction is too costly and is not practical in terms of engineering design considerations. Significant changes to the roadway alignment or profile are neither necessary nor compatible with project constraints. Acquisition of private property adjacent to the proposed right-of-way to act as buffer zone would not be practical. Lowering speed limits or restricting truck traffic would be inconsistent with the project need and purpose.

Noise barriers reduce noise levels by blocking the sound path between a roadway and noise sensitive sites. To effectively reduce traffic noise, a noise barrier must be relatively long, continuous (with no intermittent openings) and of sufficient height. Noise barriers were evaluated within Orange, Lake, and Seminole Counties at either the right of way line or along the outside edge of paved shoulder at heights ranging from 9 feet to 22 feet. For a noise barrier to be considered reasonable and feasible under FDOT criteria, the following minimum conditions should be met.

A noise barrier is considered feasible if it meets the following criteria:

### **Feasibility**

Feasibility is based on the minimum required noise reduction and constructability.

- It must provide a minimum insertion loss (noise reduction) of 5 dB(A) for at least two *impacted* receptors.
- The barrier must be compatible with safety, drainage, utility considerations, etc.

### **Reasonableness**

The reasonableness evaluation is based on the noise reduction design goal, cost-effectiveness, and the viewpoints of the benefited receptors.

- The noise barrier must provide a minimum insertion loss of 7 dB(A) for at least one *benefited* receptor.
- The cost of the noise barrier should not exceed \$42,000 per benefited noise sensitive site. This is the reasonable cost limit established by FDOT. A benefited noise sensitive site is defined as a site that would experience at least a 5 dB(A) reduction as a result of providing a noise barrier. The current unit cost used to evaluate economic reasonableness is \$30 per square foot, which covers barrier materials and labor.



- If the barrier is determined to meet the design goal and be cost-effective, the viewpoints of benefited receptors must be solicited to determine the desire for building the noise barrier. A detailed process to establish and document public support for or opposition to a noise barrier determined to be feasible and cost reasonable will be performed during the final design phase of the project.

Safety is an important factor in determining whether a particular abatement measure is feasible. If a conflict between a noise barrier and safety exists, primary consideration should be given to safety concerns. Accessibility to adjacent properties on non-limited access roadways must be given consideration since the placement of a noise barrier may block ingress and egress to these properties. Right-of-way needs, including access rights, easements for construction and/or maintenance, and additional land must be considered as part of the feasibility of noise barrier construction. Maintenance, drainage, utilities, access (ingress/egress) are additional design and constructability considerations involved in determining a noise barrier's feasibility.

The TNM model was used to analyze the acoustical effectiveness of each noise barrier. A discussion of the noise barriers evaluated for each noise sensitive site with a predicted future noise level that approaches or exceeds the NAC is provided in this section. At each barrier location, the feasibility (i.e., at least a 5 dB(A) reduction can be achieved) was established. If feasible, then the design goal and cost reasonableness were evaluated. The location, length, and height of a barrier were optimized for all of the impacted noise sensitive sites to determine the most effective barrier configuration. The optimization process considered maximizing the number of impacted noise sensitive sites that could be provided at least a 7 dB(A) reduction while trying to reduce the cost below the reasonable cost limit of \$42,000 per benefited noise sensitive site.

It should be noted that FDOT feasibility criteria require that a barrier achieve a 5 dB(A) reduction at a minimum of two impacted receptors. Impacts were predicted at several scattered residences. As only one impacted receptor occurs at these locations, the feasibility criteria would not be achievable and no barrier was evaluated. In addition, along high speed, limited access highways FDOT District 5 does not recommend noise barriers less than 16 feet high unless there are special, abnormal circumstances.

For special use areas, the FDOT methodology for determining feasibility and reasonableness of noise abatement was used (*A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations*, FDOT, July 2009). This methodology evaluates abatement cost based on the number of benefited users and length of stay to determine if the abatement would be cost effective. An even distribution of users across the use area was assumed for the analysis. An abatement cost factor of \$995,935 per person-hour per square foot (/person-hr/sq. ft.) was used based on FDOT guidance. As a result, noise abatement for special use areas is considered to be both feasible and reasonable if noise levels can be reduced by 5 dB(A) or more, and the cost is at or below \$995,935/person-hr/sq. ft.



The noise barriers analyzed for the Preferred Alternative are described below. The receptor numbers shown on the color dots in the exhibits referenced in the following sections can be matched with the receptor numbers shown in the Impact Tables provided in **Appendix A**.

#### 5.4.1 Orange County Preferred Alternative

A noise barrier was evaluated for the two residences located **north of Southfork Drive and west of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-8**). A 1,400-linear foot noise barrier was evaluated along the proposed right-of-way line. Barrier heights between 9 and 11 feet would be required to achieve a 7 dB(A) reduction, satisfying the 5 dB(A) feasibility and 7 dB(A) reasonableness design goals. The total cost to construct the barrier would be nearly \$458,970, or \$229,485 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-4**.

**TABLE 5-4**

Barrier Analysis for Area North of Southfork Drive, West of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	9-11	1,400	\$458,970	7	\$229,485	\$42,000	No	Not Reasonable

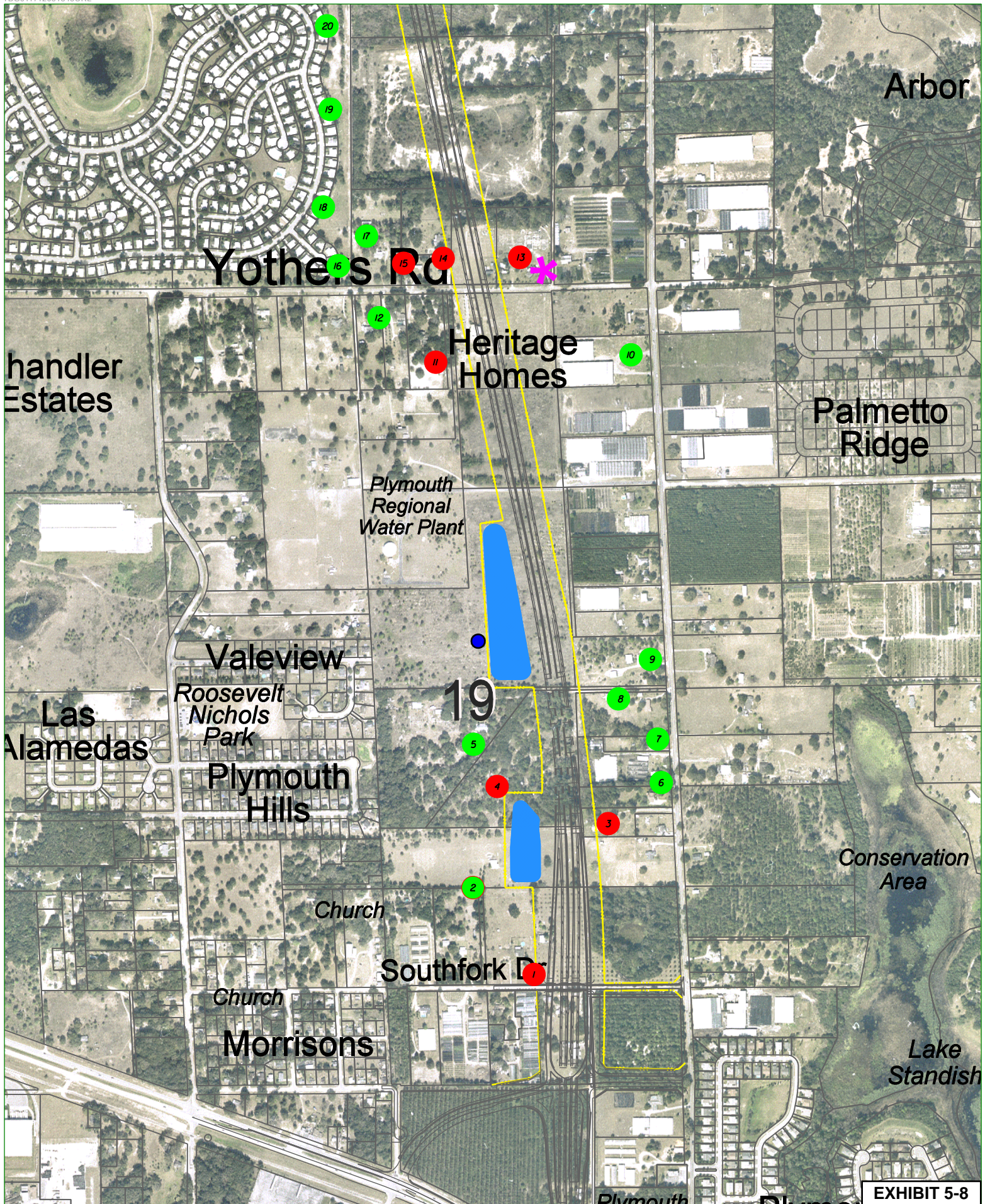
A noise barrier was evaluated for the two residences located **north of Yothers Road and west of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-8**). A 1,700-linear foot noise barrier was evaluated along the proposed right-of-way line. Barrier heights between 9 feet to 11 feet would be required to achieve a 5 to 7 dB(A) reduction, satisfying the 5 dB(A) feasibility and 7 dB(A) reasonableness design goals. The total cost to construct the barrier would be nearly \$544,470, or \$272,235 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-5**.

**TABLE 5-5**

Barrier Analysis for Area North of Yothers Road, West of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	9-11	1,700	\$544,470	5-7	\$272,235	\$42,000	No	Not Reasonable





**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- ★ IMPACTED LOCATION

**WEEKIVA PARKWAY**

Project Development and Environment Study

Orange, Lake & Seminole Counties

**ORANGE COUNTY**

Preferred Alternative

Southfork Drive to Yothers Road Area

**EXHIBIT 5-8**

0 800 Feet



A noise barrier was evaluated for the five residences located **north of Ponkan Road and west of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-9**). A 2,432-linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-6**.

**TABLE 5-6**  
Barrier Analysis for Area North of Ponkan Road, West of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	22	2,432	- - -	6	- - -	- - -	No	Not Reasonable

A noise barrier was evaluated for the two residences **east of the proposed alignment in the area between Kelly Park Road and Ponkan Road** (see **Exhibit 5-9**). A 1,884-linear foot noise barrier was evaluated along the proposed right-of-way line. Barrier heights between 10 feet to 19 feet would be required to achieve a 5 to 9 dB(A) reduction, satisfying the 5 dB(A) feasibility and 7 dB(A) reasonableness design goals. The total cost to construct the barrier would be nearly \$997,170, or \$498,585 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-7**.

**TABLE 5-7**  
Barrier Analysis for Area Between Kelly Park Road and Ponkan Road, East of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	10-19	1,884	\$997,170	5-9	\$498,585	\$42,000	No	Not Reasonable



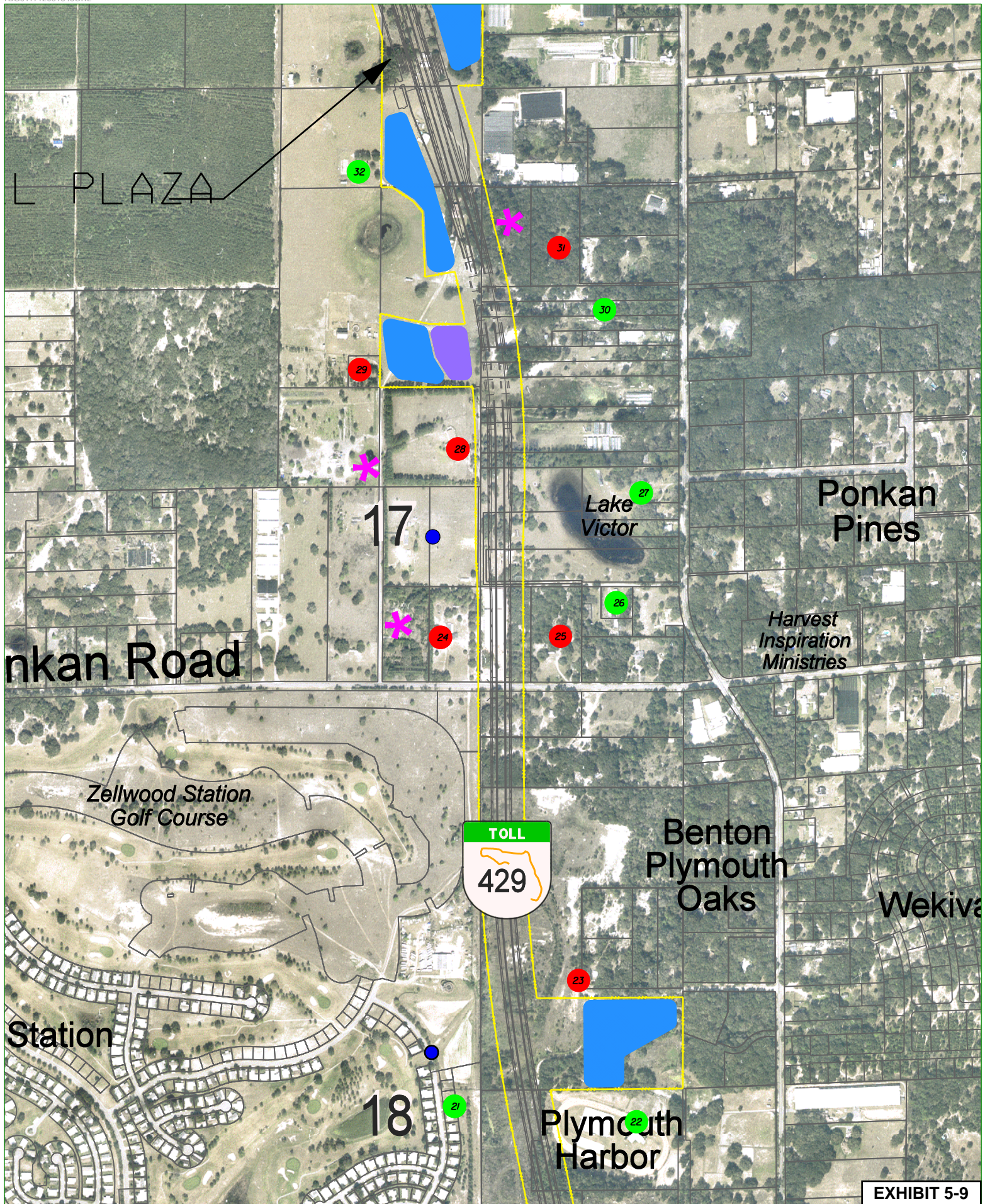


EXHIBIT 5-9

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

— PROPOSED ROW  
\* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**ORANGE COUNTY**  
Preferred Alternative  
Ponkan Road to Kelly Park Road Area



A noise barrier was evaluated for the two impacted residences **south of Kelly Park Road and east of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-10**). A 1,802- linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-8**.

**TABLE 5-8**

Barrier Analysis for Area South of Kelly Park Road, East of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	22	1,802	- - -	6	- - -	- - -	No	Not Reasonable

A noise barrier was evaluated for the two impacted residences along **Kelly Park Road and west of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-10**). A 1,093- linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction would not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-9**.

