Natural Resource Evaluation Report

Poinciana Parkway Extension (SR 538)
Project Development and Environment Study
From Poinciana Parkway to CR 532
Osceola and Polk Counties, Florida

CFX Project Number: 599-224

Prepared for:

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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EXECUTIVE SUMMARY

In accordance with Presidential Executive Order 11990, Federal Highway Administration (FHWA) Technical Advisory T6640.8A, Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205), and the Florida Department of Transportation (FDOT) *Project Development and Environment (PD&E) Manual*, Part 2, Chapters 9 and 16 (effective January 14, 2019) a Wetlands Evaluation and Protected Species and Habitat Assessment were conducted for the proposed extension of the Poinciana Parkway. The improvements being evaluated include alternatives connecting Poinciana Parkway to CR 532. The project is in both Polk and Osceola Counties, Florida. See **Location Map - Figure 1.** The following Natural Resource Evaluation (NRE) summarizes the results of these assessments. A longer improvement which includes this project (as well as other alternatives which are no longer under study) was screened by FDOT through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published in 2016 (ETDM #13957 - https://etdmpub.fla-etat.org/est/). An Advance Notification (AN) package, updated for this project's study area, was distributed to the agencies on September 18, 2018.

The purpose of this report is to identify wetlands and other surface waters within the project area, evaluate potential wetland and surface water impacts, identify measures to avoid and minimize impacts, and identify conceptual mitigation options. The purpose of this report is also to determine if the proposed project is likely to adversely affect, will jeopardize the continued existence of, or will result in the destruction or adverse modification of any critical habitat of any endangered or threatened species (listed species).

The proposed "action" under consideration is the construction of a tolled expressway connecting Poinciana Parkway to CR 532 and construction of stormwater management facilities. Four alternatives were evaluated and are discussed in Section 4.0.

Wetlands

Per the *Wetlands Evaluation*, two Florida Land Use, Cover and Forms Classification System (FLUCFCS) codes of surface water and seven FLUCFCS codes of wetlands were identified within the study area. The following two tables summarize the direct and secondary impacts to surface waters and wetlands for each of the four alternatives. The approximate direct impacts to surface waters and wetlands is 57 acres for Alternative 1A, 55 acres for Alternative 4A, 54 acres for Alternative 5A With Slip Ramps to Ronald Reagan Parkway, and 52 acres for Alternative 5A Without Slip Ramps to Ronald Reagan Parkway.

The total functional loss due to primary impacts is 27 units for Alternative 1A, 39 units for 4A, 38 units for 5A With Slip Ramps to Ronald Reagan Parkway, and 37 units for 5A Without Slip Ramps to Ronald Reagan Parkway.

Protected Species and Habitat

Per the *Protected Species and Habitat Assessment*, 28 federally-listed species and 22 state-listed species may occur within the study area. Pedestrian surveys for gopher tortoise burrows, listed plant species and sand and blue-tailed mole skink were conducted on September 13, 2018 and October 2, 2018. Sand and/or blue-tailed mole skink tracts were observed around and within Alternative 1A. A formal coverboard survey will be initiated during design and permitting within the preferred alternative to determine the presence of skinks. Audubon's crested caracara surveys were conducted January through April 2019, documenting that crested caracaras are not nesting within the alignments of any of the alternatives. Florida scrub-jay surveys were conducted March 11-15, 2019, documenting that there is no occupied scrub-jay habitat within the alignments of any of the alternatives. Once a preferred alternative is chosen, an updated listed plant survey will be conducted during design and permitting. Effects determinations made for the federally listed species evaluated are shown in **Table ES-1**.

Table ES-1: Federally Listed Species Effects Determinations

Federally Listed Species	Effect Determination
Red-cockaded woodpecker	No effect
Everglade snail kite	No effect
Florida grasshopper sparrow	No effect
Audubon's crested caracara	No effect
Florida scrub-jay	No effect
Wood stork	May affect, not likely to adversely affect
Eastern indigo snake	May affect
Florida sand skink	May affect, not likely to adversely affect
Blue-tailed mole skink	May affect, not likely to adversely affect
Short-leaved rosemary	May affect, not likely to adversely affect
Lewton's polygala	May affect, not likely to adversely affect
Small's jointweed/Sandlace	May affect, not likely to adversely affect
Pygmy fringe-tree	May affect, not likely to adversely affect
Perforate reindeer lichen	May affect, not likely to adversely affect
Avon park rabbit-bells	May affect, not likely to adversely affect
Garrett's scrub balm	May affect, not likely to adversely affect
Highlands scrub hypericum	May affect, not likely to adversely affect
Florida blazing star	May affect, not likely to adversely affect
Scrub lupine	May affect, not likely to adversely affect
Britton's beargrass	May affect, not likely to adversely affect
Florida jointweed	May affect, not likely to adversely affect
Scrub plum	May affect, not likely to adversely affect
Clasping warea	May affect, not likely to adversely affect
Carter's mustard	May affect, not likely to adversely affect
Scrub buckwheat	May affect, not likely to adversely affect
Florida bonamia	May affect, not likely to adversely affect
Scrub pigeon-wing	May affect, not likely to adversely affect
Paper-like whitlow-wort	May affect, not likely to adversely affect

Twenty-two Florida Fish and Wildlife Conservation Commission (FWC) state-listed species were evaluated in this study. Six potentially occupied gopher tortoise burrows were observed within the study area. A 100% gopher tortoise survey will be conducted during design and permitting and any gopher tortoises observed within 25 feet from construction will be relocated. The following additional surveys will be conducted during design and permitting for state listed species: southeastern American kestrel, Florida sandhill crane, and Florida burrowing owl. No adverse effects are anticipated to state listed species.

Mitigation

Mitigation credits will be purchased from a mitigation bank that is permitted by South Florida Water Management District (SFWMD) and US Army Corps of Engineers (USACE) to service the Reedy Creek Basin. Both SFWMD and USACE differentiate between herbaceous and forested impacts. Almost all impacts for any of the alternatives will be to forested systems, therefore, primarily forested credits will be required. The most likely feasible source for forested credits will be Reedy Creek Mitigation Bank due to its proximity and availability of both state and federal credits. Other mitigation banks within the same basin as the study area include Florida Mitigation Bank and Southport Ranch Mitigation Bank.

1.0 INTRODUCTION

In accordance with Presidential Executive Order 11990, Federal Highway Administration (FHWA) Technical Advisory T6640.8A, Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205), and the Florida Department of Transportation (FDOT) *Project Development and Environment (PD&E) Manual*, Part 2, Chapters 9 (effective January 14, 2019) and 16 (effective January 14, 2019), a Wetlands Evaluation and Protected Species and Habitat Assessment were conducted for the proposed extension of the Poinciana Parkway. The improvements being evaluated include alternatives connecting Poinciana Parkway to CR 532. The project is in both Polk and Osceola Counties, Florida. Project regional and location maps are provided on **Figures 1 and 2**. The following Natural Resource Evaluation (NRE) summarizes the results of these assessments.

The purpose of this report is to identify wetlands and other surface waters within the project area, evaluate potential wetland and surface water impacts, identify measures to avoid and minimize impacts, and identify conceptual mitigation options. The purpose of this report is also to determine if the proposed project is likely to adversely affect, jeopardize the continued existence of, or result in the destruction or adverse modification of any critical habitat of any endangered or threatened species (listed species).

The proposed "action" under consideration is the construction of a tolled expressway connecting Poinciana Parkway to CR 532 and construction of stormwater management facilities. Four build alternatives were evaluated and are discussed in Section 4.0.

A longer improvement which includes this project (as well as other alternatives which are no longer under study) was previously reviewed through the Environmental Screening Tool as part of the Efficient Transportation Decision Making (ETDM) Programming Screen. The project is listed as #13957 – Poinciana Parkway I-4 Segment. The Programming Screen Summary Report was published in 2016 (http://etdmpub.fla-etat.org/).

An Advance Notification (AN) package, updated for this project's study area, was distributed to the agencies on September 18, 2018. Comments were received from several agencies but the only comments pertaining to the natural resources were from the National Marine Fisheries Service (NMFS) and the US Environmental Protection Agency (USEPA). NMFS indicated that Essential Fish Habitat (EFH) would not be impacted and an EFH assessment is not required. Further, NMFS is unaware of any threatened or endangered species or critical habitat under NMFS' jurisdiction but indicated the project should be coordinated with the US Fish and Wildlife Service (USFWS). NMFS did provide comments regarding the benefits of freshwater wetlands and if wetland impacts are unavoidable, sequential minimization and mitigation should take place pursuant to the Fish and Wildlife Coordination Act. Because there are no EFH resources within the study area, this NRE does not include an EFH Assessment.

The USEPA commented that the "selected site should avoid and minimize, to the maximum extent practicable, placement of fill into jurisdictional waters of the U.S., which include wetlands and streams. Additionally, consider that the potential increase in impervious surface may increase storm water runoff and may increase pollutants into nearby water bodies and wetlands because of the project. Also, habitat loss due to the new construction would threaten the survival of fish and wildlife". The USEPA recommended that the PD&E include a discussion of the direct and secondary impacts to wetlands and

surface waters, best management practices during construction and compensatory mitigation for unavoidable wetland impacts. It was suggested to prevent further fragmentation, degradation, and loss of wildlife habitat, preservation of the remaining habitat in the project area be considered. USEPA requested a copy of the NRE. The AN comments from the NMFS and the USEPA are included in **Appendix A**.