**TABLE 5-9**

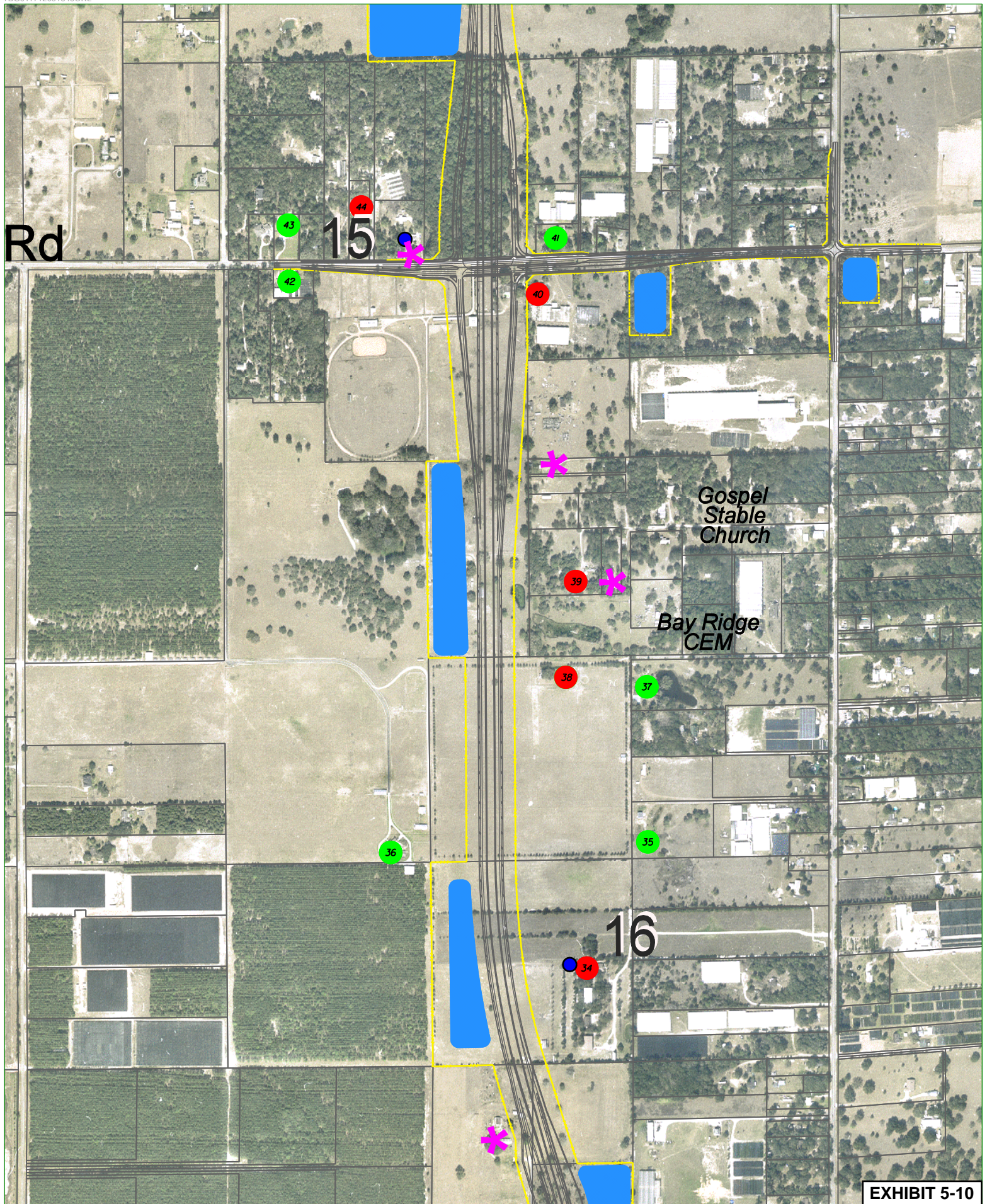
Barrier Analysis for Kelly Park Road Area, West of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
0	22	1,093	- - -	4	- - -	- - -	No	Not feasible

A noise barrier was evaluated for the **Smith Emery subdivision** as it had four residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-11**). A 2,524-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 9 to 22 feet would be required to achieve a 5 to 8 dB(A) reduction for four benefitted receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$1,520,250, or \$380,062 per benefitted receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefitted receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-10**.







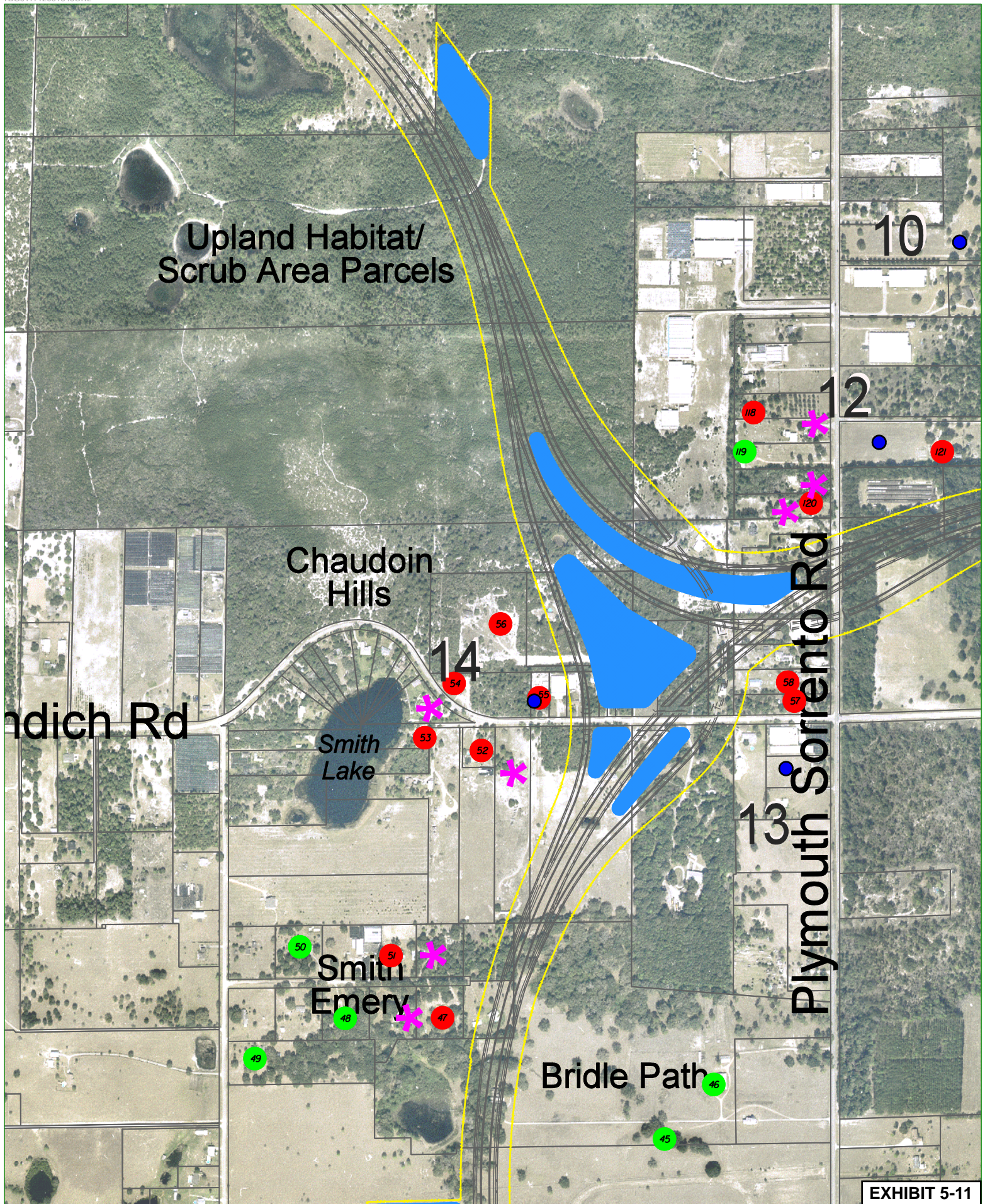


EXHIBIT 5-11

LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

- PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**ORANGE COUNTY**  
Preferred Alternative  
Smith Emery and Chaudoin Hills



**TABLE 5-10**  
Barrier Analysis for Smith Emery Subdivision

Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
4	9-22	2,524	\$1,520,250	5-8	\$380,062	\$42,000	No	Not Reasonable

A noise barrier was evaluated for the seven impacted residences of the **Smith Lake and Chaudoin Hills subdivision** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-11**). A 2,207- linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction at two impacted receivers would not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-11**.

**TABLE 5-11**  
Barrier Analysis for Smith Lake and Chaudoin Hills Subdivision

Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
1	9-22	2,207	---	5	---	---	No	Not Feasible

A noise barrier was evaluated for two residences located **west of Plymouth Sorrento Road, north of Ondich Road and south of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-11**). A 990-linear foot noise barrier was evaluated along the edge of shoulder. A minimum 5 dB(A) reduction would not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-12**.

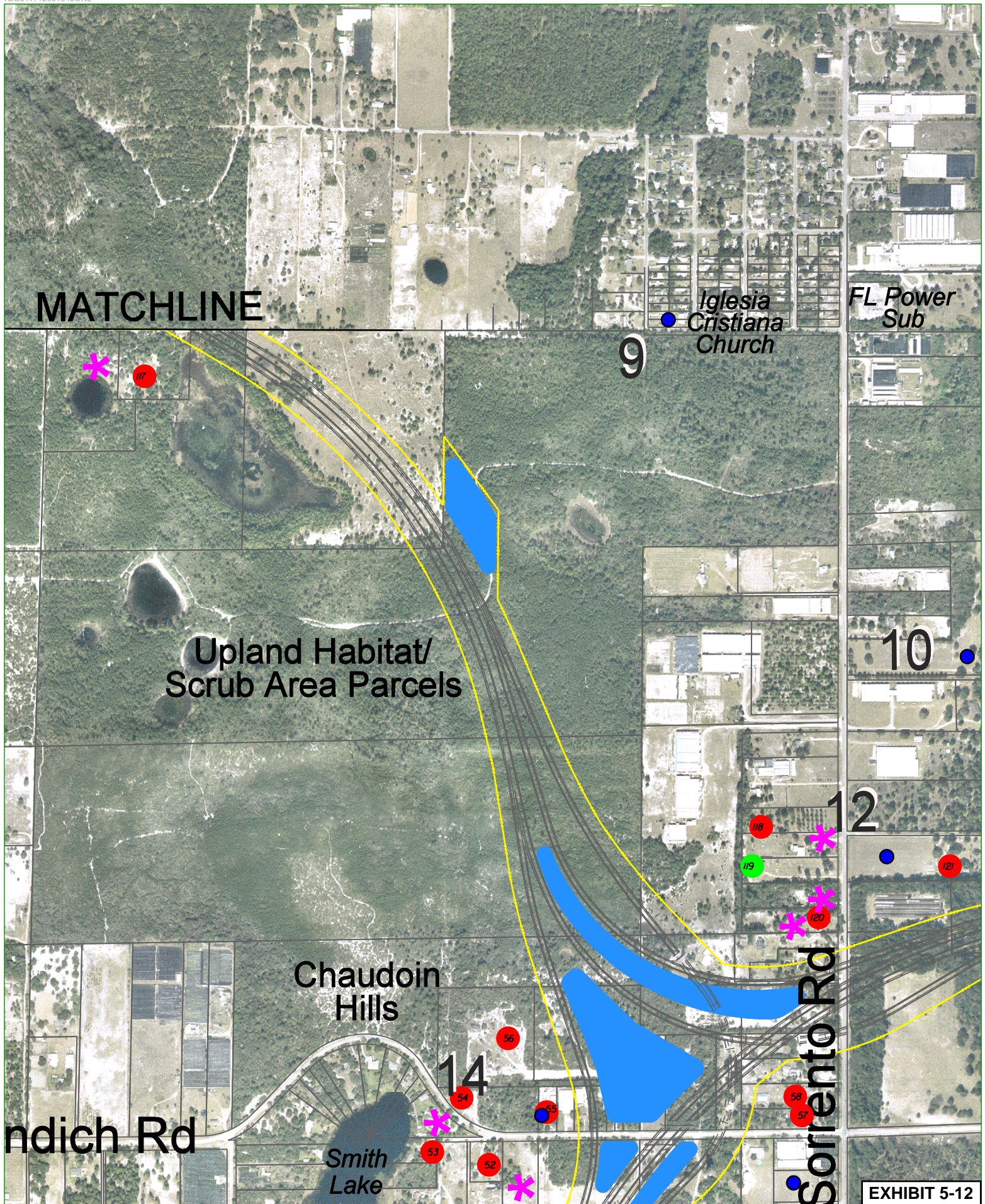
**TABLE 5-12**  
Barrier Analysis for Area West of Plymouth Sorrento Road, North of Ondich Road and South of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
0	22	990	---	1	---	---	No	Not feasible

A noise barrier was evaluated for five residences located **west of Plymouth Sorrento Road and north of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-12**). A 1,591-linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction would





<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">●</span> NOISE MONITORING LOCATION</li> <li><span style="color: red;">●</span> IMPACTED REPRESENTATIVE RECEPTOR</li> <li><span style="color: green;">●</span> UNIMPACTED REPRESENTATIVE RECEPTOR</li> <li><span style="color: orange;">—</span> POTENTIAL NOISE BARRIER</li> <li><span style="color: yellow;">—</span> PROPOSED ROW</li> <li><span style="color: magenta;">✱</span> IMPACTED LOCATION</li> </ul>		<p><b>WEEKIVA PARKWAY</b> Project Development and Environment Study Orange, Lake &amp; Seminole Counties</p>	<p>0 800 Feet</p>	<p><b>ORANGE COUNTY</b> Preferred Alternative Area West of Plymouth Sorrento Road, North of Ondich Road and North/South of Proposed Alignment</p>
---	--	--	-----------------------	---

**EXHIBIT 5-12**



not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-13**.

**TABLE 5-13**

Barrier Analysis for Area West of Plymouth Sorrento and North of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
0	22	1,591	- - -	1	- - -	- - -	No	Not feasible

A noise barrier was evaluated for two residences located **near the Lake County/Orange County Line** and southwest of the proposed alignment predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-12**). A 2,956-linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-14**.

**TABLE 5-14**

Barrier Analysis for Area Near Lake County/Orange County Line

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	22	2,956	- - -	5	- - -	- - -	No	Not reasonable

A noise barrier was evaluated for four residences located **south of Boch Road and north of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-13**). A 6,055-linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-15**.

**TABLE 5-15**

Barrier Analysis for Area (1) South of Boch Road and North of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	22	6,055	- - -	6	- - -	- - -	No	Not Reasonable



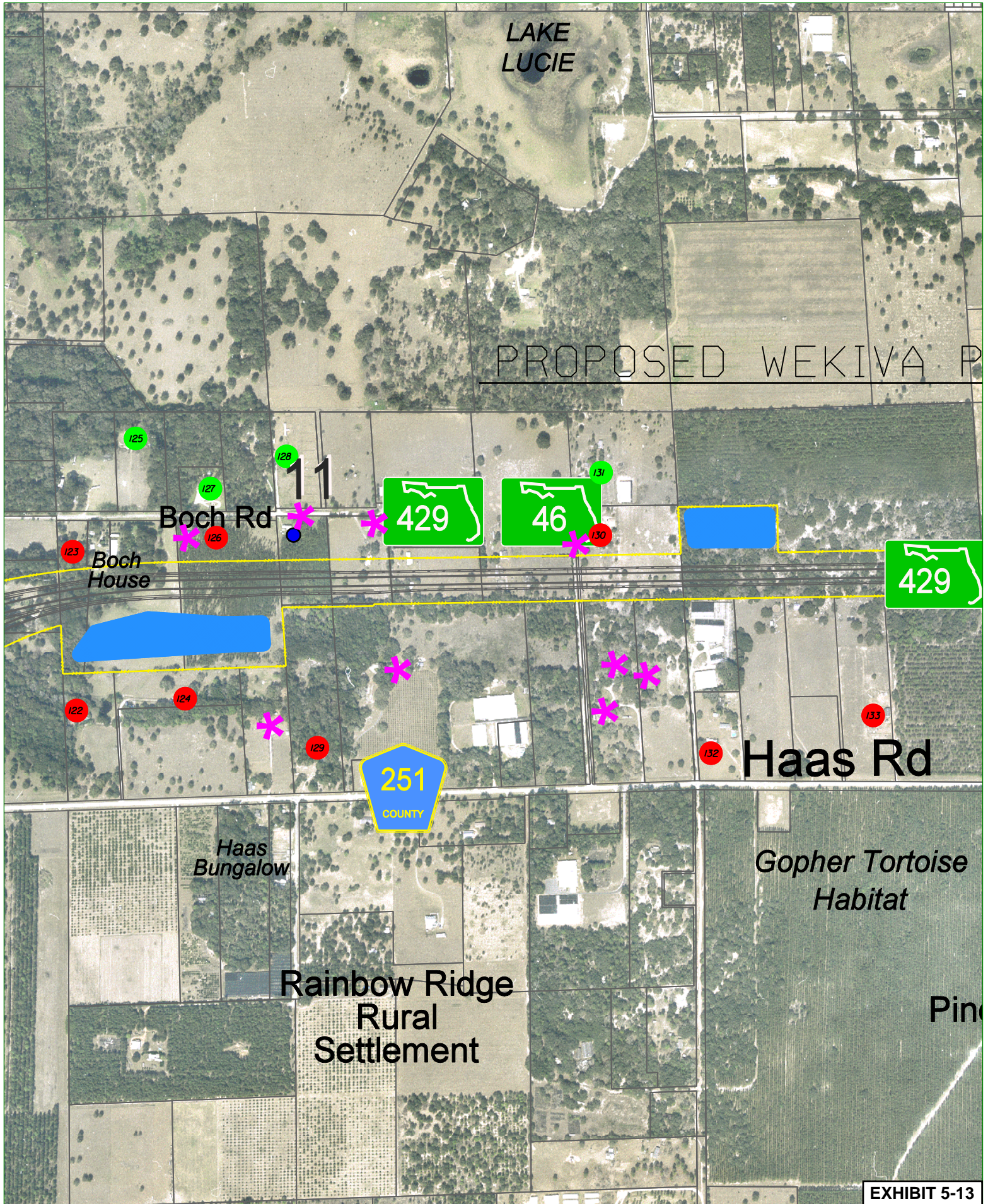


EXHIBIT 5-13

LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**ORANGE COUNTY**  
Preferred Alternative  
Area South of Boch Road,  
North of Haas Road and  
North/South of Proposed Alignment



A noise barrier was evaluated for the two residences located **south of Boch Road and north of the proposed alignment** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-13**). A 2,093-linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction would not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-16**.

**TABLE 5-16**  
Barrier Analysis for Area (2) South of Boch Road and North of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
0	9-22	2,093	- - -	2	- - -	- - -	No	Not Feasible

A noise barrier was evaluated for the three residences located **south of the proposed alignment and north of Haas Road** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-13**). A 3,792-linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction would not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-17**.

**TABLE 5-17**  
Barrier Analysis for Area South of Proposed Alignment and North of Haas Road

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Average Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
0	22	3,792	- - -	3	- - -	- - -	No	Not feasible

## 5.4.2 Lake County West Preferred Alternative

A noise barrier was evaluated for the **Lake Franklin Park subdivision** as it had 11 residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-14**). A 1,637-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 9 to 20 feet would be required to achieve a 6 to 13 dB(A) reduction for 11 benefitted receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$729,690, or \$66,335 per benefitted receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefitted receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-18**.



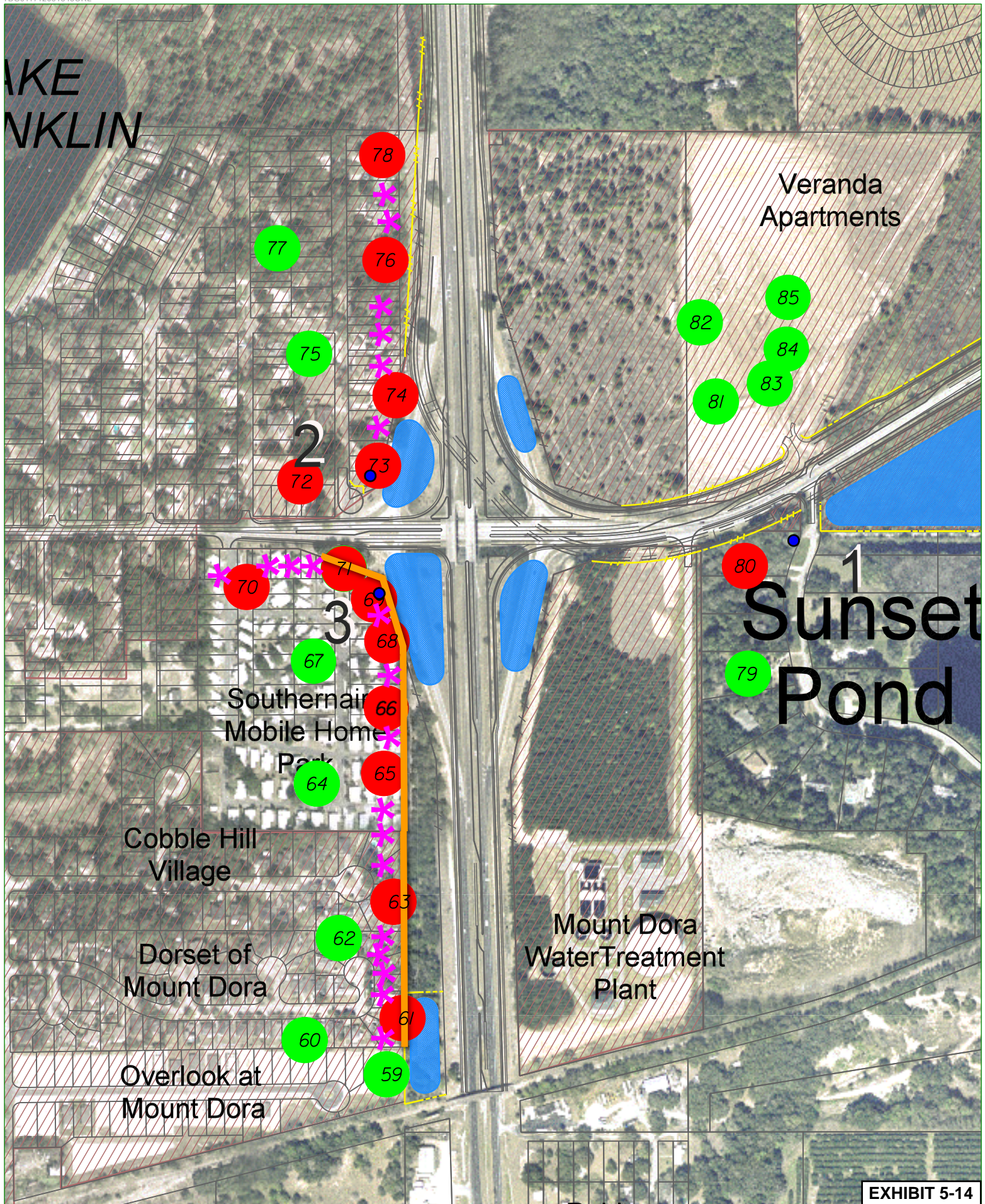


EXHIBIT 5-14

LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEKIVA PARKWAY**  
 Project Development and Environment Study  
 Orange, Lake & Seminole Counties



**LAKE COUNTY WEST**  
 Preferred Alternative  
 Lake Franklin Park, Southernaire  
 Mobile Home Park, Cobble Hill Village  
 and Dorset of Mount Dora



**TABLE 5-18**  
Barrier Analysis for Lake Franklin Park Subdivision

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
11	9-20	1,637	\$729,690	6-13	\$66,335	\$42,000	No	Not Reasonable

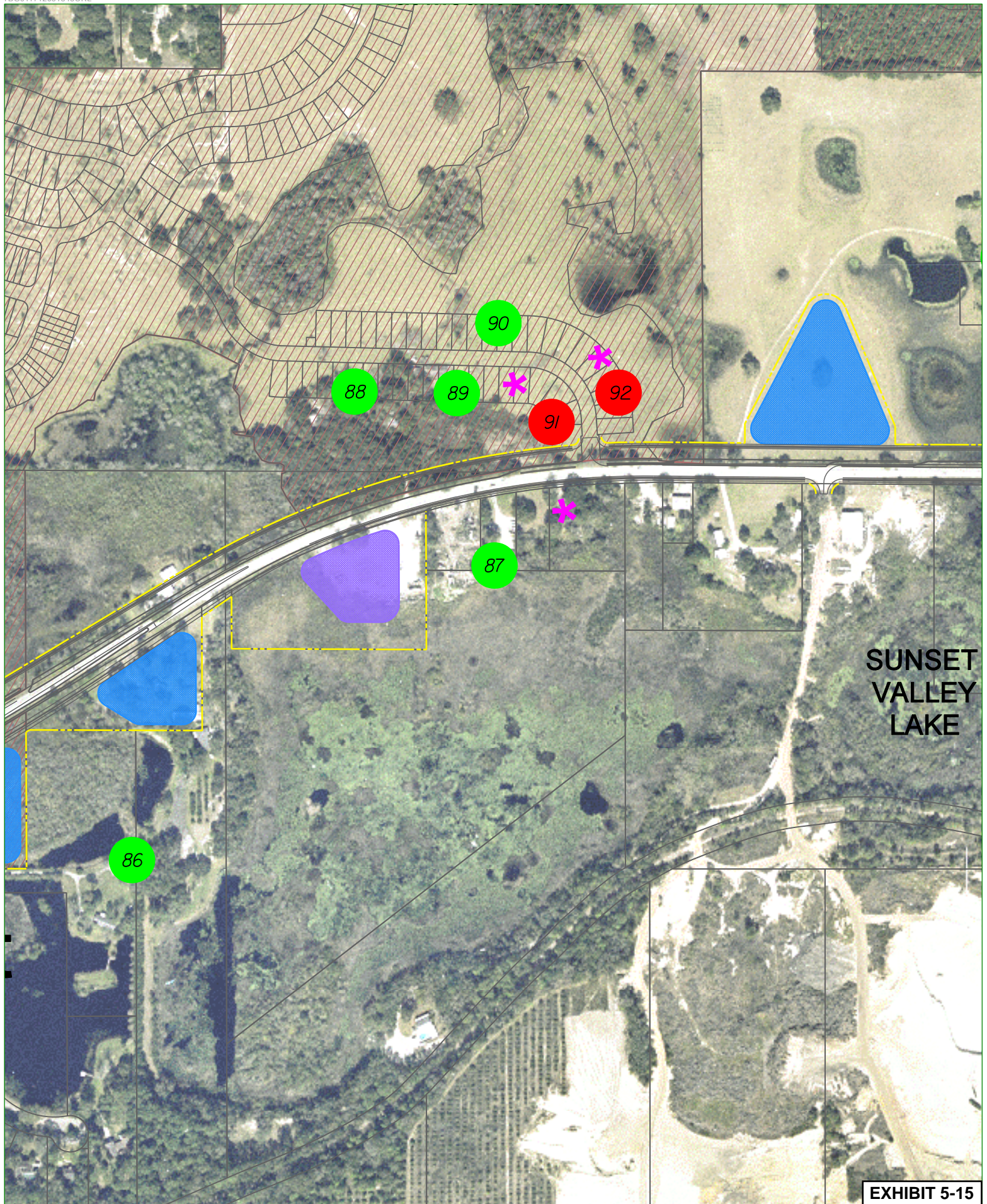
A noise barrier was evaluated for the **Southernaire Mobile Home Park, Cobble Hill Village and Dorset of Mount Dora** as they had 29 residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-14**). A 1,979-foot noise barrier was evaluated along the right-of-way line. A barrier height of 16 feet would be required to achieve a 5 to 15 dB(A) reduction for 29 benefitted receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$949,980, or \$32,757 per benefitted receptor, which would be within the allowable cost criterion for reasonableness of \$42,000 per benefitted receptor. This noise barrier could potentially be implemented. The owner of Southernaire Mobile Home Park indicated he would like to have a noise barrier adjacent to his property. The results of the analysis are shown in **Table 5-19**.

**TABLE 5-19**  
Barrier Analysis for Southernaire Mobile Home Park, Cobble Hill Village and Dorset of Mount Dora

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
29	16	1,979	\$949,980	5-15	\$32,757	\$42,000	Yes	- - -

A noise barrier was evaluated for the **Summerbrooke at Mount Dora subdivision** as it had four residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-15**). A 1,342-linear foot noise barrier was evaluated along the proposed right-of-way line. Barrier heights between 10 to 14 feet would be required to achieve a 5 to 7 dB(A) reduction, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$476,790, or \$119,197 per benefitted receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefitted receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-20**.





**SUNSET  
VALLEY  
LAKE**

**EXHIBIT 5-15**

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**LAKE COUNTY WEST**  
Preferred Alternative  
Summerbrooke at Mount Dora



**TABLE 5-20**  
Barrier Analysis for Summerbrooke at Mount Dora Subdivision

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
4	10-14	1,342	\$476,790	5-7	\$119,197	\$42,000	No	Not Reasonable

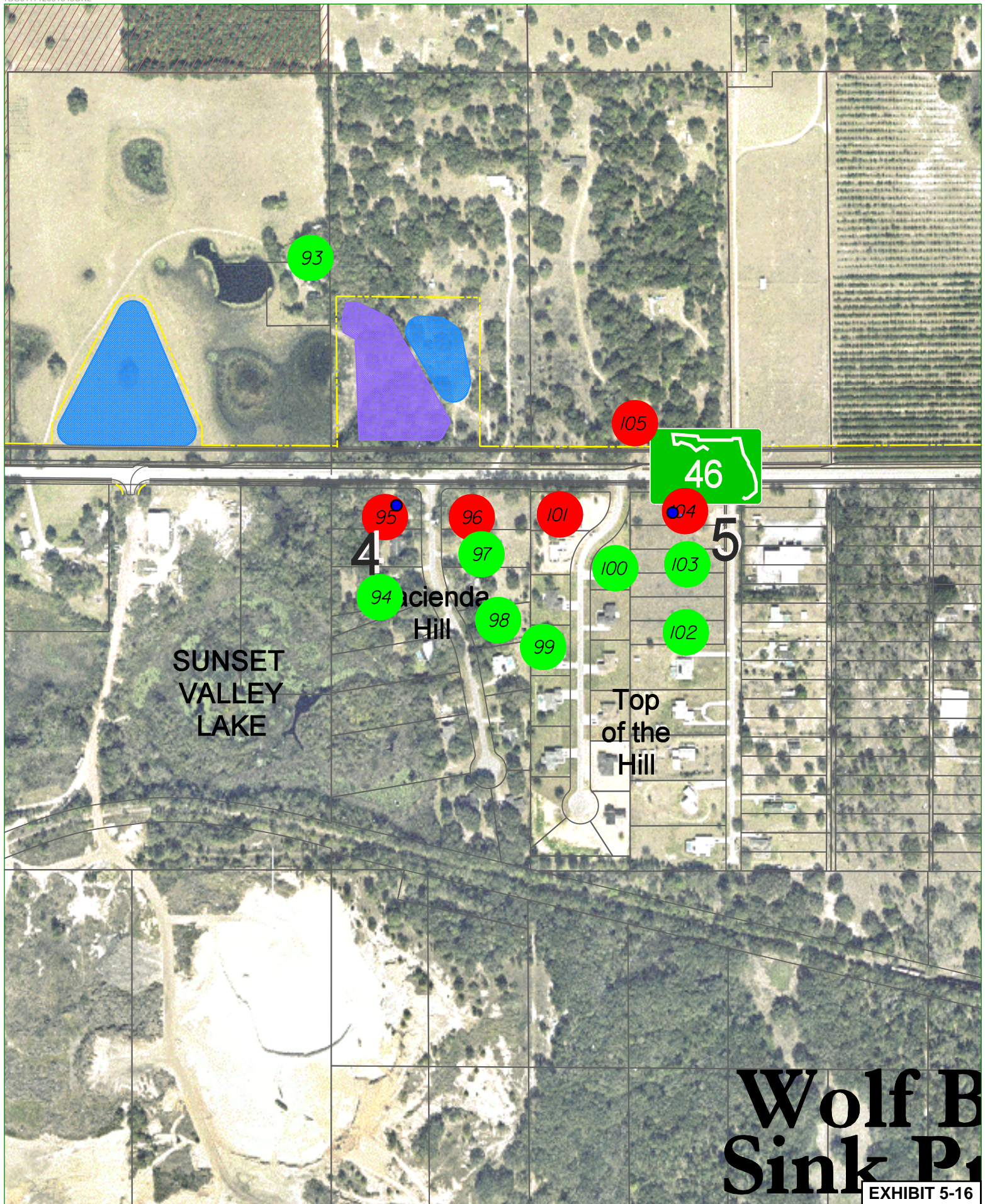
A noise barrier was evaluated for the **Top of the Hill and Hacienda Hill subdivisions** as they had four residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-16**). A 1,528-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 9 and 12 feet would be required to achieve a 5 to 8 dB(A) reduction for eight benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$509,700, or \$63,712 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-21**.