Figure 1: Regional Map

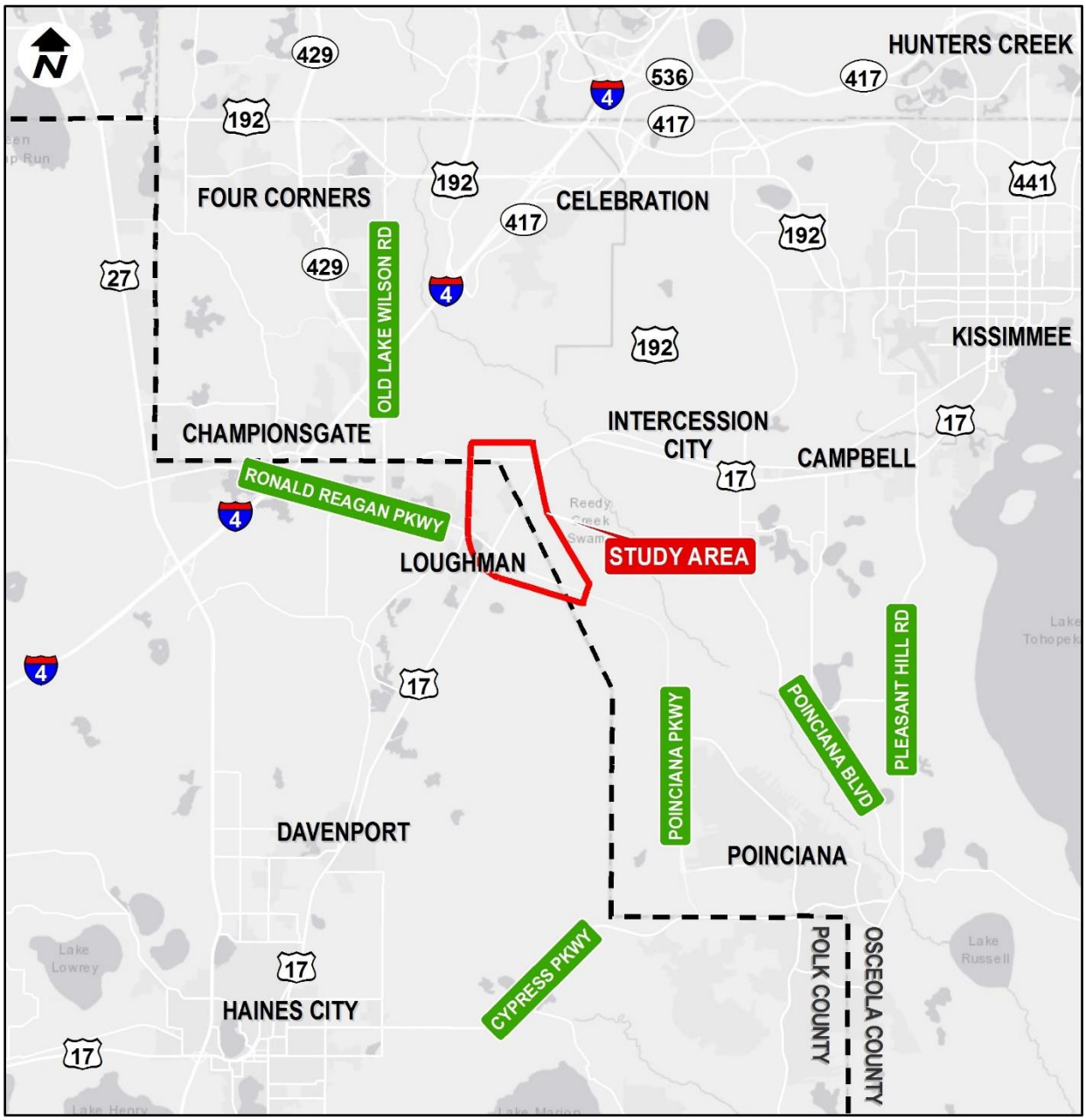
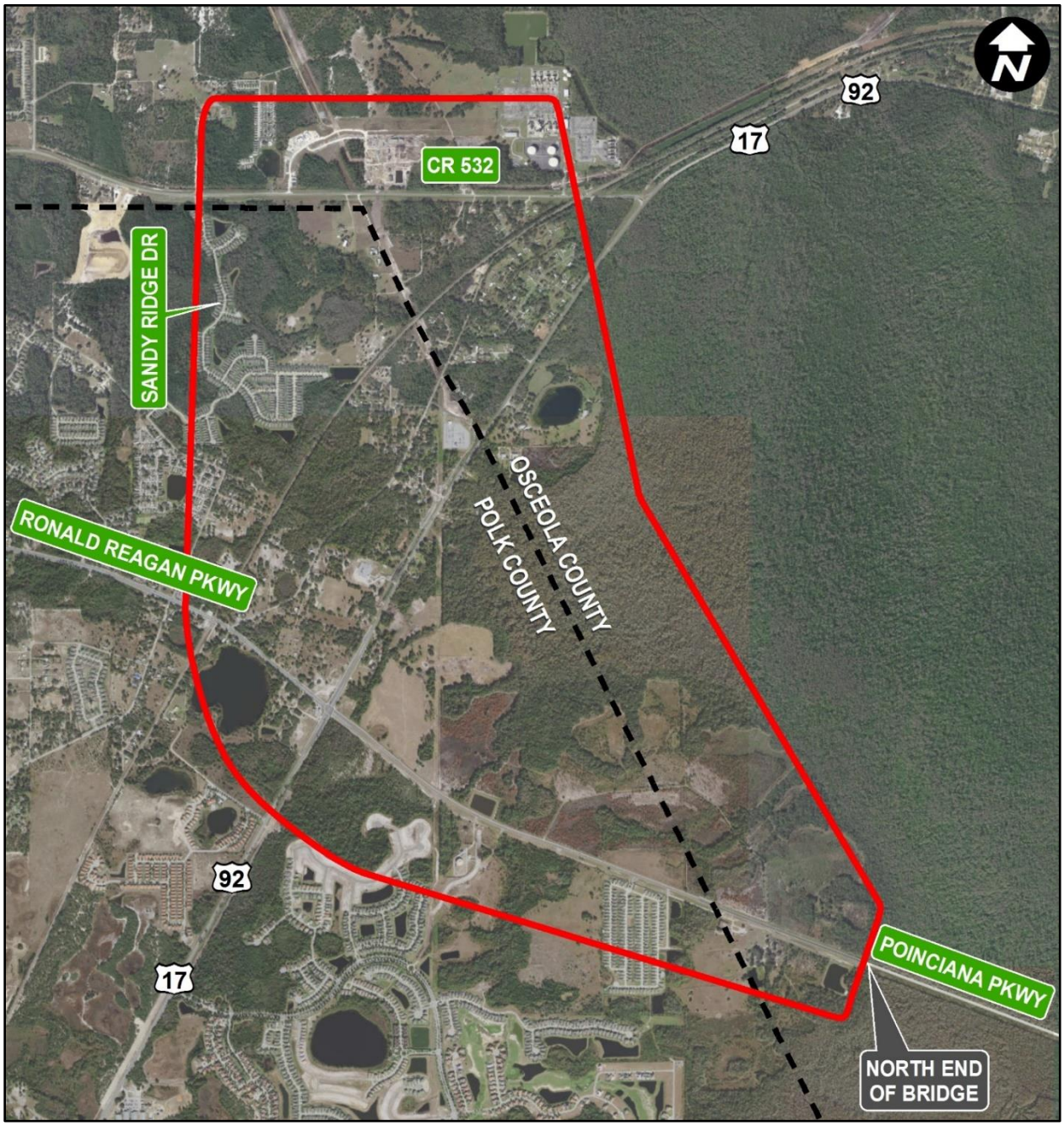


Figure 2: Study Area Map



2.0 PROJECT DESCRIPTION

Previous studies have been conducted by the former Osceola County Expressway Authority (OCX), FDOT, and by the Central Florida Expressway Authority (CFX). Most recently, CFX conducted a Concept, Feasibility & Mobility Study for the Poinciana Parkway Extension/ I-4 Connector. From this study, the CFX Board determined that a phased implementation of an expressway from the Poinciana Parkway to CR 532 was preferred and authorized to move to the PD&E Study phase. Three corridors from the Concept, Feasibility & Mobility Study were advanced for further study as described in Section 4.0 of this report.

The Poinciana Parkway Extension PD&E Study includes an evaluation of alternatives to extend the existing Poinciana Parkway (SR 538) from the existing bridge over the Reedy Creek Mitigation Bank to CR 532. The project is a proposed tolled 4-lane expressway within approximately 330 feet of right-of-way (ROW). This ROW width provides for future expansion for additional lanes and/or other multimodal travel options if needed in the future. The project also includes interchanges with other county and state roads, bridges over wetlands in the Reedy Creek Mitigation Bank and South Florida Water Management District (SFWMD) owned/managed Upper Lakes Basin Watershed habitat, as well as bridges over local roads and railroads. Stormwater management facilities are also being considered.

3.0 PURPOSE AND NEED

As noted above, the CFX Board determined that a phased implementation of an expressway connection from the Poinciana Parkway to CR 532 was preferred and should be evaluated. As such, the purpose and need for this study retains the context of both a full expressway connection to I-4 as well as an initial phased expressway connection to CR 532.

3.1 PURPOSE

The primary purpose of the Poinciana Parkway Extension is to enhance mobility from I-4 to Cypress Parkway, improve overall traffic operations of the existing highway network within the project study area, and expand regional system linkage in Osceola and Polk Counties. The secondary objectives are to provide transportation infrastructure to support economic growth and provide consistency with local plans and policies.

3.2 NEED

The need for the project is to provide system linkage, provide regional connectivity and mobility, meet social and economic needs, provide increased transportation capacity, achieve consistency with transportation plans, and provide for multimodal opportunities.

3.2.1 SYSTEM LINKAGE

System linkage is defined as linking two or more existing transportation facilities, types of modal facilities, geographic areas, or regional traffic generators. Poinciana Parkway currently links Marigold Avenue, KOA Street, and Cypress Parkway in Poinciana to US 17/92 in Polk County, near the Osceola County line. No direct limited access connection exists between Poinciana Parkway and I-4. Therefore, no direct connection exists between the Poinciana residential area in Osceola and Polk Counties to major employment centers in the Orlando metropolitan area, or from the limited access Poinciana Parkway to the regional freeway/expressway system. The Poinciana Parkway Extension to CR 532 will improve system linkage.

3.2.2 REGIONAL CONNECTIVITY AND MOBILITY

Mobility is the movement of people and goods and the ability to meet transportation demands. One of the regional goals is to provide a direct, limited access connection from Poinciana Parkway to I-4 to decrease travel time associated with delays at signalized and unsignalized intersections on the existing local roadway network. Currently, traffic traveling between Poinciana Parkway and I-4 can use Ronald Reagan Parkway and Lake Wilson Road (or Old Lake Wilson Road or Champions Gate Boulevard) to the CR 532 interchange. An alternate route is to use US 17/92 to CR 532 to the CR 532 interchange. However, all routes experience congestion. In addition, the CR 532 interchange with I-4 experiences significant congestion during the morning and afternoon peak periods. While the Poinciana Parkway Extension as part of this study will not connect to I-4, it will be compatible with a future expressway connection to I-4.

In addition, the Poinciana Parkway Extension will improve the connection to I-4 via CR 532, which is planned to be widened. The existing CR 532 interchange is also planned to be improved as part of the I-4 Beyond the Ultimate project (the improvement to the interchange could be implemented prior to the I-4 Beyond the Ultimate project).

3.2.3 SOCIAL AND ECONOMIC NEEDS

Osceola County has identified opportunities for growth but, without increased connectivity and sufficient capacity, congestion within the study area will increase and result in a lack of economic opportunities for areas such as Poinciana and Osceola County's South Lake Toho Master Plan. As part of Osceola County's growth strategy to discourage urban sprawl by focusing on higher intensity and density development within their Urban Growth Boundary, they identified a system of expressways which generally follow their urban growth boundary. These expressways, which include the Poinciana Parkway Extension and the I-4 Connector, will provide connectivity and capacity to support the County's economic and social needs.

3.2.4 CAPACITY CONSTRAINTS

The construction of Poinciana Parkway, from Cypress Parkway to US 17/92, provided a new alternative route for Poinciana residents traveling to and from the north. However, a direct connection to I-4 is not provided and traffic currently uses various routes (i.e., US 17/92, CR 532, Ronald Reagan Parkway, or Lake Wilson Road) to access I-4 at the CR 532/I-4 interchange. Currently, Lake Wilson Road, from Ronald Reagan Parkway to CR 532, operates over capacity. During the morning peak hour, there is severe congestion on eastbound I-4 (from US 27 to just beyond CR 532), westbound CR 532, eastbound Champions Gate Boulevard, and northbound Lake Wilson Road. There is also congestion on Ronald Reagan Parkway, US 17/92, and northbound Old Lake Wilson Road. During the afternoon peak hour, there is severe congestion on westbound I-4 (from SR 417 to just beyond CR 532), southbound Old Lake Wilson Road, and southbound Lake Wilson Road. There is also congestion on CR 532, Champions Gate Boulevard, Ronald Reagan Parkway, and US 17/92. It is anticipated that the Poinciana Parkway Extension will offer another option for drivers and, therefore, provide congestion relief to local roads.