**TABLE 5-21**  
Barrier Analysis for Top of the Hill and Hacienda Hill Subdivisions

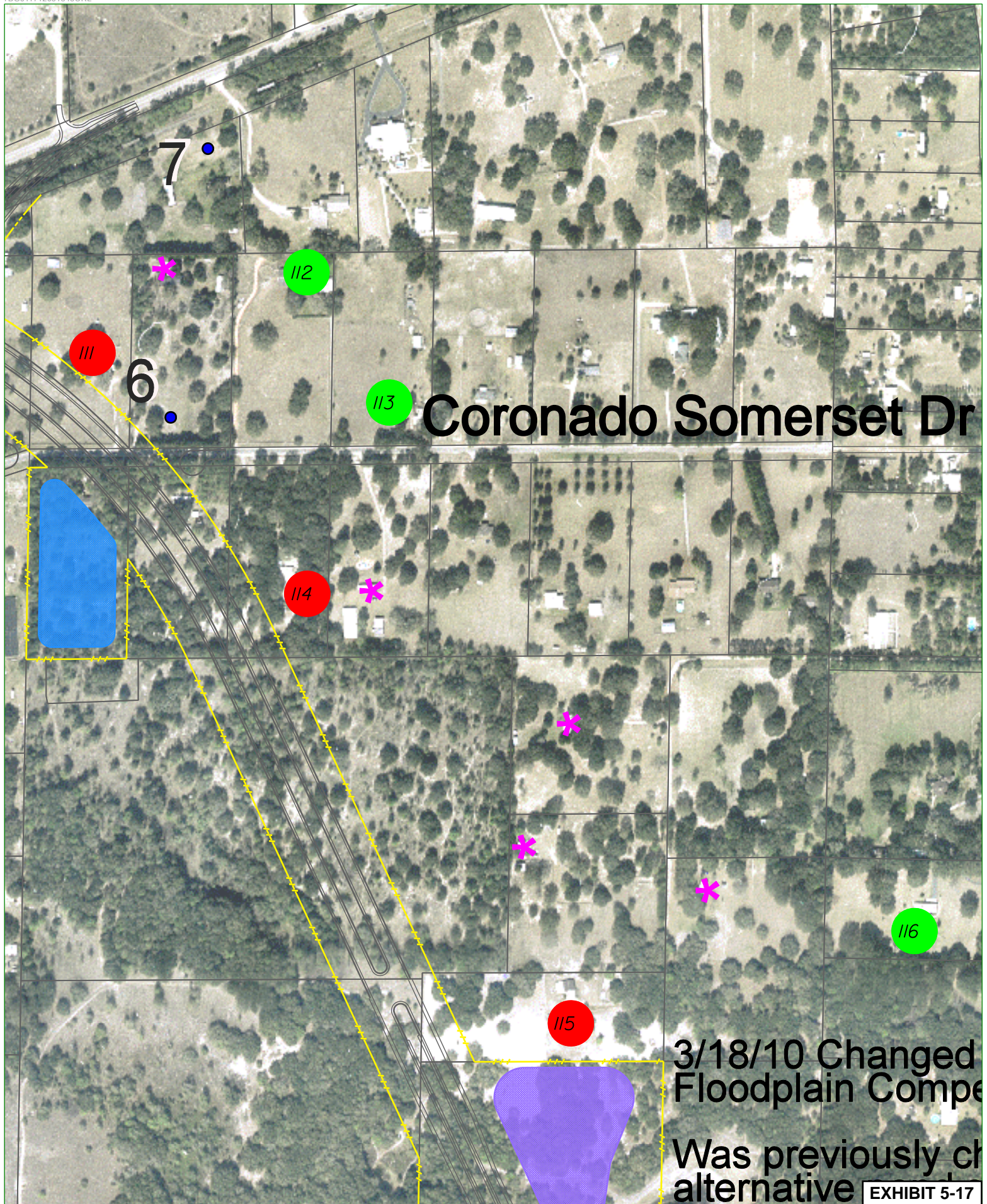
Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
8	9-12	1,528	\$509,700	5-8	\$63,712	\$42,000	No	Not Reasonable

A noise barrier was evaluated for two impacted residences **south of Coronado Somerset Drive and east of the proposed alignment** (see **Exhibit 5-17**). A 582-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 13 to 22 feet would be required to achieve a 7 dB(A) reduction for two benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$334,650, or \$167,325 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-22**.









Coronado Somerset Dr

3/18/10 Changed  
Floodplain Compe

Was previously ch  
alternative

EXHIBIT 5-17

LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**LAKE COUNTY WEST**  
Preferred Alternative  
Coronado Somerset Drive Area,  
East of Proposed Alignment



**TABLE 5-22**  
Barrier Analysis for Coronado Somerset Drive Area

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
2	13-22	582	\$334,650	7	\$167,325	\$42,000	No	Not Reasonable

### 5.4.3 Lake County East Preferred Alternative

A noise barrier was evaluated for the **Mount Plymouth Golf Club** as it had 12 residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-18**). A 1,955- linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 5-23**.

**TABLE 5-23**  
Barrier Analysis for Mount Plymouth Golf Club

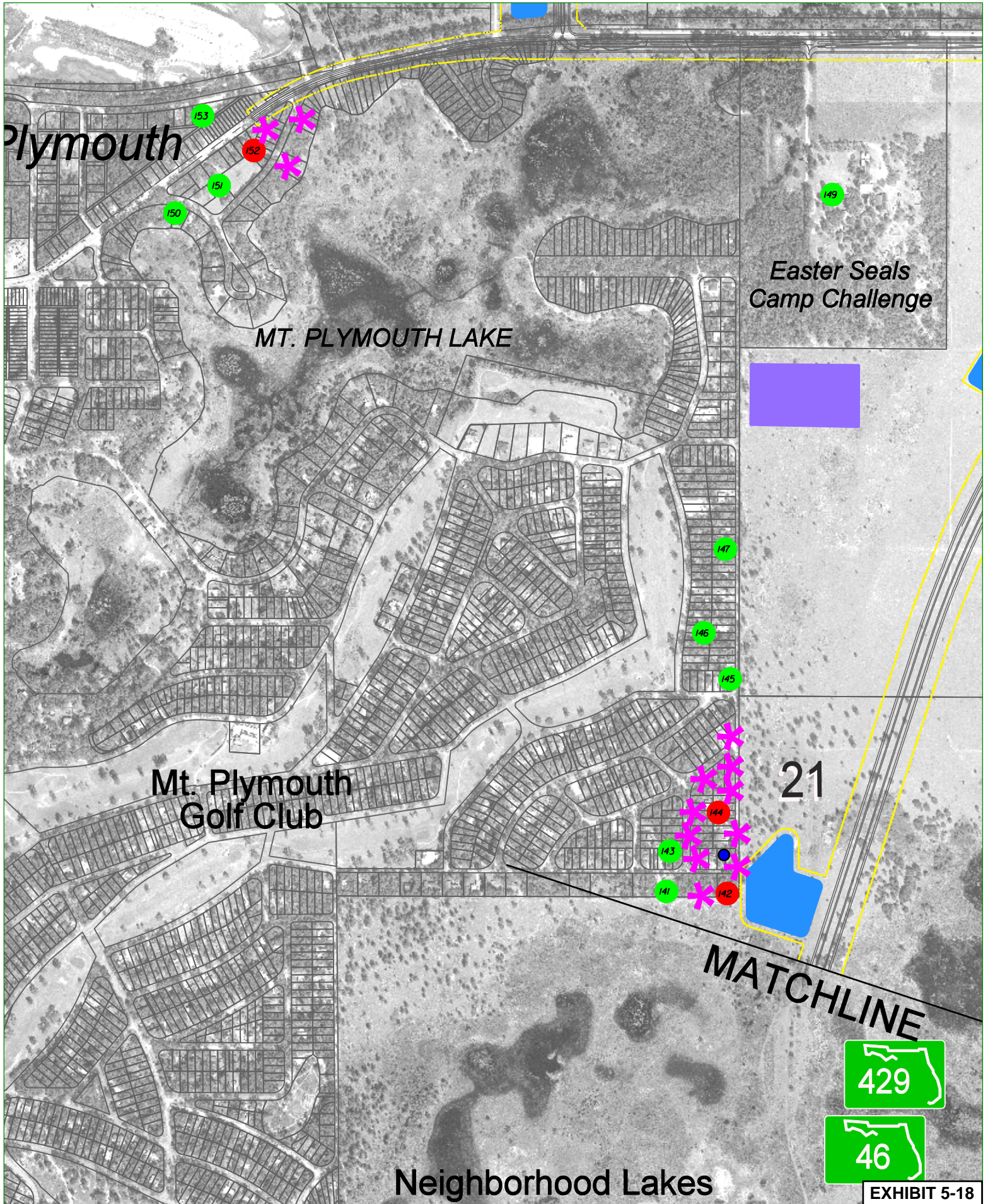
Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
5	22	1,955	---	6	---	---	No	Not Reasonable

A noise barrier was evaluated for the **Mount Plymouth subdivision south of SR 46**, as it had four residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-18**). A 857-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 9 to 12 feet would be required to achieve a 5 to 7 dB(A) reduction for three benefitted receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$292,020, or \$97,340 per benefitted receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefitted receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-24**.

**TABLE 5-24**  
Barrier Analysis for Mount Plymouth Subdivision South of SR 46

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
3	9-12	857	\$292,020	5-7	\$97,340	\$42,000	No	Not Reasonable





**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEEKIWA PARKWAY**  
 Project Development and Environment Study  
 Orange, Lake & Seminole Counties



**LAKE COUNTY EAST**  
 Preferred Alternative  
 Mount Plymouth Golf Club and  
 Mount Plymouth Subdivision  
 South of SR 46

**EXHIBIT 5-18**



A noise barrier was evaluated for two impacted rural residences located **east of Old McDonald Road and north of the proposed Wekiva Parkway (SR 429)** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-19**). A 3,400-linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction at two impacted receivers would not be achieved by this barrier and it would not meet the feasibility criteria. The results of the analysis are shown in **Table 5-25**.

**TABLE 5-25**

Barrier Analysis for Area East of Old McDonald Road and North of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
1	22	3,400	\$2,640,660	6	\$2,640,660	\$42,000	No	Not Feasible

A noise barrier was evaluated for the two impacted residences **east of Wekiva River Road and south of proposed SR 429** predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-20**). A 903- linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction at two impacted receivers would not be achieved by this barrier and it would not meet the feasibility criteria. No further analysis was performed for this barrier. The results of the analysis are shown in **Table 5-26**.

**TABLE 5-26**

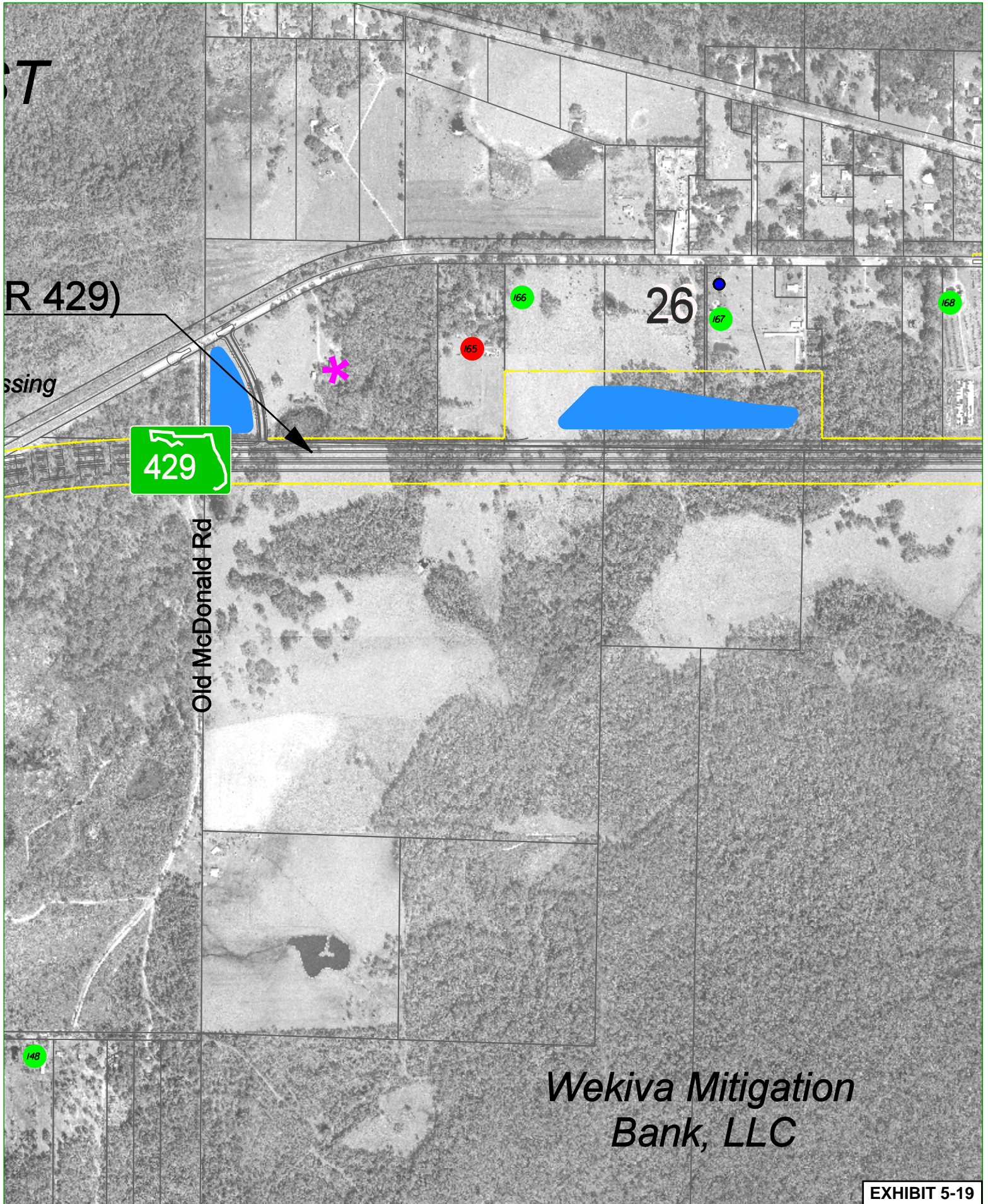
Barrier Analysis for Area East of Wekiva River Road and South of Proposed Alignment

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
1	22	903	---	5	---	---	No	Not Feasible

#### 5.4.4 Seminole County Preferred Alternative

A noise barrier was evaluated for the residential area **west of Lower Wekiva River Preserve and north of existing SR 46** as it had three residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-21**). A 2,629- linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction at two impacted receivers would not be achieved by this barrier and it would not meet the feasibility criteria. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 5-27**.





LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

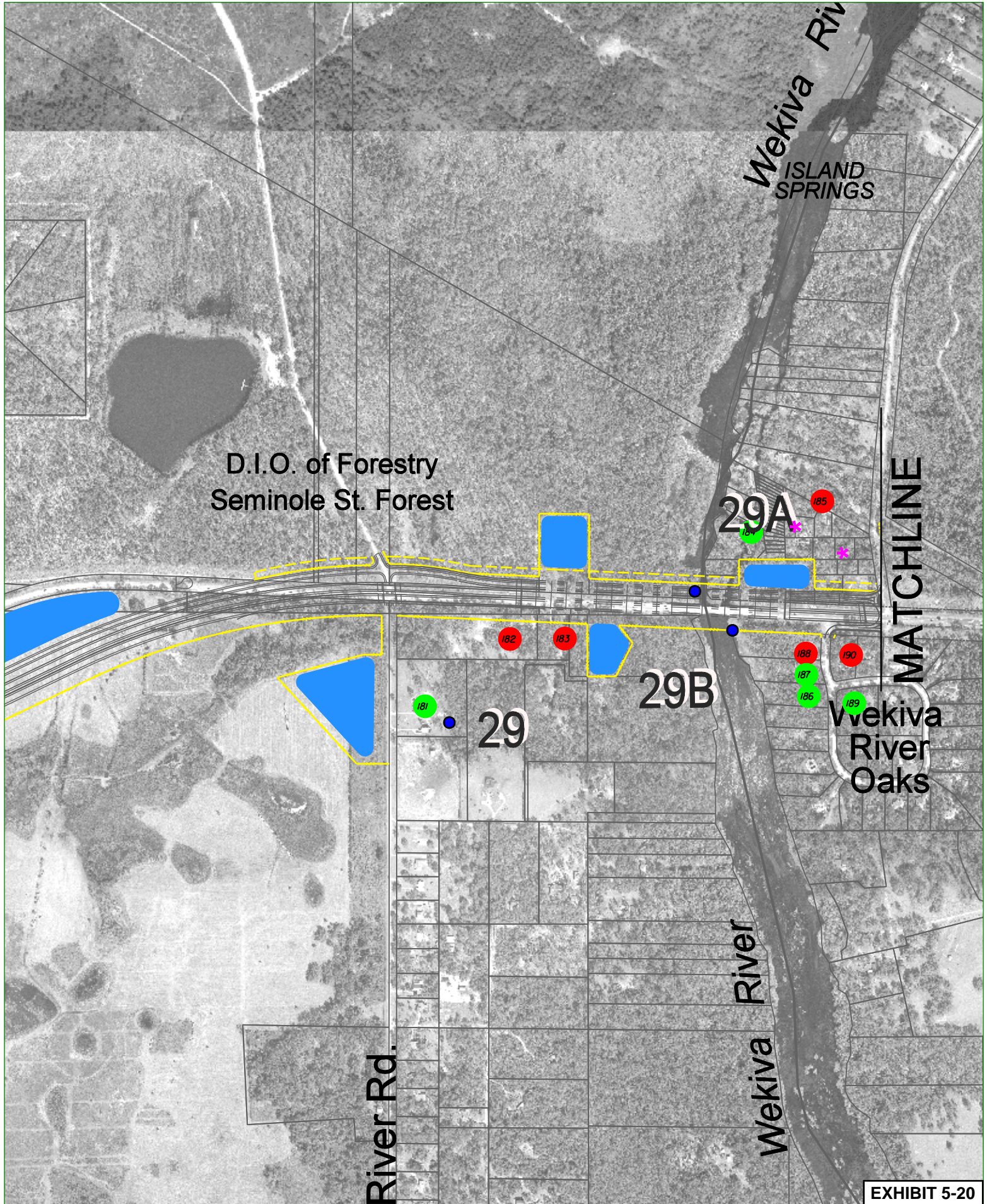
- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**LAKE COUNTY EAST**  
Preferred Alternative  
Area East of Old McDonald Road,  
North of Proposed Alignment





LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

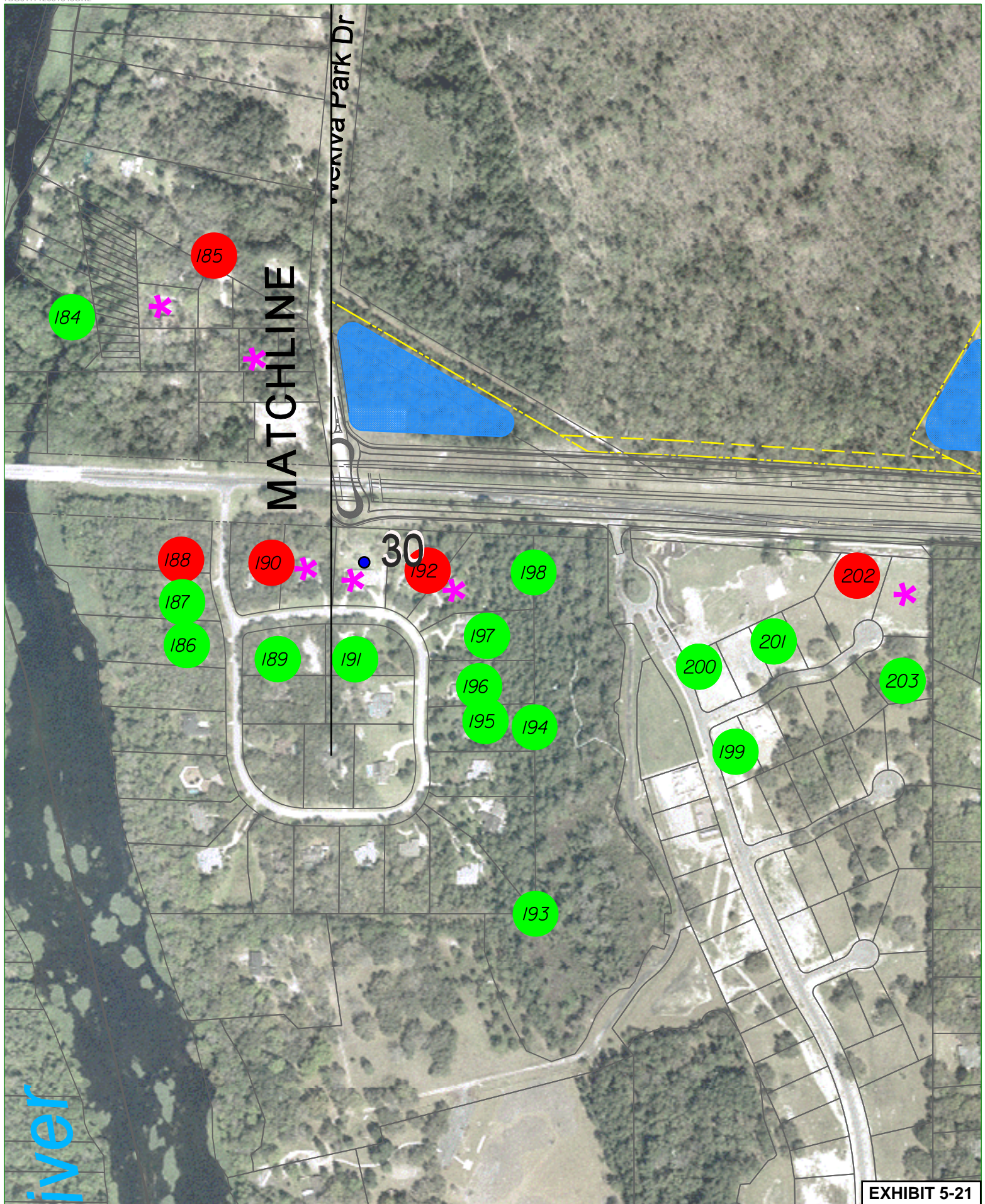
- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**LAKE COUNTY EAST**  
Preferred Alternative  
Area East of Wekiva River Road,  
South of Proposed Alignment





**EXHIBIT 5-21**

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

- PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
Preferred Alternative  
Area West of Lower Wekiva River  
Preserve, Wekiva River Oaks  
and Estates at Wekiva Park



**TABLE 5-27**

Barrier Analysis for Area West of Lower Wekiva River Preserve and North of SR 46

## Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
0	22	2,629	- - -	1	- - -	- - -	No	Not Feasible

A noise barrier was evaluated for the **Wekiva River Oaks, Estates at Wekiva Park, and Foxspur subdivisions** as they had 11 residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibits 5-21 and 5-22**). A 3,452-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 15 and 17 feet would be required to achieve a 5 to 10 dB(A) reduction for 13 benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$1,751,370, or \$134,720 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-28**.

**TABLE 5-28**

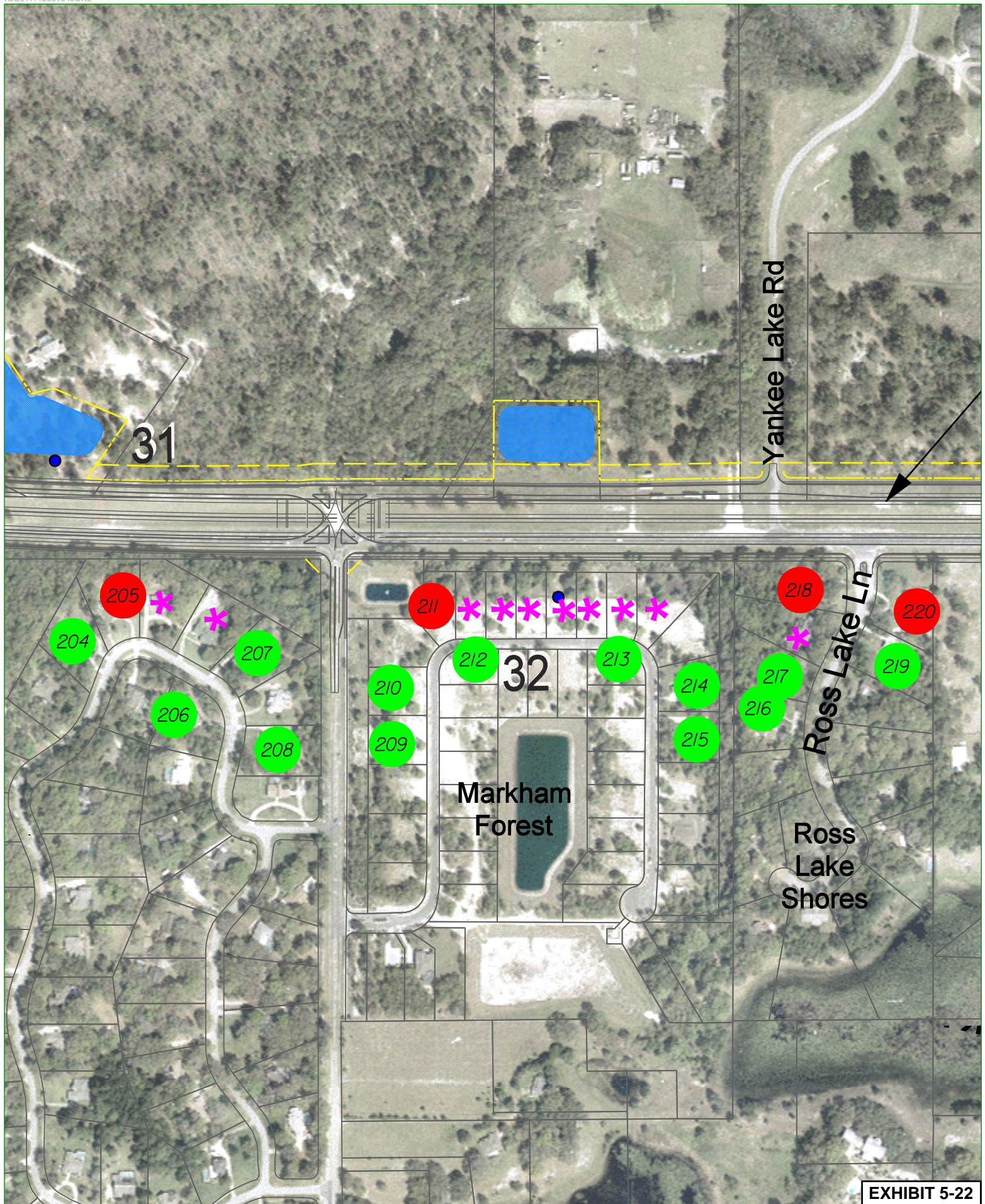
Barrier Analysis for Wekiva River Oaks, Estates at Wekiva Park and Foxspur

## Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
13	15-17	3,452	\$1,751,370	5-10	\$134,720	\$42,000	No	Not Reasonable

A noise barrier was evaluated for the **Markham Forest, Ross Lake Shores, and Bella Foresta subdivisions** as they had 15 residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibits 5-22 and 5-23**). A 1,872-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 10 to 22 feet would be required to achieve a 7 dB(A) reduction for six benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$1,052,280, or \$175,380 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-29**.





**EXHIBIT 5-22**

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

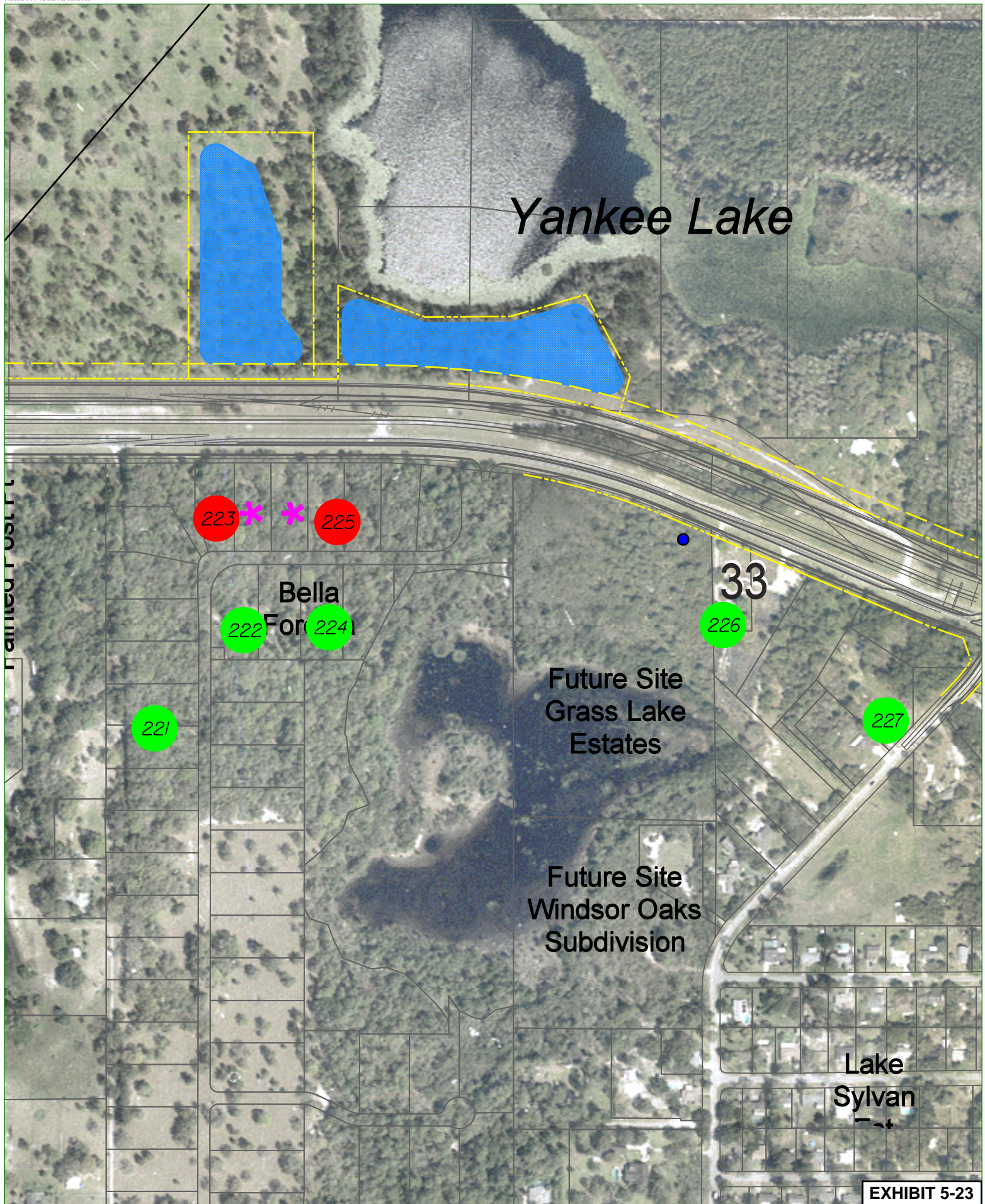
- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
Preferred Alternative  
Foxspur, Markham Forest  
and Ross Lake Shores





**EXHIBIT 5-23**

LEGEND	
<span style="color: blue;">●</span>	NOISE MONITORING LOCATION
<span style="color: red;">●</span>	IMPACTED REPRESENTATIVE RECEPTOR
<span style="color: green;">●</span>	UNIMPACTED REPRESENTATIVE RECEPTOR
<span style="color: orange;">—</span>	POTENTIAL NOISE BARRIER
<span style="color: yellow;">—</span>	PROPOSED ROW
<span style="color: magenta;">✱</span>	IMPACTED LOCATION





**TABLE 5-29**

Barrier Analysis for Markham Forest, Ross Lake Shores, and Bella Foresta

## Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
6	10-22	1,872	\$1,052,280	7	\$175,380	\$42,000	No	Not Reasonable

A noise barrier was evaluated for the **Sylvan Glade subdivision** as it had six residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-24**). A 1,400-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 14 to 15 feet would be required to achieve a 5 to 7 dB(A) reduction for 7 benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$593,970, or \$84,852 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-30**.

**TABLE 5-30**

Barrier Analysis for Sylvan Glade

## Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
7	14-15	1,400	\$593,970	5-7	\$84,852	\$42,000	No	Not Reasonable

A noise barrier was evaluated for the area **west of the Florida Fancy Nursery** as it had four residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-24**). A 2,200- linear foot noise barrier was evaluated along the proposed right-of-way line. A minimum 5 dB(A) reduction at two impacted receivers would not be achieved by this barrier and it would not meet the feasibility criteria. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 5-31**.