3.2.5 CONSISTENCY WITH TRANSPORTATION PLANS

Osceola County's Comprehensive Plan includes a transportation system developed to respond to planned growth in the County. The Plan incorporates a vision for an integrated, multimodal transportation network that will meet the needs of the County's growing population. The Poinciana Parkway Extension is included in the County's Comprehensive Plan as well as the OCX Master Plan 2040 (OCX, 2013) as part of a planned limited access, high-speed toll facility identified to serve Osceola County's urban growth area. The OCX Master Plan has been adopted into the CFX Master Plan. The MetroPlan Orlando (MPO) 2040 Long Range Transportation Plan (LRTP) includes the Poinciana Parkway Extension as a new 4-lane facility to be constructed by 2030.

3.2.6 MULTIMODAL OPPORTUNITIES

CFX has established a multimodal policy to fund or partner on multimodal initiatives where revenue generated from the investment equals the project cost or where toll user benefits are equal to or exceed the project cost. In addition, Osceola County's Comprehensive Plan calls for an integrated, multimodal transportation network. Opportunities to provide for multimodal improvements were considered as part of the alternatives developed to address the need and purpose for this project.

4.0 ALTERNATIVES CONSIDERED

4.1 BUILD ALTERNATIVES

Several studies have been conducted to date to define corridors and potential build alternatives for this project. Following completion of the Poinciana Parkway Extension/I-4 Connector Concept, Feasibility & Mobility Study (May 2018), three build alternatives were carried forward into the PD&E Study. The other studies and results of the corridor and feasibility analyses are summarized in the Preliminary Engineering Report. For this PD&E Study, the build alternatives have been refined based on input from the public, the Project Advisory Group (PAG), the Environmental Advisory Group (EAG), and other local stakeholders. The build alternatives evaluated are illustrated on **Figure 3** and are described in the following sections.

The proposed typical section, as illustrated on **Figure 4**, is 330 feet wide consisting of two 12-foot lanes in each direction with a 92-foot median (that can accommodate additional lanes and/or a potential multimodal corridor) and 95-foot borders on each side.

Figure 3: Build Alternatives

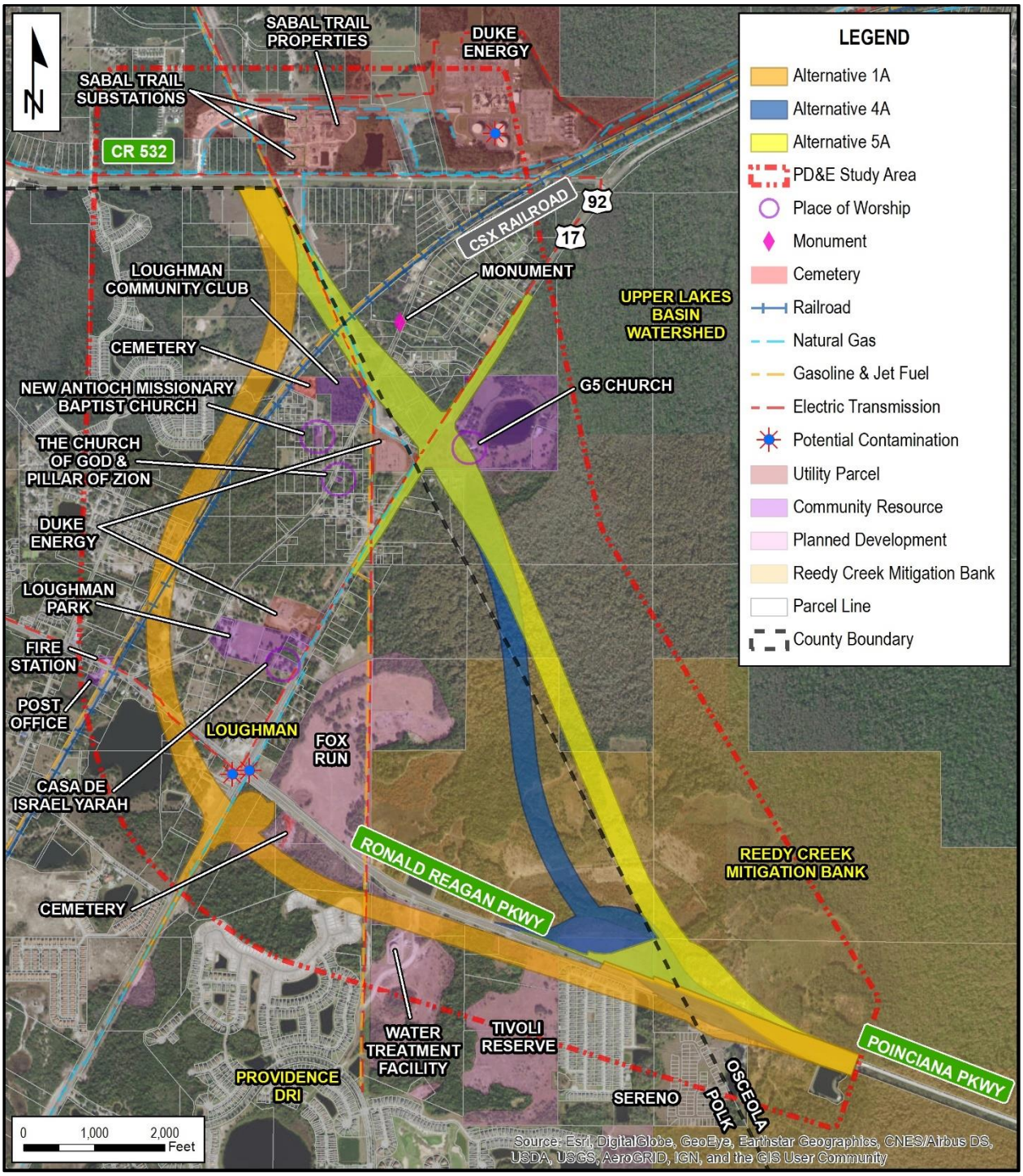
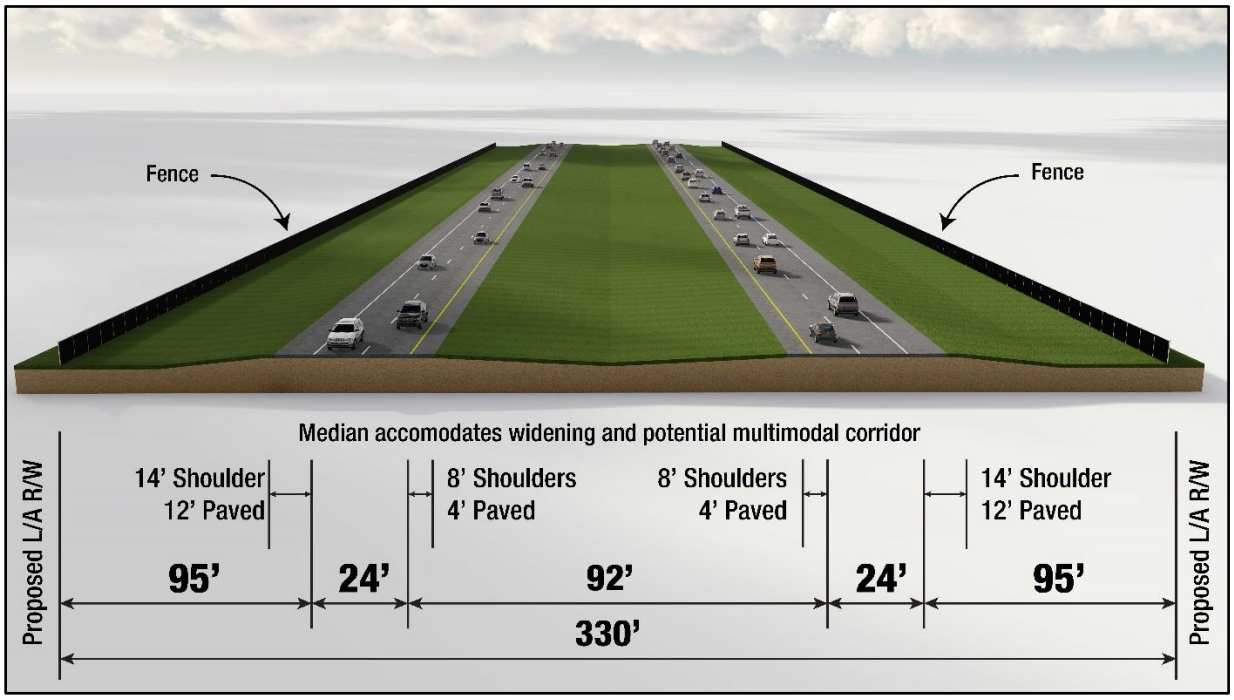