**TABLE 5-31**

Barrier Analysis for Area West of Florida Fancy Nursery

## Summary of Potential Noise Mitigation and Barrier Description

Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
1	22	2,200	---	6	---	---	No	Not Feasible



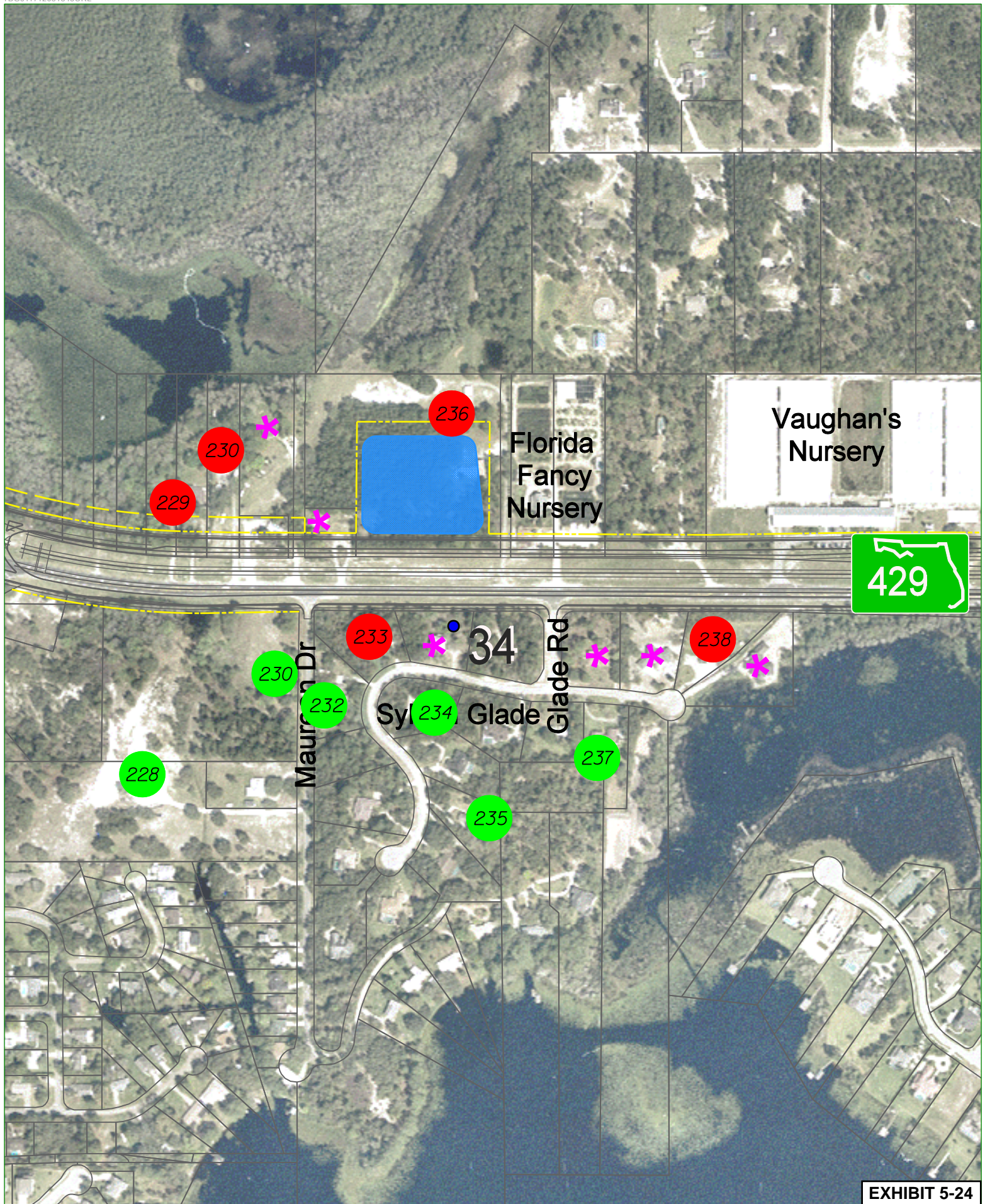


EXHIBIT 5-24

LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

- PROPOSED ROW
- \* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
Preferred Alternative  
Sylvan Glade and Area West  
of Florida Fancy Nursery



A noise barrier was evaluated for the **Twelve Oaks RV Resort** as it had approximately 50 mobile homes on rental spaces predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-25**). A 1,437-foot noise barrier was evaluated along the right-of-way line. A barrier height of 22 feet would be required to achieve a 5 to 9 dB(A) reduction for 50 benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$948,900, or \$18,978 per benefited receptor, which would be within the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. This noise barrier could potentially be implemented. The owner of the Twelve Oaks RV Resort indicated he would like to have a noise barrier adjacent to his property. The results of the analysis are shown in **Table 5-32**.

**TABLE 5-32**  
Barrier Analysis for Twelve Oaks RV Resort

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
50	22	1,437	\$948,900	5-9	\$18,978	\$42,000	Yes	- - -

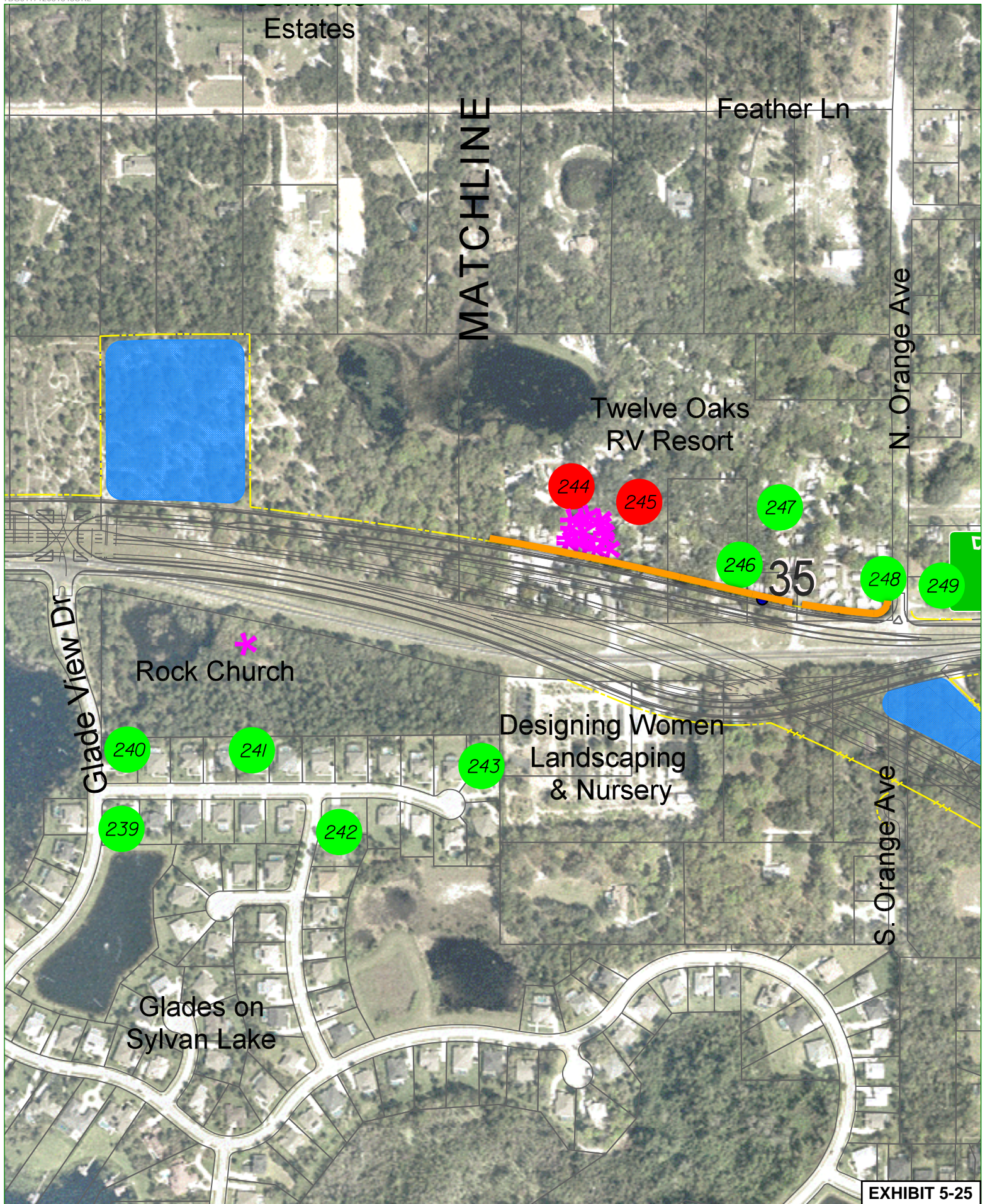
A noise barrier was evaluated for the **Alderene Park subdivision** as it had two residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-26**). A 700- linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 5-33**.

**TABLE 5-33**  
Barrier Analysis for Alderene Park

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
3	22	700	- - -	6	- - -	- - -	No	Not Reasonable

A noise barrier was evaluated for the **Capri Cove subdivision** as it had seven residences and one nearby residence predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-26**). A 2,191- linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 5-34**.





**EXHIBIT 5-25**

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- - - PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEKIVA PARKWAY**  
 Project Development and Environment Study  
 Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
 Preferred Alternative  
 Twelve Oaks RV Resort



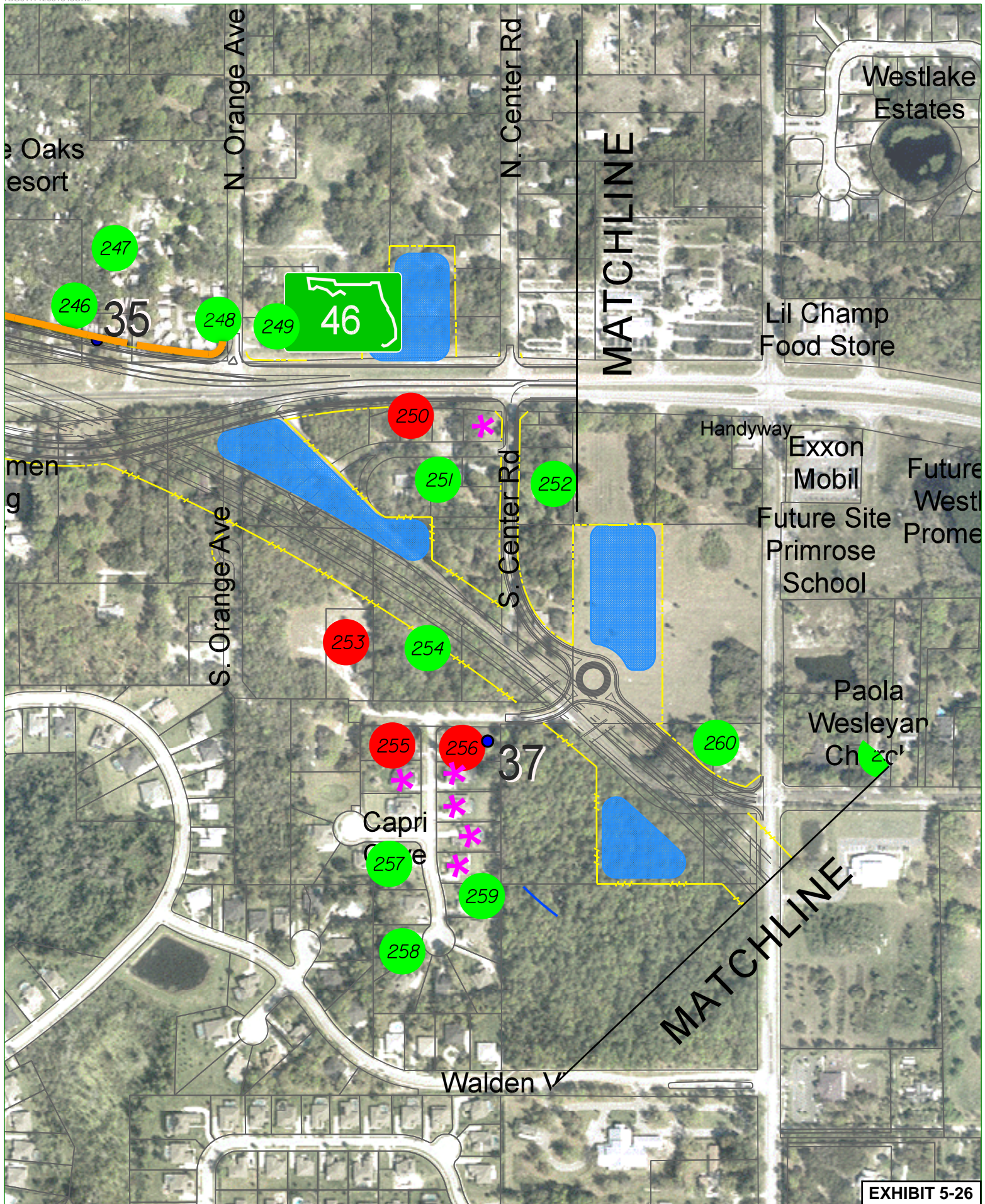


EXHIBIT 5-26

LEGEND

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

- PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
Preferred Alternative  
Alderene Park and Capri Cove



**TABLE 5-34**  
Barrier Analysis for Capri Cove

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
3	22	2,191	---	6	---	---	No	Not Reasonable

A noise barrier was evaluated for the **Lakeside Methodist Church** as it had outdoor playground facilities predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-27**). A 1,800-linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7 dB(A) noise reduction design goal required for reasonableness. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 35**.

**TABLE 5-35**  
Barrier Analysis for Lakeside Methodist Church

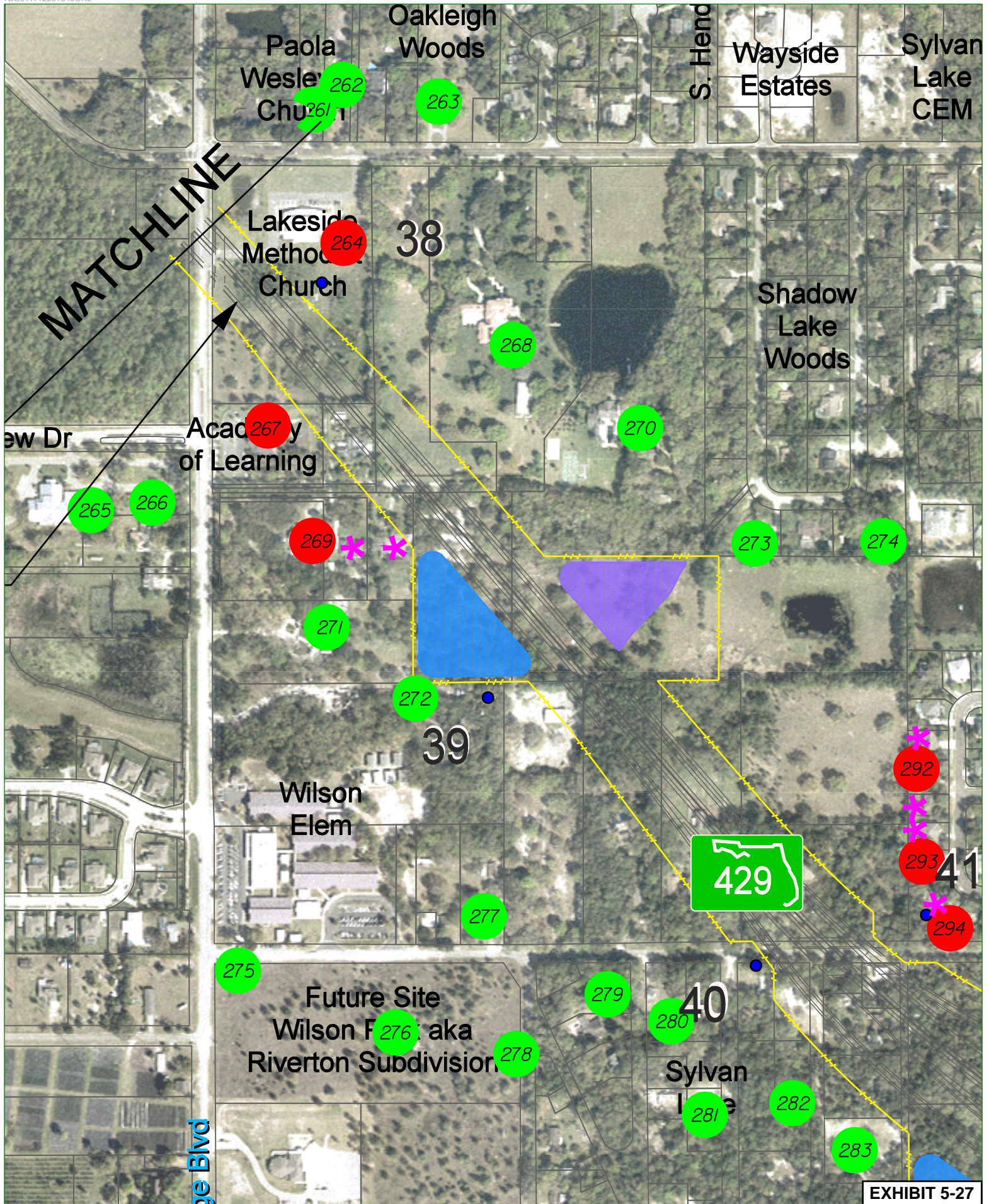
Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
50	22	1,800	---	6	---	---	No	Not Reasonable

A noise barrier was evaluated for the **Academy of Learning** school as it had outdoor playground facilities predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-27**). A 1,577-linear foot noise barrier was evaluated along the proposed right-of-way line. Although the noise barrier would meet the feasibility criteria, it would not achieve the 7dB(A) noise reduction design goal required for reasonableness. No further evaluation was provided for this noise barrier. The results of the analysis are shown in **Table 5-36**.