Figure 4: Typical Section



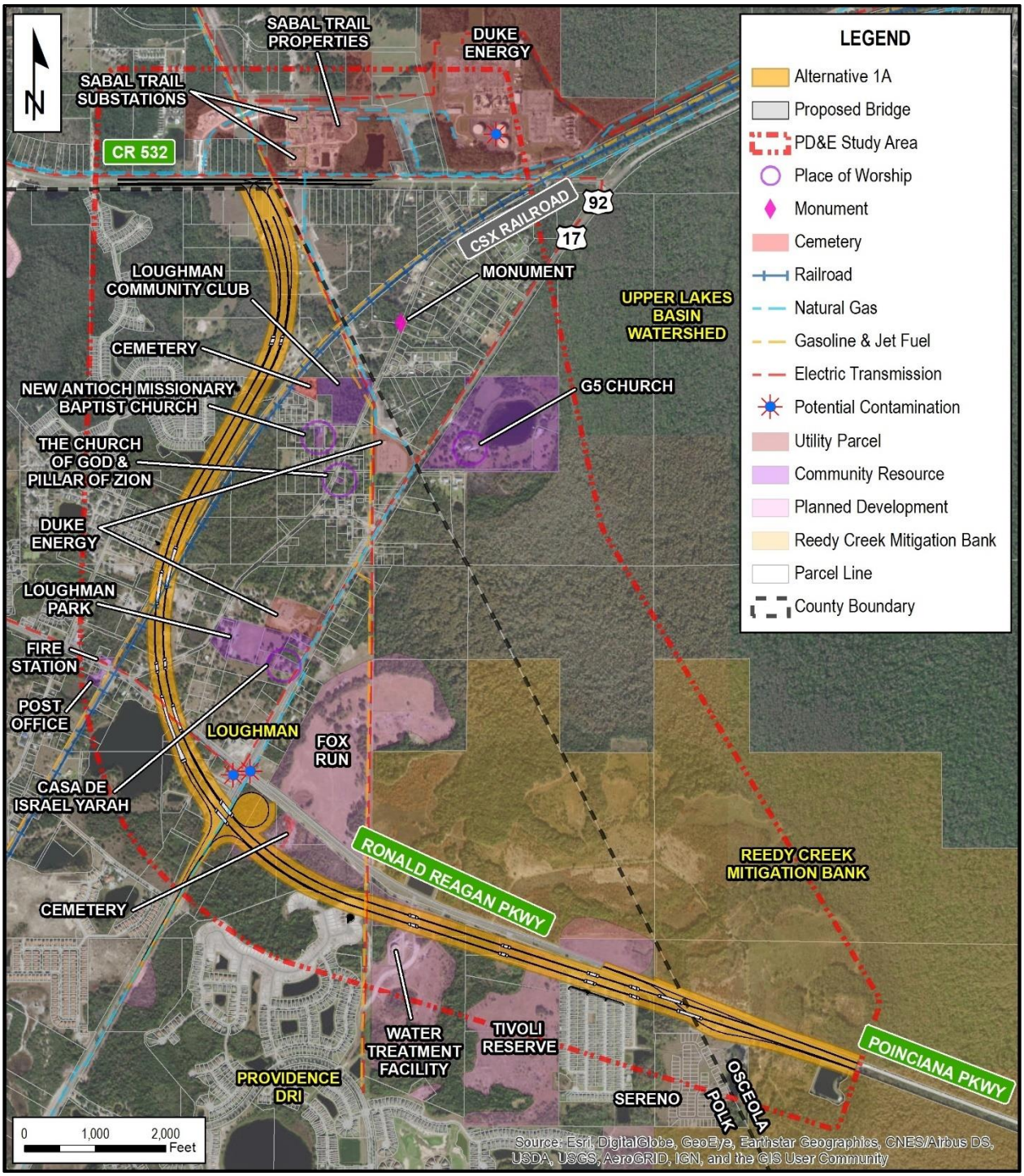
4.1.1 ALTERNATIVE 1A

Alternative 1A travels south of Ronald Reagan Parkway and crosses over US 17/92 south of its intersection with Ronald Reagan Parkway. This alternative extends northward crossing over Old Kissimmee Road and the CSX railroad, traveling parallel to and west of the CSX railroad before heading north to CR 532 just west of the Polk County/Osceola County line.

A partial interchange is provided with US 17/92 and slip ramps are provided to and from Ronald Reagan Parkway just west of the existing bridge over the Reedy Creek Mitigation Bank. An at-grade intersection is provided with CR 532.

Figure 5 illustrates Alternative 1A.

Figure 5: Alternative 1A



4.1.2 ALTERNATIVE 4A

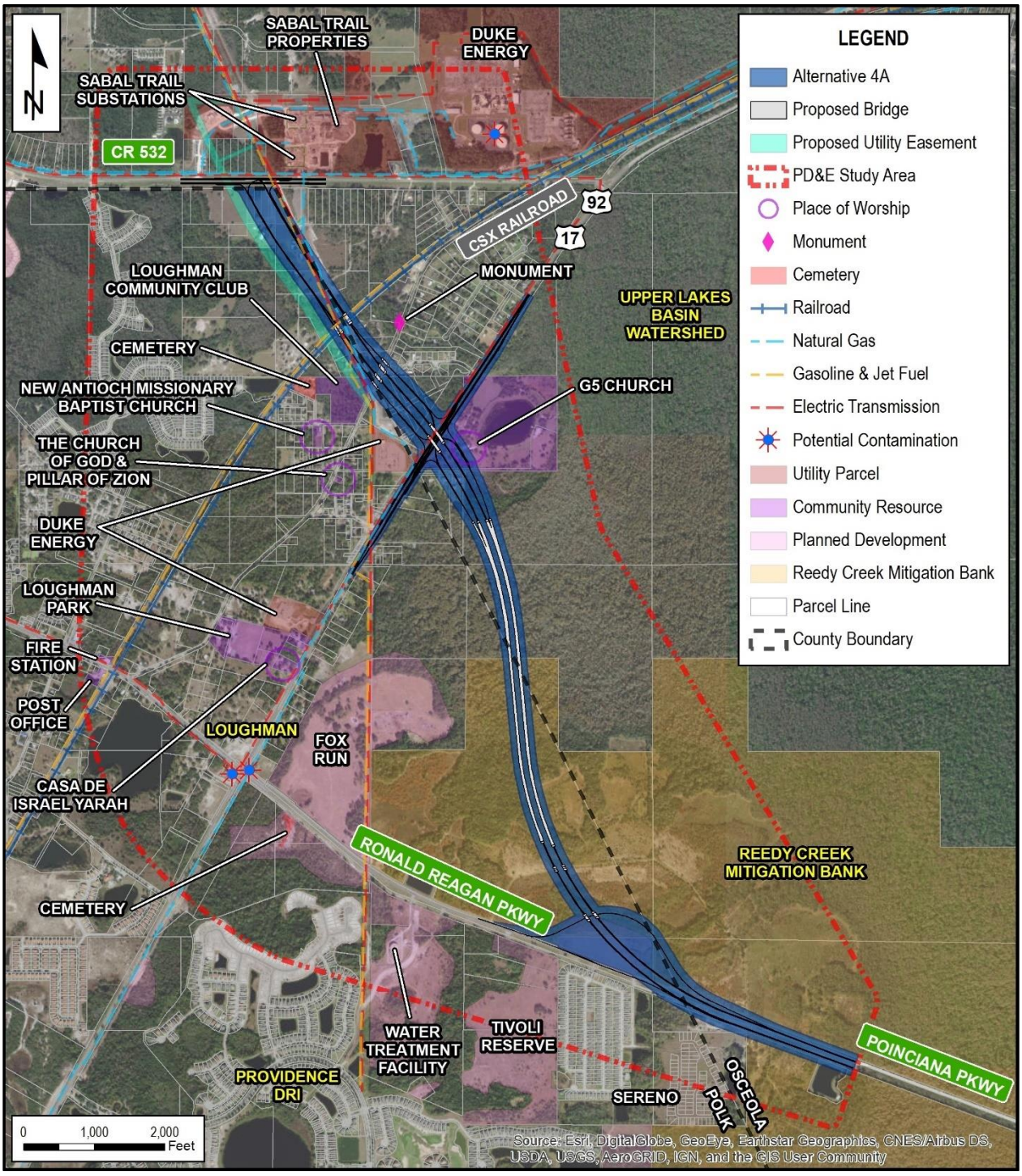
Alternative 4A travels northwesterly through the Reedy Creek Mitigation Bank in Polk County, then enters Osceola County within the SFWMD's Upper Lakes Basin Watershed lands before crossing over US 17/92 approximately one mile north of its intersection with Ronald Reagan Parkway. This alternative continues northward and crosses over Old Tampa Highway and the CSX railroad before connecting with CR 532 just west of the Polk County/Osceola County line. This alternative requires utility relocations from along the Polk County/Osceola County line to just west of the expressway alignment.

This alternative includes bridging over the wetlands within the Reedy Creek Mitigation Bank and the Upper Lakes Basin Watershed.

A single point urban interchange (SPUI) is provided with US 17/92 and slip ramps are provided to and from Ronald Reagan Parkway just west of the existing bridge over the Reedy Creek Mitigation Bank. An at-grade intersection is provided with CR 532.

Figure 6 illustrates Alternative 4A With Slip Ramps.

Figure 6: Alternative 4A With Slip Ramps



4.1.3 ALTERNATIVE 5A WITHOUT SLIP RAMPS TO RONALD REAGAN PARKWAY

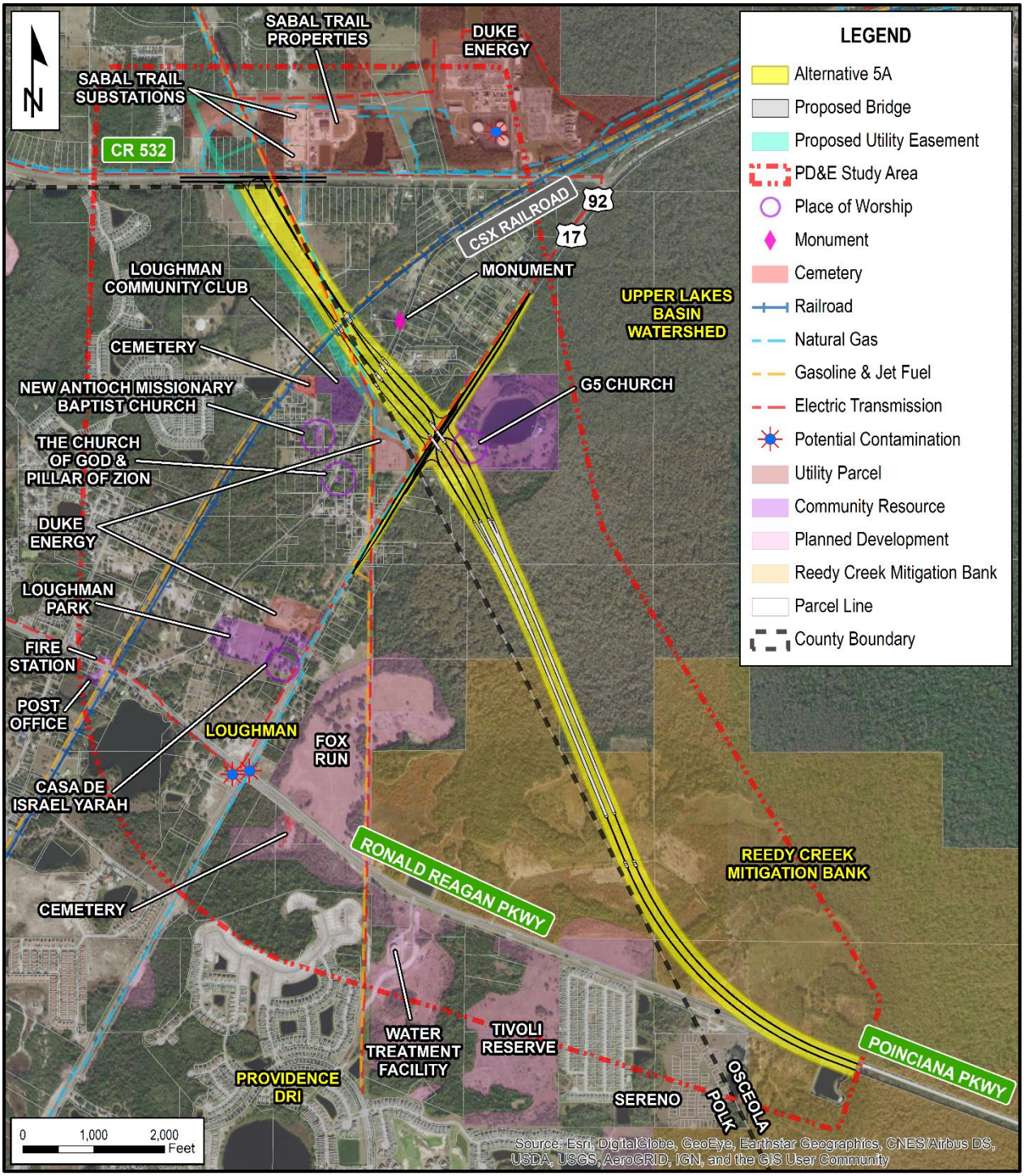
Alternative 5A travels northwesterly through the Reedy Creek Mitigation Bank in Osceola County and the SFWMD's Upper Lakes Basin Watershed before crossing over US 17/92 approximately one mile north of its intersection with Ronald Reagan Parkway. The alternative continues northward crossing over Old Tampa Highway and the CSX railroad before connecting with CR 532 just west of the Polk County/Osceola County line. This alternative requires utility relocations from along the Polk County/Osceola County line to just west of the expressway alignment.

This alternative includes bridging over the wetlands within the Reedy Creek Mitigation Bank and the Upper Lakes Basin Watershed.

A single point urban interchange is provided with US 17/92 and slip ramps are provided to and from Ronald Reagan Parkway just west of the existing bridge over the Reedy Creek Mitigation Bank. An at-grade intersection is provided with CR 532. For this alternative, slip ramps to and from Ronald Reagan Parkway were not included.

Figure 7 illustrates Alternative 5A Without Slip Ramps to Ronald Reagan Parkway.

Figure 7: Alternative 5A Without Slip Ramps to Ronald Reagan Parkway

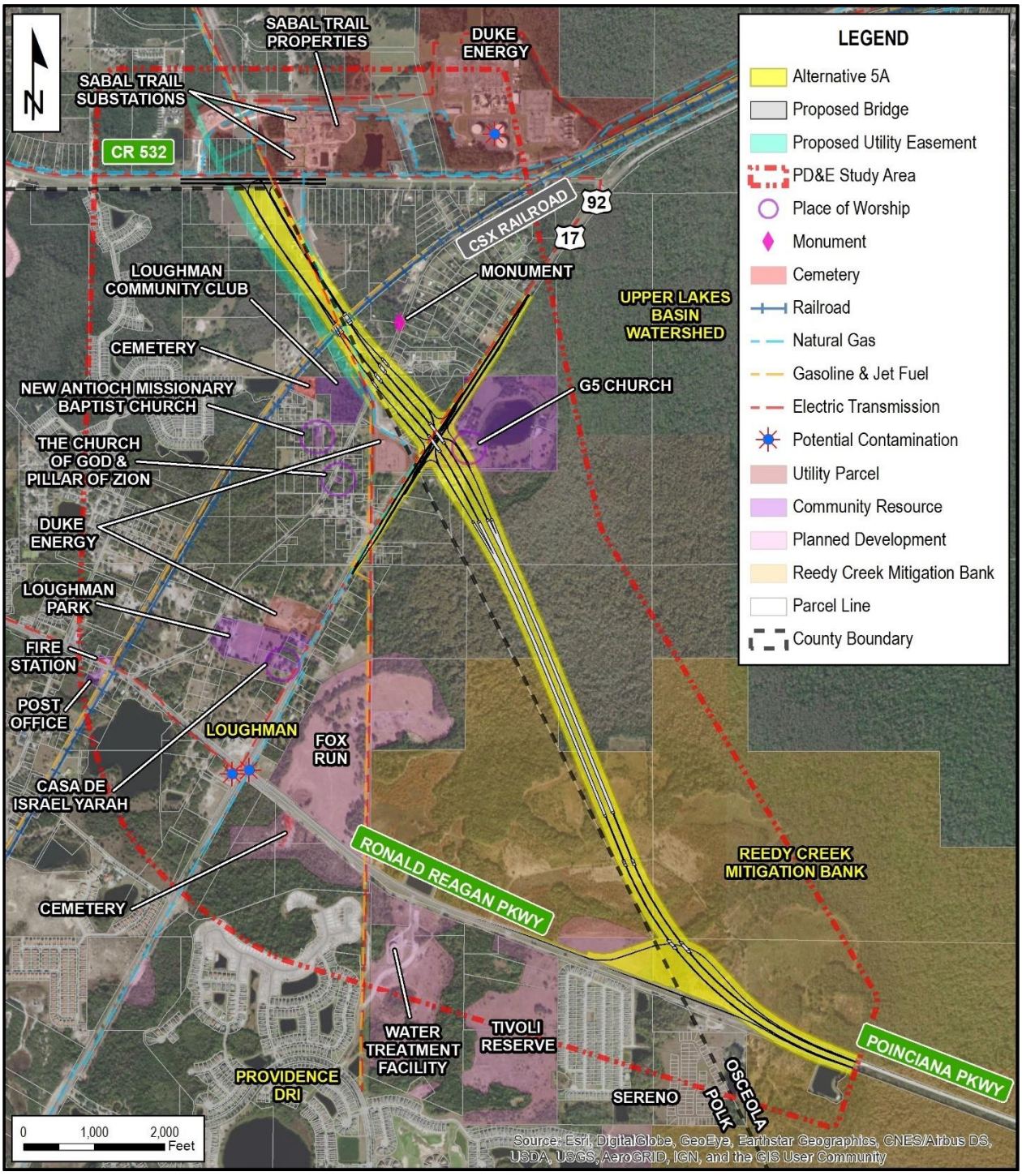


4.1.4 ALTERNATIVE 5A WITH SLIP RAMPS TO RONALD REAGAN PARKWAY

Alternative 5A was also evaluated with slip ramps to and from Ronald Reagan Parkway just west of the existing bridge in the Reedy Creek Mitigation Bank.

Figure 8 illustrates Alternative 5A With Slip Ramps to Ronald Reagan Parkway.

Figure 8: Alternative 5A With Slip Ramps to Ronald Reagan Parkway



5.0 EXISTING ENVIRONMENTAL CONDITIONS

5.1 METHODOLOGY FOR ACCESSING NATURAL AND BIOLOGICAL FEATURES

The assessment of natural and biological features, wetlands, and threatened and endangered species within the study area included the review of the following data and documents:

- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), *Soil Survey of Osceola County, Florida* and *Soil Survey of Polk County, Florida*
- Historical aerial photography from the FDOT Aerial Photo Look-up System (APLUS) and Publication of Archival Library and Museum Materials (PALMM)
- Habitat and species-specific information obtained from the USFWS, the Florida Fish and Wildlife Conservation Commission (FWC), Florida Fish and Wildlife Research Institute (FWRI), Florida Geographic Data Library (FGDL), and the Florida Natural Areas Inventory (FNAI)
- The Hydric Soils of Florida Handbook (2007)
- The US Geological Survey (USGS) 7.5-Minute Quadrangle maps
- The USFWS National Wetland Inventory (NWI) maps
- The USGS Groundwater Atlas of the United States
- The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM)
- FNAI Standard Data Report for the study area included in **Appendix B**
- USFWS Information for Planning and Consultation (IPaC) Trust Resources Report for the study area included in **Appendix C**
- National Oceanic and Atmospheric Administration (NOAA) NMFS EFH Mapper (accessed January 10, 2019)
- USEPA Sole Source Aquifer Program maps
- Review of books and other technical reports for each of the listed species evaluated in this biological assessment
- Review of the Advance Notification Package (Distributed on September 18, 2018)
- US Army Corps of Engineers Permit (USACE) permit SAJ-2008-2694 for Poinciana Parkway
- SFWMD Permit Modification No. 49-00094-S-66 for Poinciana Parkway

A *USFWS Pre-Coordination for Federally Listed Wildlife Species* report was prepared. This document was developed to facilitate the USFWS determination of the sufficient level of survey effort needed to address impacts to federally listed species within the study area. A meeting was held with USFWS on December 13, 2018 to review the project and the Pre-Coordination report. A copy of the report and the meeting minutes are included in **Appendix D**.

In addition to the review of databases, reports and other resources, habitat mapping and a 15% gopher tortoise survey occurred on September 13th and October 2, 2018. A pedestrian skink survey was also conducted during the September and October 2018 site visits. Wetland delineation and survey work occurred on October 2, 2018, November 30, 2017, and January 9, 2019. Audubon's Crested caracara surveys (caracara) took place during eighteen survey events between January 2019 through April 2019. Florida Scrub-jay (scrub-jay) surveys occurred March 11-15, 2019. Most of the study area was readily accessible or could be reviewed and evaluated from public rights-of-ways, through review of existing permits or from personal knowledge of the biologists conducting the field surveys. Access was not provided for the Reedy Creek Mitigation Bank (RCMB) but was viewed from the existing Poinciana Parkway and the evaluation of this area was supplemented with reviews of the existing mitigation bank permit and monitoring reports.

5.2 EXISTING AND FUTURE LAND USE

5.2.1 EXISTING LAND USE

Existing land use within the study area was determined through the interpretation of 1" = 100' scale aerial photography, review of land cover Geographic Information System (GIS) data obtained from the SFWMD and Southwest Florida Water Management District (SWFWMD), the *Concept, Feasibility and Mobility Study* (May 2018), and field reconnaissance. Existing land use was mapped based on the Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT, 1999) for the study area and is depicted on **Figures 9A-9C**.

5.2.2 FUTURE LAND USE

Future land use was determined based on a review of Polk and Osceola Counties' Future Land Use (FLU) GIS data (**Figures 10 and 11***,* respectively). As this is a new alignment, ROW acquisition will be required resulting in changes to the existing and future land use. The most abundant future land uses within the proposed alternatives include low-density residential and preservation. Therefore, there may be a decrease in the amount of open land within the study area. However, the study area is a high growth area with several Developments of Regional Impact (DRIs), Planned Developments (PDs) and other developments being proposed or permitted throughout the course of this study (e.g., Providence DRI and Tivoli Reserve). This limited access facility will provide important transportation infrastructure to the immediate area and to the commuting public who utilize this area and the region.

5.2.3 HABITAT AND VEGETATIVE COVER

Land covers within the study area have been assigned habitat classifications per the FLUCFCS. The study area contains thirty-one (31) land cover classes. A FLUCFCS map is included (see **Figures 9A-9C**), and a description by FLUCFCS type, and calculated total acreages are provided in **Table 1**.