**TABLE 5-36**  
Barrier Analysis for Academy of Learning

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
50	22	1,577	---	6	---	---	No	Not Reasonable





**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER

— PROPOSED ROW  
\* IMPACTED LOCATION

**WEKIVA PARKWAY**  
Project Development and Environment Study  
Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
Preferred Alternative  
Lakeside Methodist Church  
and Academy of Learning

**EXHIBIT 5-27**



A noise barrier was evaluated for three impacted **residences south of the Academy of Learning** school predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-27**). A 2,314-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 10 to 15 feet would be required to achieve a 5 to 7 dB(A) reduction for 2 benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$590,130, or \$295,065 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-37**.

**TABLE 5-37**  
Barrier Analysis for Residences South of Academy of Learning

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
3	10-15	2,314	\$590,130	5-7	\$196,710	\$42,000	No	Not Reasonable

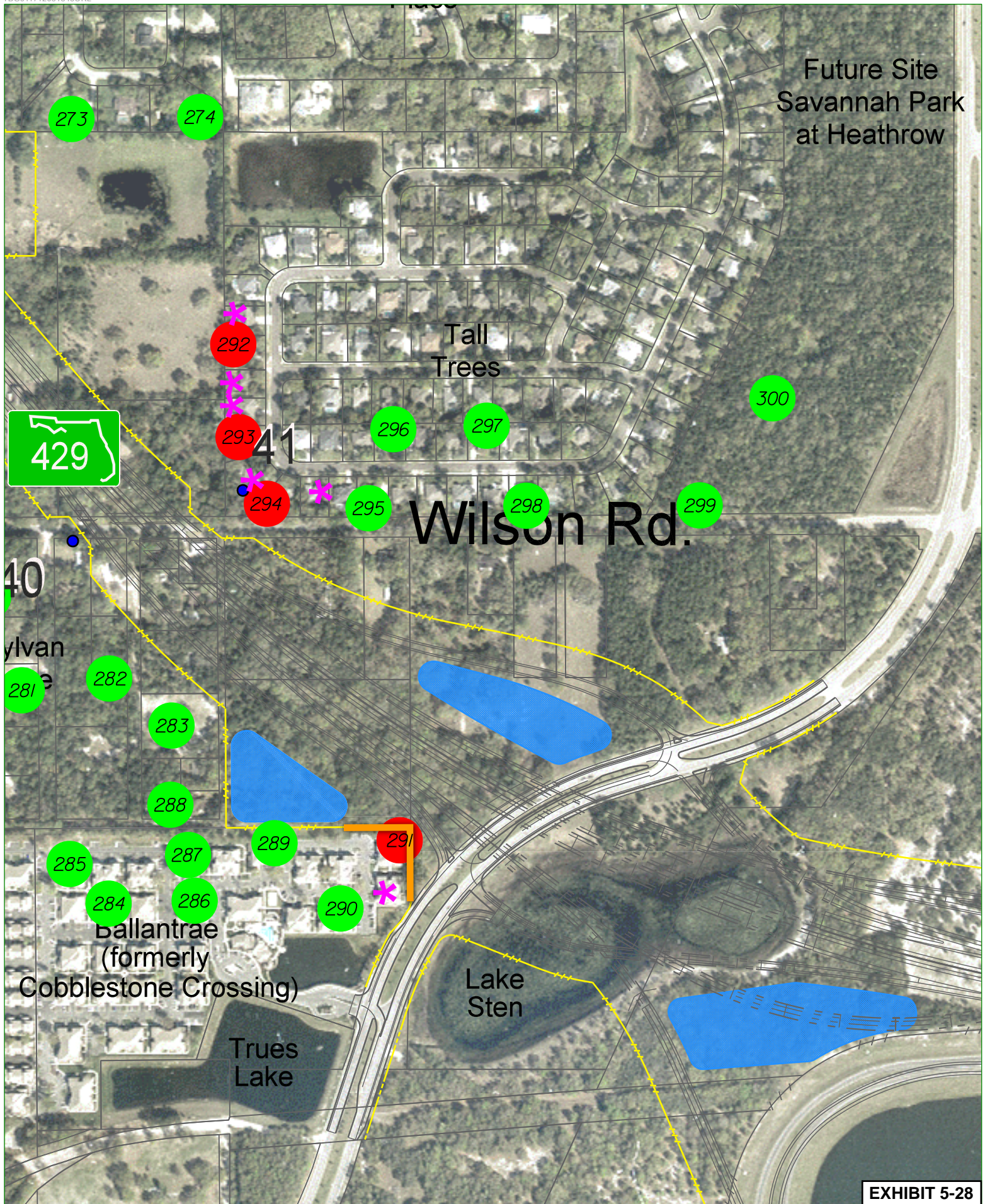
A noise barrier was evaluated for the **Tall Trees subdivision** as it had eight residences predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-28**). A 2,314-foot noise barrier was evaluated along the right-of-way line. Barrier heights between 13 to 20 feet would be required to achieve a 5 to 7 dB(A) reduction for seven benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$1,347,960, or \$192,565 per benefited receptor, which would exceed the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. It is unlikely that this noise barrier would be implemented. The results of the analysis are shown in **Table 5-38**.

**TABLE 5-38**  
Barrier Analysis for Tall Trees

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
7	13-20	2,314	\$1,347,960	5-7	\$192,565	\$42,000	No	Not Reasonable

A noise barrier was evaluated for the **Ballantrae Apartments** as it had 20 apartments predicted to experience future noise levels that approach or exceed the NAC (see **Exhibit 5-28**). A 1,043-foot noise barrier was evaluated along the right-of-way line. Barrier heights of 16 to 18 feet would be required to achieve a 5 to 7 dB(A) reduction for 20 benefited receptors, satisfying the 5 dB(A) feasibility criteria and the 7 dB(A) reasonableness design goal. The total cost to construct the barrier would be nearly \$546,600, or \$27,300 per benefited receptor, which would be within the allowable cost criterion for reasonableness of \$42,000 per benefited receptor. This noise barrier could potentially be implemented. The results of the analysis are shown in **Table 5-39**.





**EXHIBIT 5-28**

**LEGEND**

- NOISE MONITORING LOCATION
- IMPACTED REPRESENTATIVE RECEPTOR
- UNIMPACTED REPRESENTATIVE RECEPTOR
- POTENTIAL NOISE BARRIER
- PROPOSED ROW
- ✱ IMPACTED LOCATION

**WEEKIVA PARKWAY**  
 Project Development and Environment Study  
 Orange, Lake & Seminole Counties



**SEMINOLE COUNTY**  
 Preferred Alternative  
 Tall Trees and  
 Ballantrae Apartments



**TABLE 5-39**  
Barrier Analysis for Ballantrae Apartments

Summary of Potential Noise Mitigation and Barrier Description								
Benefited Receptors	Height (feet)	Length (feet)	Construction Cost	Noise Reduction Potential (dB(A))	Estimated Build Cost Per Benefited Receptor	Allowable Cost Per Benefited Receptor	Barrier Potentially Implemented?	If no, reason why?
20	16-18	1,043	\$546,600	5-7	\$27,330	\$42,000	Yes	- - -

## 5.4.5 Recommendations and Conclusions

The results of the noise abatement evaluation indicate:

- A 16-foot-high noise barrier was determined to be potentially cost reasonable for the Southernaire Mobile Home Park, Cobble Hill Village, and Dorset of Mount Dora subdivisions in the Lake County West project area. This is represented by receptors 61 through 71 on the previously presented **Exhibit 5-14**, near the US 441/SR 46 interchange. **Exhibit 5-14** shows the general location of the potential noise barrier.
- A 22-foot-high noise barrier was determined to be potentially cost reasonable for the Twelve Oaks RV Resort in the Seminole County project area. This is represented by receptors 244 and 245 on the previously presented **Exhibit 5-25**, on the north side of SR 46. **Exhibit 5-25** shows the general location of the potential noise barrier.
- A 16 to 18-foot-high noise barrier was determined to be potentially cost reasonable for the Ballantrae Apartments in the Seminole County project area. This location is represented by receptor 291 on the previously presented **Exhibit 5-28**, on the west side of International Parkway. **Exhibit 5-28** shows the general location of the potential noise barrier.
- Noise barriers were determined to not be a feasible and/or cost reasonable abatement measure at 187 noise sensitive sites identified as impacted by the proposed project.

**Table 5-40** provides a summary of potential noise barriers that will be evaluated further in the final design phase.

**TABLE 5-40**  
Summary of Noise Barrier Analysis

Height/Length (ft)	Insertion Loss of dB(A)	Number of Benefited Receivers	Total Estimated Cost	Cost per Benefited Receiver	Cost Reasonable Yes/No
<b>Southernaire Mobile Home Park, Cobble Hill Village, Dorset of Mount Dora<sup>1</sup></b>					
16/1,979	5-15	29	\$949,980	\$32,757	Yes
<b>Twelve Oaks RV Resort<sup>1</sup></b>					
22/1437	5-9	50	\$948,900	\$18,978	Yes
<b>Ballantrae Apartments<sup>1</sup></b>					
16-18/1,043	5-7	20	\$546,600	\$27,330	Yes

<sup>1</sup>Noise Barrier located at right-of-way line.



The owners of Southernaire Mobile Home Park in Mount Dora and Twelve Oaks RV Resort in Sanford were both advised that this is only a preliminary noise study and the potential effects of the proposed project would be reevaluated in final design. Mr. Tom Vellanti (now deceased), owner of the 12 Oaks RV Resort, confirmed that the residents are there more than two-thirds of the year. He indicated his opposition to the proposed project, but stated if it is actually constructed he would want a noise barrier. Mr. Joseph Oxford, a representative of the Southernaire Mobile Home Park landowner (Equity Lifestyle Properties which is dba Southernaire MHP LLC), also indicated a noise barrier would be wanted if the proposed project is constructed.

In this analysis, noise abatement is proposed based on the alignment of the Recommended Preferred Alternative. If pertinent parameters change substantially for any reason, the noise barriers may be altered or eliminated from the final project design. A final decision on construction of noise barriers will be made upon public input and completion of the project design. Where determined to be needed based on the results of the noise analysis, FDOT and the Expressway Authority are committed to the construction of noise barriers where reasonable and feasible, contingent upon the following conditions:

- Detailed noise analysis during the final design phase supports the need for abatement.
- Reasonable cost analysis indicates that the economic cost of the barrier(s) will not exceed acceptable guidelines as determined by FDOT and the Expressway Authority.
- Community input regarding the barrier(s), solicited by FDOT and the Expressway Authority during the final design phase, is positive.
- Safety and engineering aspects as related to the roadway user and the adjacent property owner(s) are acceptable.
- Any other mitigating circumstances have been resolved.

FDOT and/or the Expressway Authority have committed to conduct a more detailed noise analysis during the final design phase. If, during the final design phase of the project, any of the contingency conditions listed above cause abatement to no longer be considered reasonable or feasible for a given location or locations, such determination will be made prior to requesting approval for construction advertisement. In addition, during final design and prior to construction, those sites that may be affected through any final design alignment changes, including those sites now considered borderline, will be revisited with regard to noise abatement analysis.



## 6. Construction Noise and Vibration

---

### 6.1 Impact Assessment

Based on the existing land uses within the limits of this project, there may be potential for construction noise and/or vibration impacts during construction of the proposed roadway improvements. If noise-sensitive land uses develop adjacent to the proposed roadway alignment prior to construction, additional impacts could result. It is anticipated that the application of the *FDOT Standard Specifications for Road and Bridge Construction* will minimize or eliminate most of the potential construction noise and vibration impacts. Examples of standard specifications that may be applied to this project include:

*Section 6-3.1* related to the storage of materials to minimize noise impacts on sensitive receivers;

*Section 100-2.1* related to equipment approval requiring the use of factory recommended exhaust mufflers and to remove or repair any equipment that is disapproved by the Project Engineer;

*Section 100-2.2* requires adequate equipment maintenance to minimize noise pollution caused by construction equipment;

*Section 100-2.3* suggests that all stationary equipment be screened from noise sensitive receivers beyond normal working hours and, if feasible, screen this equipment during normal working hours to reduce noise impacts;

*Section 120-6.4* addresses the concept of establishing haul routes which will direct construction vehicles away from developed areas when feasible and keep noise from hauling operations to a minimum; and

*Section 455-1.1* requires that the Contractor take reasonable precautions to prevent structural damage to existing buildings and to conduct monitoring of structures for settlement as warranted.

### 6.2 Recommendations

For construction noise and vibration sensitive receptors, avoidance and/or mitigation options will be developed during the final design phase. For example, places of worship are considered to be noise-sensitive receivers; particularly noisy construction activities should be limited or avoided during scheduled worship services. These types of avoidance and/or mitigation options will be placed in the construction plans and applied during the construction of the project by the Contractor. However, should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in concert with the OOCEA/FDOT District Five Noise Specialist and the Contractor, will investigate additional methods of controlling such impacts.