Table 1: Summary of Land Cover / Land Use Within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
112	Mobile Home Units	This category represents mobile home neighborhoods located at the northeast part of the study area surrounding Old Kissimmee Road.	92
118	Rural Residential	The category represents the low-density residential community of Loughman.	187
129	Medium Density Under Construction	This category represents the Providence DRI and other residential communities under construction near Poinciana Parkway.	142
131	Fixed Single Family Units (6+ units per acre)	This category represents the communities of Sereno and Sandy Ridge.	86
132	Mobile Home Units (6+ units per acre)	This category includes the 21 Palms RV Resort which contains both RV pads and mobile homes.	10

Table 1: Summary of Land Cover / Land Use Within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
139	High Density Under Construction	This category includes the community of Tivoli Reserve which is under construction.	32
140	Commercial and Services	This land cover includes gas stations, future Publix site and other various commercial parcels throughout the study area.	4
172	Religious	This category includes Casa De Israel Yarah along US 17/92. There are two other religious facilities (G5 Church and New Antioch Missionary Baptist Church) within the study area, however these land uses were also classified as woodland pastures and rural residential, respectively due to the large size of the parcels and potential habitat for wildlife or listed species being present.	1
185	Parks and Zoos	This category includes Loughman Park.	12
190	Open Land	This category includes open land within the study area where the intended land use is not obvious.	11
211	Improved Pastures	These pastures are located in the northwest portion of the study area, adjacent to and south of Osceola Polk Line Road. This category includes pastures planted with Bahia grass (*Paspalum notatum*). Some of the pastures within the study area are currently being used as horse pastures.	62
213	Woodland Pastures	These pastures are located in the more northern portions of the study area, specifically north of Osceola Polk Line Road and also east of US 17/92. This category includes pastures planted with Bahia grass but also have hardwood species throughout, including live oak (*Quercus virginiana*).	80
310	Herbaceous (dry prairies)	This habitat type is found in the western portion of the study area, west of US 17/92 and both north and south of Ronald Reagan Parkway. The dominant vegetation is Bahia grass. Other vegetative species include dogfennel (*Eupatorium capillifolium*), bluestem (*Andropogon virginicus*), wiregrass (*Aristida stricta*), and gallberry (*Ilex glabra*).	45
320	Shrub and Brushland	This habitat type is found in the northern portions of the study area, specifically north and south of Osceola Polk Line Road and east of US 17/92. Vegetation consists of myrtle oak (*Q. myrtifolia*), winged sumac (*Rhus copallinum*), slash pine (*Pinus elliotii*), greenbrier (*Smilax* spp.), muscadine (*Vitis rotundifolia*), prickly pear cactus (*Opuntia* spp.), rusty staggerbush (*Lyonia ferruginea*), sand pine (*P. clausa*), rustweed (*Polypremum procumbens*), saw palmetto (*Serenoa repens*), and gallberry.	21
410	Upland Coniferous Forests	This habitat type is found adjacent to and just south of Osceola Polk Line Road. The canopy is composed of slash pine and cabbage palm (*Sabal palmetto*) with an understory of wax myrtle (*Morella cerifera*), saw palmetto, gallberry,	50

Table 1: Summary of Land Cover / Land Use Within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
		staggerbush (*Lyonia lucida*), Caesar weed (*Urena lobata*), dogfennel, and muscadine vine. Scattered sand live oaks (Q. geminata) were also observed in these areas.	
420	Upland Hardwood Forests	This habitat type is found south of Ronald Reagan Parkway and west of US 17/92. The most common tree species for this habitat include live oak, water oak (*Q. nigra*), and southern magnolia (*Magnolia grandiflora*). Understory species included muscadine, greenbrier, cabbage palm, and scattered saw palmetto.	5
421	Xeric Oak	This habitat type is found around Old Kissimmee Road and south of the Poinciana Parkway. The vegetation is dominated by mid-canopy species that include sand live oak, myrtle oak, and Chapman's oak (*Q. chapmanii*), with occasional sand pine. Subcanopy and groundcover species include immature oaks, saw palmetto, rusty staggerbush, wiregrass, gallberry, prickly pear cactus, netted pawpaw (*Asimina reticulata*), stinging nettle (*Urtica spp*.), and shiny blueberry (*Vaccinium myrsinites*).	39
427	Live Oak	This habitat type is found just west of US 17/92 and just north of Ronald Reagan Parkway. The vegetation is predominantly live oak, with occasional slash pine and laurel oak. The understory is relatively open with species that include sapling oaks and saw palmetto. Groundcover species are scarce and include suppressed wiregrass and bracken fern (*Pteridium aquilinum*).	6
434	Hardwood-Conifer Mixed	This habitat type is found around Old Kissimmee Road in the central portion of the study area. The predominant canopy species included slash pine and live oak, but neither species displayed 66 percent dominance in the canopy. The sub-canopy/shrub layer included saw palmetto, gallberry, rusty staggerbush, and scattered sand live oaks. The ground-layer included wiregrass, bluestem, and greenbrier.	12
441	Pine Plantations	These areas are within the Reedy Creek Mitigation Bank and included planted slash pine for the canopy. The understory consists of bluestem and ruderal grasses. Note: this area has undergone several upland restoration plantings and permit modifications regarding the planted species.	306
523	Lakes Larger Than 10 Acres but Less Than 100 Acres	This surface water includes part of a small lake, including its wetland fringe. This lake is located south of Ronald Reagan Parkway and west of US 17/92.	36
534	Reservoirs Less than 10 Acres	This surface water classification includes open water, man-made ponds, which are scattered throughout the study area	23
610	Wetland Hardwood Forests	This habitat type is found scattered throughout the study area. The canopy is primarily composed of wetland hardwoods such as blackgum (*Nyssa biflora*), red maple	479

Table 1: Summary of Land Cover / Land Use Within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
		(*Acer rubrum*), sweetbay (*Magnolia virginiana*) and loblolly bay (*Gordonia lasianthus*). Midstory species include dahoon holly (*Ilex cassine*) and wax myrtle. The understory is primarily composed of species such as soft rush (*Juncus effusus*), primrose willow (*Ludwigia peruviana*), Carolina willow (*Salix caroliniana*), and cinnamon fern (*Osmundastrum cinnamomerum*).	
611	Bay Swamps	This habitat type is found in the central portion of the study area, east of US 17/92 and south of Poinciana Parkway. The canopy of this community type is patchy and composed of sweet bay and loblolly bay. Mid-story species include dahoon holly and wax myrtle. Understory species include saw palmetto, gallberry, cinnamon fern and bluestem.	3
621	Cypress	This habitat type is found both north and south of Osceola Polk Line Road. This area exhibits a closed canopy of cypress (*Taxodium* spp.). Understory species are sparse but include pickerel weed (*Pontederia cordata*), duck potato (*Sagittaria lancifolia*) and maidencane (*Panicum hemitomon*).	13
625	Hydric Pine Flatwoods	This habitat type is scattered throughout the study area. The canopy is primarily composed of slash pine and various bay trees. Mid-story species include dahoon holly and wax myrtle. The understory is composed of saw palmetto, bluestem, Virginia chain fern (*Woodwardia virginica*) and primrose willow.	61
630	Wetland Forested Mixed	This habitat type is scattered throughout the landscape. The canopy is closed and composed of a mix of wetland hardwoods such as blackgum, cypress, red maple, sweet bay and loblolly bay. Mid-story species include dahoon holly and wax myrtle. Understory species include royal fern (*Osmunda regalis*), cinnamon fern and duck potato.	356
641	Freshwater Marshes	This habitat type is found north of Osceola Polk Line Road and south of Ronald Reagan Parkway. Vegetation included cattail (*Typha* sp.), pickerelweed, and duck potato.	6
643	Wet prairies	This habitat type is found within the central portion of the study area, specifically north of Old Kissimmee Road. These areas are not native wet prairie habitat, but rather anthropogenically-altered areas that have been historically converted from forested wetlands. Species are all herbaceous and include primrose willow, coinwort (*Centella erecta*), soft rush and Virginia chain fern.	**2**
814	Roads and Highways	This includes CR 532, Ronald Reagan Parkway. Poinciana Parkway, US 17/92 and other smaller residential roads.	149
830	Utilities	This category includes the Sabal Trail Transmission facility, the Duke Energy Intercession Plant and other various utility plants within the study area.	85
		Grand Total	2,416