APPENDIX A

# Impact Tables

---



## Orange County Noise Results

Receptor	Closest Existing Road	Distance from Roadway (ft)	Existing dB(A) 2005	No Build dB(A) 2032	Build dB(A) 2032	Increase Above Existing	Impacted
1	Plymouth Sorrento	968	43	45	65	22	Yes
2	Plymouth Sorrento	1279	43	43	56	13	No
3	Plymouth Sorrento	452	46	49	66	20	Yes
4	Plymouth Sorrento	1110	43	43	60	17	Yes
5	Plymouth Sorrento	1279	43	43	57	14	No
6	Plymouth Sorrento	118	60	63	65	6	No
7	Plymouth Sorrento	137	59	62	65	6	No
8	Plymouth Sorrento	368	49	52	62	14	No
9	Plymouth Sorrento	159	57	61	63	6	No
10	Plymouth Sorrento	145	55	59	61	6	No
11	Yothers/Lester	497	44	41	60	16	Yes
12	Yothers/Lester	240	44	41	57	13	No
13	Yothers/Lester	195	43	44	65	22	Yes
14	Yothers/Lester	219	43	42	64	21	Yes
15	Yothers/Lester	149	43	41	60	17	Yes
16	Yothers/Lester	148	46	46	55	9	No
17	Yothers/Lester	400	43	40	57	14	No
18	Yothers/Lester	537	46	46	54	8	No
19	Yothers/Lester	1176	46	46	57	11	No
20	Yothers/Lester	1757	46	46	57	11	No
21	Plymouth Sorrento	2057	46	46	59	13	No
22	Plymouth Sorrento	1010	46	46	57	11	No
23	Plymouth Sorrento	1220	46	46	61	15	Yes
24	Ponkan Road	308	44	45	63	19	Yes
25	Ponkan Road	300	45	45	64	19	Yes
26	Plymouth Sorrento	190	51	51	57	6	No
27	Plymouth Sorrento	358	46	46	59	13	No
28	Plymouth Sorrento	1404	43	43	65	22	Yes
29	Plymouth Sorrento	2053	43	43	55	12	No
30	Plymouth Sorrento	431	45	46	58	13	No



<b>Receptor</b>	<b>Closest Existing Road</b>	<b>Distance from Roadway (ft)</b>	<b>Existing dB(A) 2005</b>	<b>No Build dB(A) 2032</b>	<b>Build dB(A) 2032</b>	<b>Increase Above Existing</b>	<b>Impacted</b>
31	Plymouth Sorrento	733	42	42	61	19	Yes
32	Plymouth Sorrento	2058	43	43	56	13	No
33	Plymouth Sorrento	1577	42	42	60	18	Yes
34	Plymouth Sorrento	1536	42	42	58	16	Yes
35	Plymouth Sorrento	1135	42	42	53	11	No
36	Plymouth Sorrento	2835	42	42	56	14	No
37	Plymouth Sorrento	1143	42	42	53	11	No
38	Plymouth Sorrento	1679	42	42	60	18	Yes
39	Plymouth Sorrento	1616	42	42	59	17	Yes
40	Kelly Park Road	134	49	50	66	17	Yes
41	Kelly Park Road	43	54	56	64	10	No
42	Kelly Park Road	11	55	56	58	3	No
43	Kelly Park Road	161	47	48	55	8	No
44	Kelly Park Road	280	43	44	59	16	Yes
45	Plymouth Sorrento	1036	42	42	54	12	No
46	Plymouth Sorrento	711	42	42	53	11	No
47	Ondich Road	1985	42	42	64	22	Yes
48	Ondich Road	2100	42	42	55	13	No
49	Ondich Road	2185	42	42	51	9	No
50	Ondich Road	1553	42	42	53	11	No
51	Ondich Road	1651	42	42	58	16	Yes
52	Ondich Road	105	38	40	61	23	Yes
53	Ondich Road	191	36	38	57	21	Yes
54	Ondich Road	6	42	46	60	18	Yes
55	Ondich Road	158	40	43	66	26	Yes
56	Ondich Road	491	36	37	62	26	Yes
57	Ondich Road	20	50	51	65	15	Yes
58	Ondich Road	145	49	49	66	17	Yes
117	Plymouth Sorrento	4538	39	39	57	18	Yes
118	Plymouth Sorrento	453	44	44	60	16	Yes
119	Plymouth Sorrento	512	48	48	61	13	No



<b>Receptor</b>	<b>Closest Existing Road</b>	<b>Distance from Roadway (ft)</b>	<b>Existing dB(A) 2005</b>	<b>No Build dB(A) 2032</b>	<b>Build dB(A) 2032</b>	<b>Increase Above Existing</b>	<b>Impacted</b>
120	Plymouth Sorrento	71	54	54	65	11	No
121	Plymouth Sorrento	597	48	48	63	15	Yes
122	Haas Road	531	43	43	58	15	Yes
123 (Historic)	Plymouth Sorrento/Boch	1412	43	43	62	19	Yes
124	Haas Road	585	43	43	58	15	Yes
125	Plymouth Sorrento	1828	43	43	56	13	No
126	Plymouth Sorrento	2361	43	43	63	20	Yes
127	Plymouth Sorrento	2322	43	43	59	16	Yes
128	Plymouth Sorrento	2826	43	43	57	14	No
129	Haas Road	231	36	41	55	19	Yes
130	Haas Road	1573	43	43	63	20	Yes
131	Haas Road	1986	43	43	56	13	No
132	Haas Road	112	38	44	54	16	Yes
133	Haas Road	365	35	38	54	19	Yes
134	Mt Plymouth	2146	43	43	52	9	No
135	Mt Plymouth	1622	43	43	52	9	No
136	Mt Plymouth	755	43	43	54	11	No
137	Haas Road	86	41	47	55	14	No
138	Haas Road	247	39	44	51	12	No
139	Haas Road	307	47	50	51	4	No
140	Haas Road	133	49	53	54	5	No



## Lake County West Noise Results

Receptor	Closest Existing Road	Distance from Roadway (ft)	Existing dB(A) 2005	No Build dB(A) 2032	Build dB(A) 2032	Increase Above Existing	Impacted
59	US 441	219	58	60	65	7	No
60	US 441	487	52	53	59	7	No
61	US 441	160	61	62	67	6	Yes
62	US 441	364	55	56	61	6	No
63	US 441	179	61	62	66	5	Yes
64	US 441	421	55	57	61	6	No
65	US 441	199	61	62	66	5	Yes
66	US 441	184	62	64	68	6	Yes
67	US 441	440	56	57	62	6	No
68	US 441	175	63	64	69	6	Yes
69	SR 46	118	62	63	68	5	Yes
70	SR 46	81	54	56	67	13	Yes
71	SR 46	16	60	62	71	11	Yes
72	SR 46	72	57	59	71	14	Yes
73	SR 46	124	63	65	72	9	Yes
74	US 441	123	65	67	72	7	Yes
75	US 441	499	53	55	61	8	No
76	US 441	143	63	65	71	8	Yes
77	US 441	499	53	55	61	8	No
78	US 441	143	62	64	71	9	Yes
79	SR 46	403	52	54	62	10	No
80	SR 46	59	55	56	67	12	Yes
81	SR 46	274	55	57	64	9	No
82	SR 46	536	54	56	62	8	No
83	SR 46	232	53	55	65	12	No
84	SR 46	301	52	54	63	11	No
85	SR 46	593	51	53	62	11	No
86	SR 46	533	47	48	58	11	No
87	SR 46	162	53	54	65	12	No
88	SR 46	309	49	50	62	13	No
89	SR 46	221	51	52	64	13	No
90	SR 46	426	46	48	60	14	No
91	SR 46	81	56	58	70	14	Yes
92	SR 46	164	53	54	66	13	Yes
93	SR 46	614	45	46	56	11	No
94	SR 46	307	49	51	59	10	No
95	SR 46	42	58	59	68	10	Yes
96	SR 46	42	59	60	68	9	Yes
97	SR 46	164	53	55	63	10	No
98	SR 46	382	48	50	59	11	No
99	SR 46	470	46	48	58	12	No
100	SR 46	209	52	53	61	9	No
101	SR 46	32	60	61	70	10	Yes
102	SR 46	421	47	49	58	11	No
103	SR 46	196	52	53	62	10	No
104	SR 46	20	61	62	70	9	Yes
105	SR 46	70	57	59	70	13	Yes
106	SR 46	1091	41	42	50	9	No



<b>Receptor</b>	<b>Closest Existing Road</b>	<b>Distance from Roadway (ft)</b>	<b>Existing dB(A) 2005</b>	<b>No Build dB(A) 2032</b>	<b>Build dB(A) 2032</b>	<b>Increase Above Existing</b>	<b>Impacted</b>
107	SR 46	14	62	64	63	-1	No
108	SR 46	541	50	53	54	4	No
109	SR 46	792	45	45	54	11	No
110	SR 46	1459	45	45	52	7	No
111	SR 46	600	45	45	65	20	Yes
112	SR 46	626	45	45	53	8	No
113	SR 46	1129	45	45	53	8	No
114	SR 46	1676	45	45	62	17	Yes
115	SR 46	3389	39	39	58	19	Yes
116	SR 46	3372	39	39	48	9	No



## Lake County East Noise Results

Receptor	Closest Existing Road	Distance from Roadway (ft)	Existing dB(A) 2005	No Build dB(A) 2032	Build dB(A) 2032	Increase Above Existing	Impacted
<b>Neighborhood Lakes Alternative 1 and South Alignment Alternative with Service Road</b>							
141	SR 46	5565	38	38	52	14	No
142	SR 46	5578	38	38	56	18	Yes
143	SR 46	5298	38	38	51	13	No
144	SR 46	5043	38	38	55	17	Yes
145	SR 46	4159	38	38	52	14	No
146	SR 46	3856	38	38	50	12	No
147	SR 46	3302	38	38	50	12	No
148	SR 46	3554	34	35	48	14	No
165	SR 46	494	47	47	62	15	Yes
166	SR 46	153	54	54	59	5	No
167	SR 46	288	51	51	62	11	No
168	SR 46	170	54	54	60	6	No
169	SR 46	662	46	46	59	13	No
170	SR 46	315	51	51	63	12	No
171	SR 46	224	53	53	62	9	No
172	CR 46A	257	49	50	68	19	Yes
173	SR 46	430	48	48	58	10	No
174	SR 46	389	49	49	62	13	No
175	SR 46	596	46	46	58	12	No
176	SR 46	91	57	57	62	5	No
177	SR 46	602	46	46	56	10	No
178	SR 46	521	47	47	57	10	No
179	SR 46	818	52	52	54	2	No
180	SR 46	391	49	49	58	9	No
181	SR 46	625	55	55	60	5	No
182	SR 46	156	54	55	68	14	Yes
183	SR 46	138	55	55	68	13	Yes
<b>CR 46A Realignment Alternative 1A</b>							
149	SR 46	959	39	39	52	13	No
150	SR 46	190	57	57	64	7	No
151	SR 46	220	57	57	64	7	No
152	SR 46	165	57	57	67	10	Yes
153	SR 46	200	57	57	65	8	No
154	SR 46	2289	42	42	48	6	No
155	SR 46	3370	47	47	49	2	No
156	SR 46	3075	47	47	51	4	No
157	SR 46	2931	47	47	54	7	No
158	SR 46	3180	47	47	61	14	No
159	CR 46A	283	47	47	53	6	No
160	CR 46A	330	47	47	52	5	No
161	CR 46A	375	47	47	53	7	No
162	CR 46A	550	47	47	51	4	No
163	CR 46A	300	47	47	56	9	No
164	CR 46A	163	47	47	63	16	Yes



## Seminole County Noise Results

Receptor	Closest Existing Road	Distance from Roadway (ft)	Existing dB(A) 2005	No Build dB(A) 2032	Build dB(A) 2032	Increase Above Existing	Impacted
<b><i>SR 46 Corridor North Widening Alternative</i></b>							
184	SR 46	418	49	49	63	14	No
185	SR 46	642	45	45	60	15	Yes
186	SR 46	449	48	48	62	14	No
187	SR 46	307	50	51	64	14	No
188	SR 46	167	54	54	67	13	Yes
189	SR 46	482	47	47	62	15	Yes
190	SR 46	164	54	54	67	13	Yes
191	SR 46	471	48	48	62	14	No
192	SR 46	167	54	54	66	12	Yes
193	SR 46	1271	41	41	52	11	No
194	SR 46	657	45	45	58	13	No
195	SR 46	651	45	45	59	14	No
196	SR 46	538	47	47	60	13	No
197	SR 46	369	49	49	63	14	No
198	SR 46	147	55	55	66	11	Yes
199	SR 46	672	45	45	59	14	No
200	SR 46	404	48	49	62	14	No
201	SR 46	296	51	51	63	12	No
202	SR 46	55	59	59	69	10	Yes
203	SR 46	391	49	49	62	13	No
204	SR 46	243	52	52	64	12	No
205	SR 46	91	57	57	67	10	Yes
206	SR 46	485	48	48	61	13	No
207	SR 46	281	52	53	63	11	No
208	SR 46	600	49	51	60	11	No
209	SR 46	581	49	52	60	11	No
210	SR 46	394	51	53	62	11	No
211	SR 46	124	56	56	66	10	Yes
212	SR 46	300	51	51	64	13	No
213	SR 46	298	51	51	63	12	No
214	SR 46	385	49	49	62	13	No
215	SR 46	563	47	47	60	13	No
216	SR 46	459	48	48	61	13	No
217	SR 46	354	50	50	62	12	No
218	SR 46	68	58	59	70	12	Yes
219	SR 46	319	50	50	62	12	No
220	SR 46	138	55	55	66	11	Yes
221	SR 46	854	43	43	57	14	No
222	SR 46	528	46	47	60	14	No
223	SR 46	159	54	54	65	11	No
224	SR 46	518	46	46	60	14	No
225	SR 46	170	54	54	65	11	No
226	SR 46	236	52	52	65	13	No
227	SR 46	319	49	49	63	14	No
228	SR 46	517	46	46	60	14	No
229	SR 46	187	54	54	68	14	Yes



Receptor	Closest Existing Road	Distance from Roadway (ft)	Existing dB(A) 2005	No Build dB(A) 2032	Build dB(A) 2032	Increase Above Existing	Impacted
230	SR 46	367	49	49	65	16	Yes
231	SR 46	171	54	54	65	11	No
232	SR 46	275	51	51	63	12	No
233	SR 46	47	60	60	68	8	Yes
234	SR 46	297	50	50	62	12	No
235	SR 46	645	45	45	59	14	No
236	SR 46	492	47	47	63	16	Yes
237	SR 46	444	48	48	61	13	No
238	SR 46	49	60	60	67	7	Yes
239	SR 46	749	44	45	57	13	No
240	SR 46	486	48	48	60	12	No
241	SR 46	386	49	49	61	12	No
242	SR 46	587	46	46	58	12	No
243	SR 46	277	50	50	62	12	No
244	SR 46	471	48	48	64	16	Yes
245	SR 46	418	49	49	64	15	Yes
246	SR 46	205	53	53	65	12	No
247	SR 46	393	49	49	62	13	No
248	SR 46	151	55	55	65	10	No
249	SR 46	127	56	56	65	9	No
250	SR 46	0	67	67	68	1	Yes
251	SR 46	187	54	54	63	9	No
252	SR 46	206	55	55	62	7	No
253	Orange Blvd	1302	48	48	64	17	Yes
254	Orange Blvd	1032	48	48	62	14	No
255	Orange Blvd	1150	48	48	63	15	Yes
256	Orange Blvd	886	48	48	66	18	Yes
257	Orange Blvd	1161	48	48	60	12	No
258	Orange Blvd	1118	48	48	58	10	No
259	Orange Blvd	854	48	48	62	14	No
260	Orange Blvd	78	51	52	65	14	No
<b>SR 417/I-4 Interchange Connection Alternative B</b>							
261	Orange Blvd	268	48	49	62	14	No
262	Orange Blvd	364	48	48	61	13	No
263	Orange Blvd	681	47	48	59	12	No
264	Orange Blvd	367	47	47	64	17	Yes
265	Orange Blvd	270	47	47	60	13	No
266	Orange Blvd	66	53	53	62	9	No
267	Orange Blvd	116	51	51	67	16	Yes
268	Orange Blvd	926	50	50	60	10	No
269	Orange Blvd	262	47	48	64	17	Yes
270	Orange Blvd	1347	50	50	59	9	No
271	Orange Blvd	309	47	47	61	14	No
272	Orange Blvd	602	50	50	62	12	No
273	Orange Blvd	1725	50	50	59	9	No
274	Orange Blvd	2151	50	50	56	6	No
275	Orange Blvd	14	56	56	59	3	No
276	Orange Blvd	534	45	46	54	9	No



<b>Receptor</b>	<b>Closest Existing Road</b>	<b>Distance from Roadway (ft)</b>	<b>Existing dB(A) 2005</b>	<b>No Build dB(A) 2032</b>	<b>Build dB(A) 2032</b>	<b>Increase Above Existing</b>	<b>Impacted</b>
277	Orange Blvd	827	54	54	57	3	No
278	Orange Blvd	934	45	46	56	11	No
279	Orange Blvd	1236	53	53	58	5	No
280	Orange Blvd	1446	46	47	59	13	No
281	Intl Pkwy	1434	50	50	59	9	No
282	Intl Pkwy	1214	50	50	61	11	No
283	Intl Pkwy	956	50	50	62	12	No
284	Intl Pkwy	871	47	49	57	10	No
285	Intl Pkwy	1037	47	48	57	10	No
286	Intl Pkwy	608	49	51	59	10	No
287	Intl Pkwy	689	48	50	60	12	No
288	Intl Pkwy	818	50	50	60	10	No
289	Intl Pkwy	457	50	52	63	13	No
290	Intl Pkwy	159	55	58	64	9	No
291	Intl Pkwy	126	57	60	67	10	Yes
292	Intl Pkwy	1748	50	50	62	12	No
293	Intl Pkwy	1483	47	48	66	19	Yes
294	Intl Pkwy	1249	54	54	67	13	Yes
295	Intl Pkwy	1052	54	54	63	9	No
296	Intl Pkwy	1268	48	49	60	12	No
297	Intl Pkwy	1223	48	50	58	10	No
298	Intl Pkwy	934	54	54	60	11	No
299	Intl Pkwy	657	51	53	58	7	No
300	Intl Pkwy	570	51	53	56	5	No