Figure 9A: FLUCFCS Map

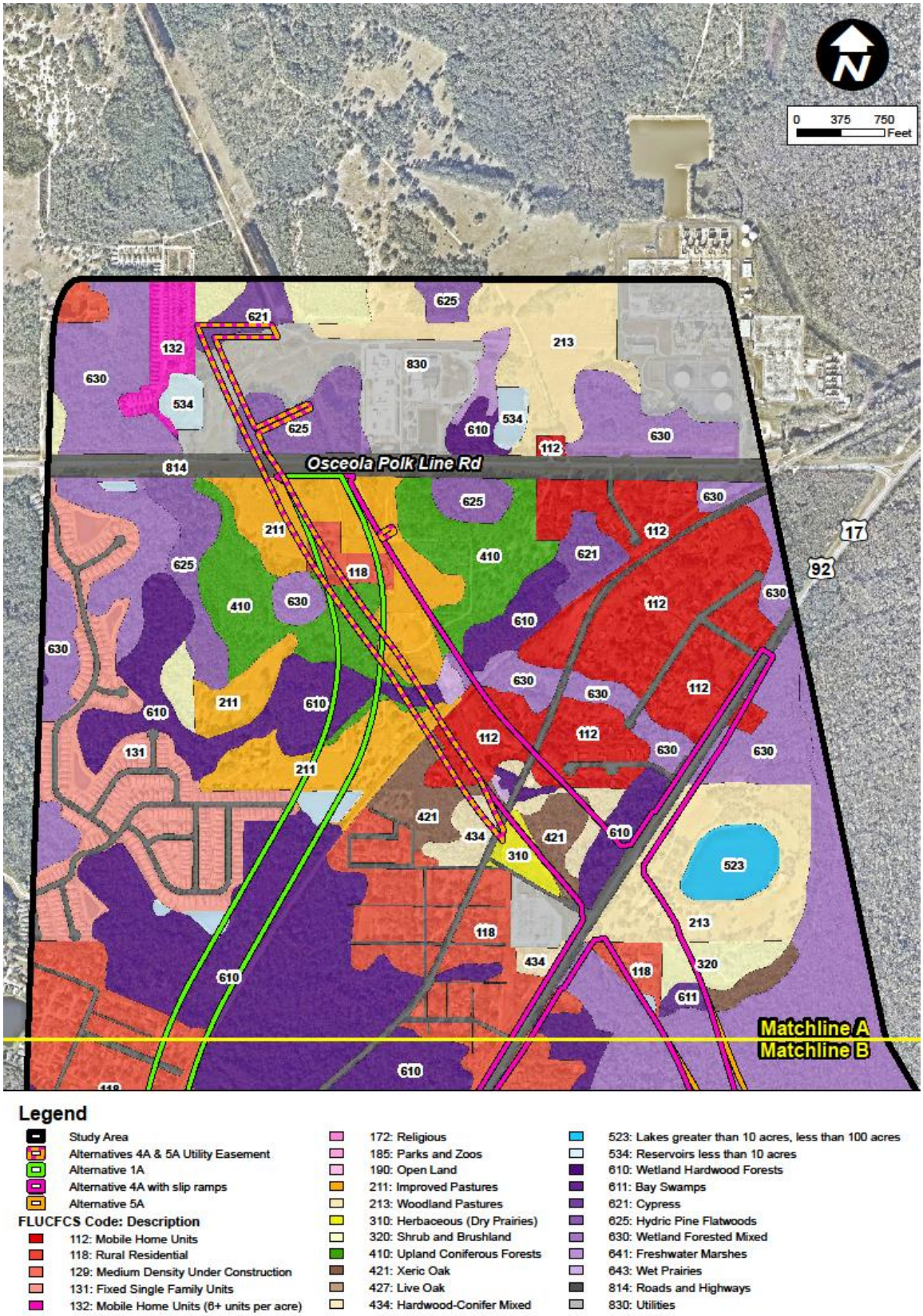


Figure 9B: FLUCFCS Map

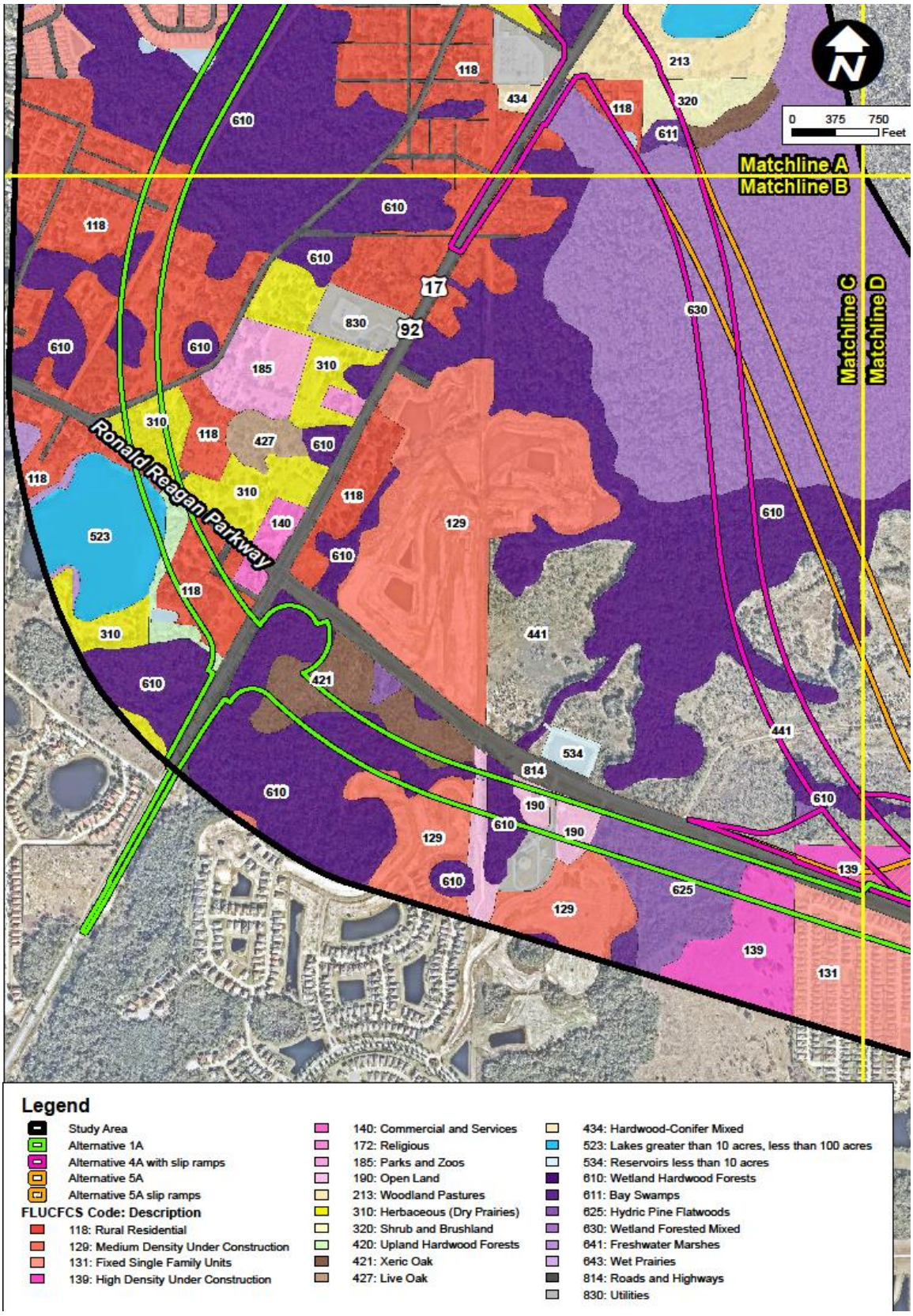


Figure 9C: FLUCFCS Map

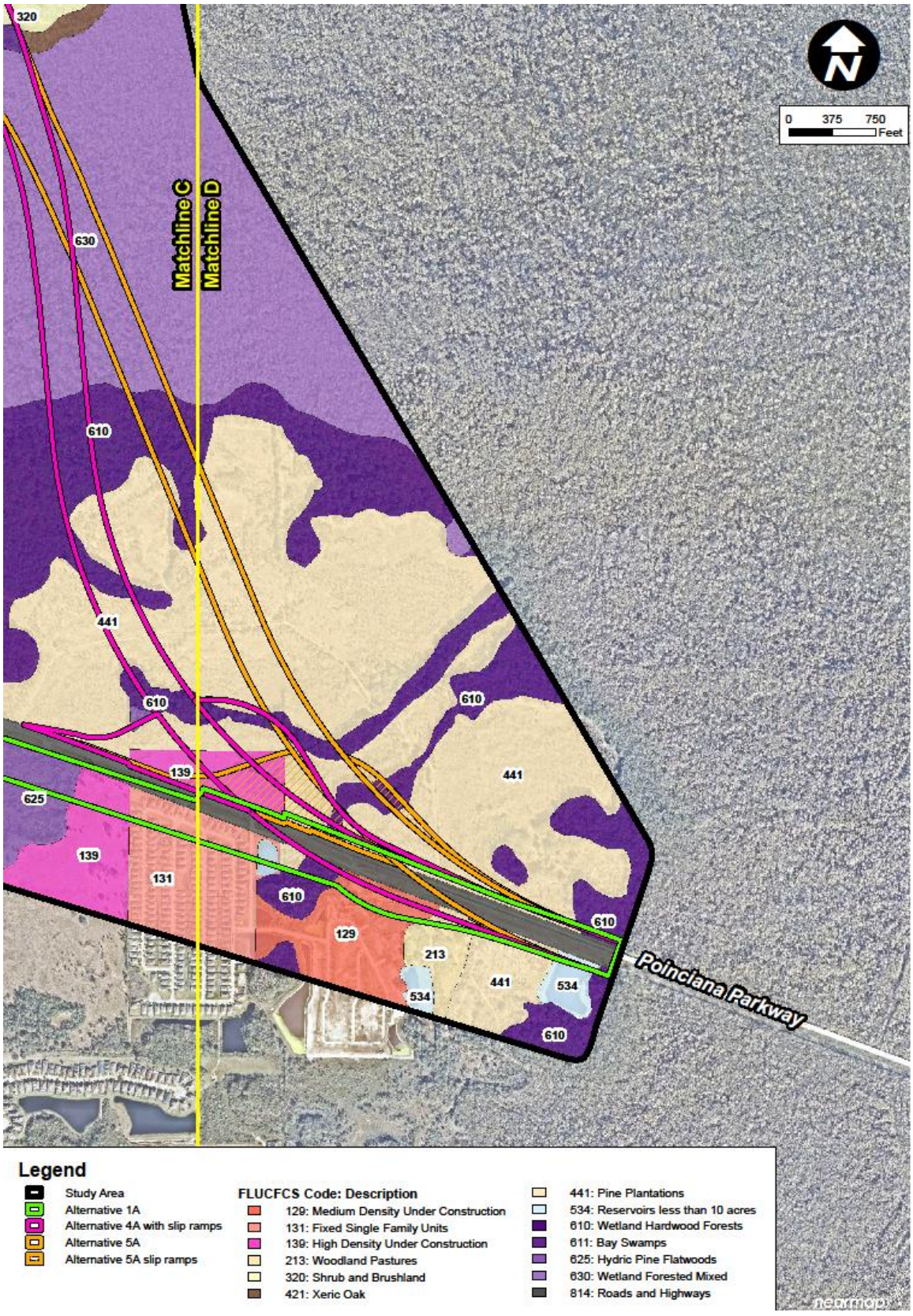


Figure 10: Polk County FLU Map

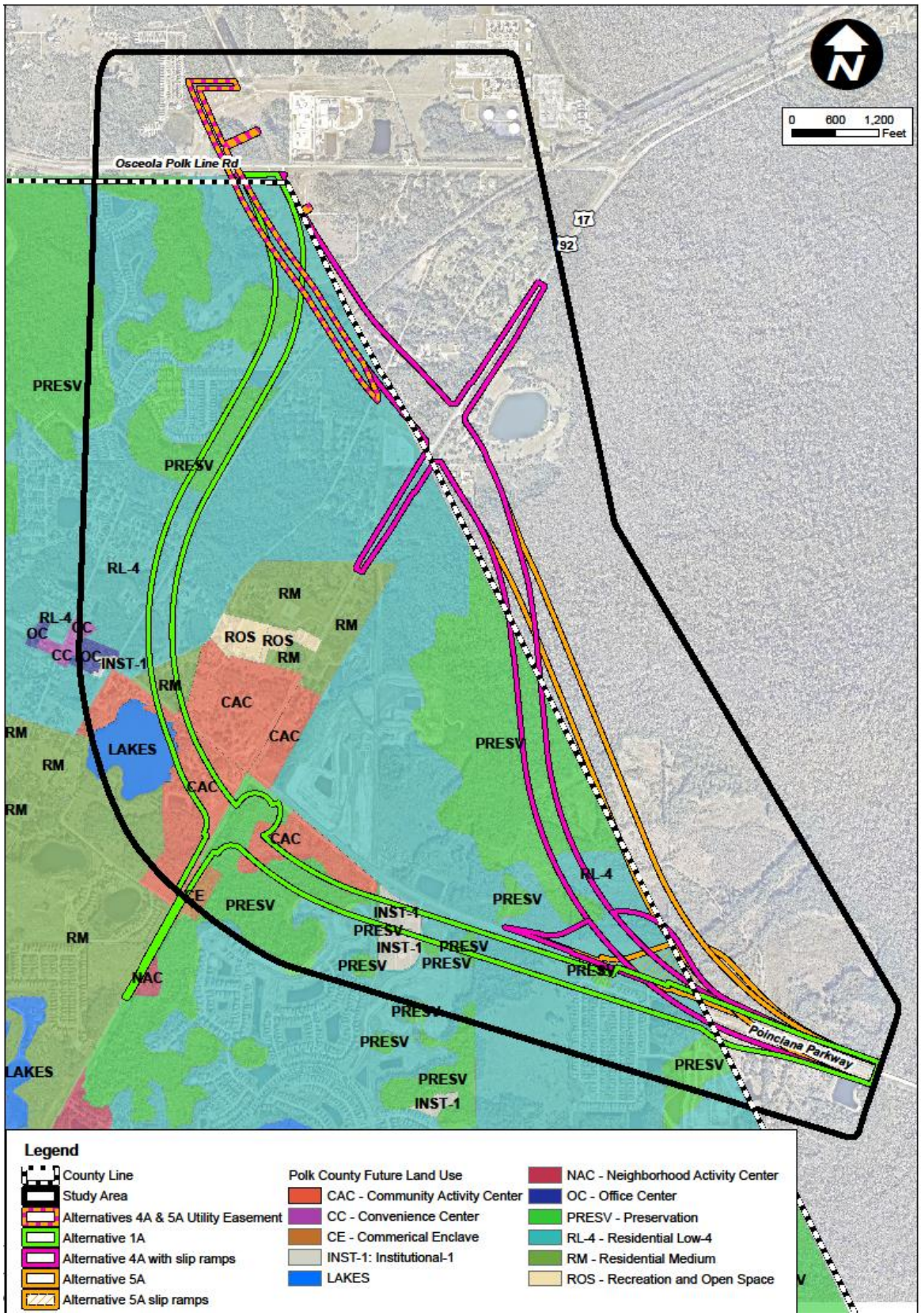
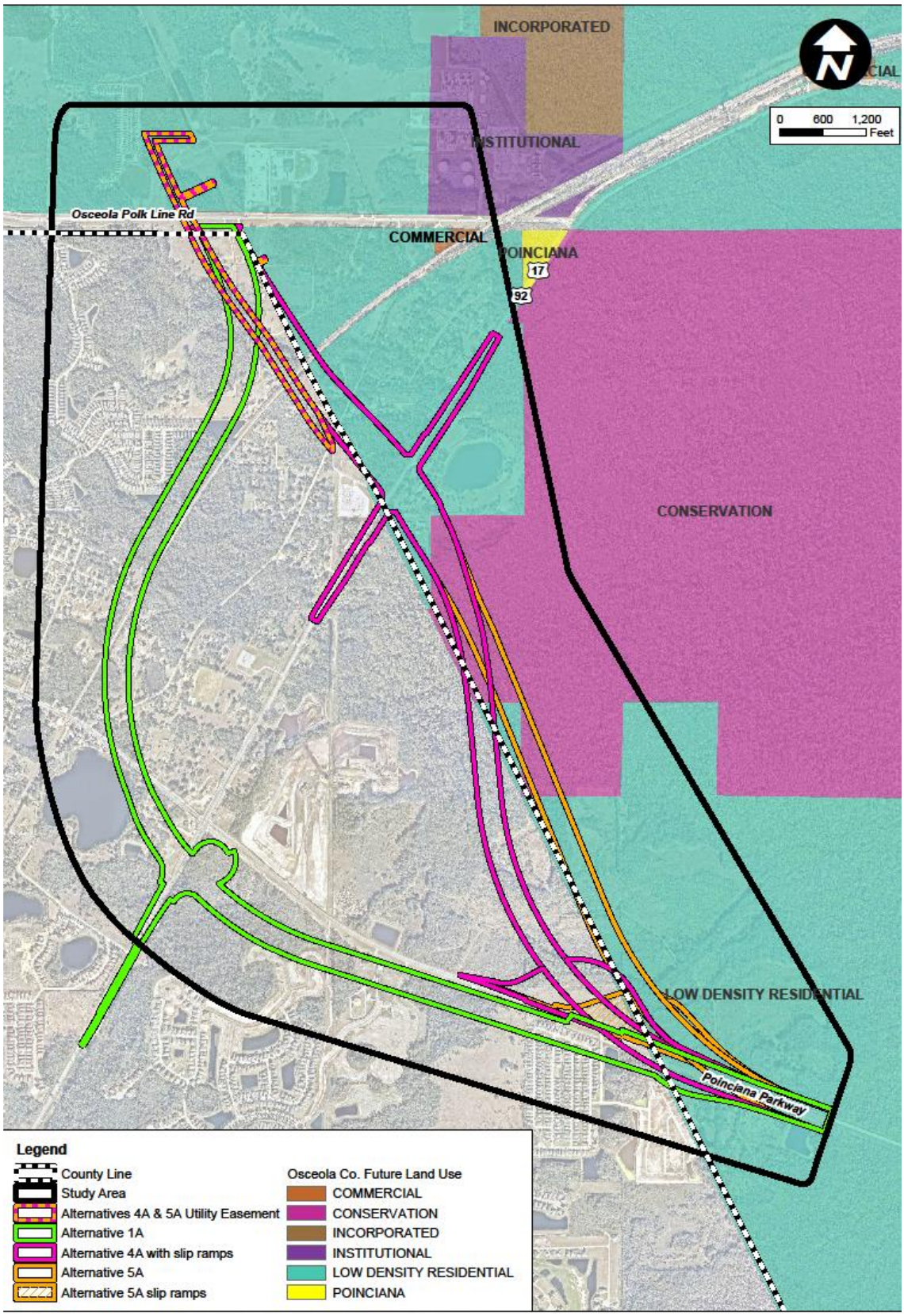


Figure 11: Osceola County FLU Map



5.3 SOILS

Based on a review of the USDA/NRCS Soil Survey for Osceola and Polk Counties, there are forty-two (42) major soil types within the study area. In general, the soils found within the study area are derived from sandy marine sediments and are gently sloping with a variety of drainage characteristics. **Tables 2A and 2B** include a summary of the soil types found in the study area by county and NRCS Soils Map - **Figure 12**. Soils in the tables that are in bold denote hydric soils.

Of the 42 soil types mapped within the study area, 25 are designated hydric soils (*Hydric Soils of Florida Handbook*, Fourth Edition, 2007). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. In addition, eight (8) of the non-hydric soil types within the study area may contain hydric inclusions within the lower elevation areas. These soils include: (1) Adamsville sand, (16) Immokalee fine sand, (27) Ona fine sand, and (42) Smyrna fine sand within Osceola County and (17) Smyrna and Myakka fine sands, (21) Immokalee sand, (23) Ona fine sand, (77) Satellite sand within Polk County. In general, the hydric soils correspond with areas of the wetlands identified in the study area.

Table 2A: NRCS Soils Identified in the Study Area in Osceola County

Soil ID Number	Soil Name	% of Soil within Study Area	Parent Material	Drainage Class	Water Capacity	Hydraulic Conductivity	Depth to Restrictive Feature	Groundwater Depth
1	Adamsville sand, 0 to 2 percent slopes	0.81%	Sandy marine deposits	Somewhat poorly drained	Very low	Rapid	>80 inches	33 inches
5	**Basinger fine sand, 0 to 2 percent slopes**	**0.34%**	**Sandy marine deposits**	**Poorly drained**	**Very low**	**Very rapid**	**>80 inches**	**6 inches**
12	**Floridana fine sand, depressional**	**1.12%**	**Sandy and loamy marine deposits**	**Very poorly drained**	**Low**	**Moderately slow**	**>80 inches**	**0 inches**
14	**Holopaw fine sand**	**0.63%**	**Sandy and loamy marine deposits**	**Poorly drained**	**Low**	**Rapid**	**>80 inches**	**6 inches**
15	**Hontoon muck**	**4.56%**	**Herbaceous organic material**	**Very poorly drained**	**Very high**	**Rapid**	**>80 inches**	**0 inches**
16	Immokalee fine sand	16.78%	Sandy marine deposits	Poorly drained	Low	Moderately rapid	>80 inches	12 inches
17	**Kaliga muck**	**1.46%**	**Herbaceous organic material over stratified loamy marine deposits**	**Very poorly drained**	**High**	**Moderately slow**	**>80 inches**	**0 inches**
22	Myakka fine sand	2.72%	Sandy marine deposits	Poorly drained	Very low	Moderately rapid	>80 inches	12 inches
25	**Nittaw muck**	**0.68%**	**Clayey marine deposits**	**Very poorly drained**	**High**	**Moderately slow**	**>80 inches**	**0 inches**
27	Ona fine sand	2.14%	Sandy marine deposits	Poorly drained	Low	Moderately rapid	>80 inches	12 inches
29	**Parkwood loamy fine sand, occasionally flooded**	**1.79%**	**Sandy and loamy marine deposits**	**Poorly drained**	**Low**	**Rapid**	**>80 inches**	**12 inches**

Bold denotes hydric soils.

Table 2A: NRCS Soils Identified in the Study Area in Osceola County

Soil ID Number	Soil Name	% of Soil within Study Area	Parent Material	Drainage Class	Water Capacity	Hydraulic Conductivity	Depth to Restrictive Feature	Groundwater Depth
31	**Pits**	**0.21%**	--	--	--	--	--	--
32	**Placid fine sand, depressional**	**1.35%**	**Sandy marine deposits**	**Very poorly drained**	**Moderate**	**Rapid**	**>80 inches**	**0 inches**
36	**Pompano fine sand**	**0.95%**	**Sandy marine deposits**	**Poorly drained**	**Very low**	**Rapid**	**>80 inches**	**6 inches**
37	**Pompano fine sand, depressional**	**1.86%**	**Sandy marine deposits**	**Very poorly drained**	**Very low**	**Rapid**	**>80 inches**	**0 inches**
38	**Riviera fine sand**	**2.55%**	**Sandy and loamy marine deposits**	**Poorly drained**	**Moderate**	**Moderately slow**	**>80 inches**	**6 inches**
39	**Riviera fine sand, depressional**	**2.17%**	**Sandy and loamy marine deposits**	**Very poorly drained**	**Moderate**	**Moderately slow**	**>80 inches**	**0 inches**
40	**Samsula muck**	**1.24%**	**Herbaceous organic material over sandy marine deposits**	**Very poorly drained**	**Moderate**	**Rapid**	**>80 inches**	**0 inches**
41	Satellite sand	3.26%	Sandy marine deposits	Somewhat poorly drained	Very low	Very rapid	>80 inches	27 inches
42	Smyrna fine sand	0.39%	Sandy marine deposits	Poorly drained	Low	Moderately rapid	>80 inches	12 inches

Bold denotes hydric soils.

Table 2B: NRCS Soils Identified in the Study Area in Polk County

Soil ID Number	Soil Name	% of Soil within Study Area	Parent Material	Drainage Class	Water Capacity	Hydraulic Conductivity	Depth to Restrictive Feature	Groundwater Depth
3	Candler sand, 0 to 5 percent slopes	2.79%	Sandy and loamy marine deposits	Excessively drained	Very low	Rapid	>80 inches	>80 inches
13	**Samsula muck**	**5.89%**	**Sandy marine deposits**	**Very poorly drained**	**High**	**Very rapid**	**>80 inches**	**0 to 6 inches**
15	Tavares fine sand, 0 to 5 percent slopes	1.37%	Sandy marine deposits	Moderately well drained	Very low	Rapid to very rapid	>80 inches	42 to 72 inches
17	Smyrna and Myakka fine sands	4.74%	Sandy marine deposits	Poorly drained	Low	Moderately rapid	>80 inches	6-18 inches
19	**Floridana mucky fine sand, depressional**	**0.05%**	**Sandy and loamy marine deposits**	**Very poorly drained**	**Moderate**	**Moderately slow to moderately rapid**	**>80 inches**	**0 to 6 inches**
21	Immokalee sand	7.58%	Sandy marine deposits	Poorly drained	Low	Moderately rapid to rapid	>80 inches	6 to 18 inches
22	Pomello fine sand	0.77%	Sandy marine deposits	Moderately well drained	Low	Rapid	>80 inches	24 to 42 inches
23	Ona fine sand	0.22%	Sandy marine deposits	Poorly drained	Low	Moderately rapid to rapid	>80 inches	6 to 18 inches
25	**Placid and Myakka fine sands, depressional**	**7.01%**	**Sandy marine deposits**	**Very poorly drained**	**Moderate**	**Rapid to very rapid**	**>80 inches**	**0 inches**
30	**Pompano fine sand**	**6.81%**	**Sandy marine deposits**	**Poorly drained**	**Very low**	**Rapid to very rapid**	**>80 inches**	**0 to 6 inches**
31	Adamsville fine sand	0.34%	Sandy marine deposits	Somewhat poorly drained	Very low	Rapid to very rapid	>80 inches	18 to 42 inches
32	**Kaliga muck**	**0.78%**	**Loamy marine deposits**	**Very poorly drained**	**Very high**	**Moderately low to moderately rapid**	**>80 inches**	**0 to 6 inches**
33	**Holopaw fine sand, depressional**	**0.11%**	**Sandy and loamy marine deposits**	**Very poorly drained**	**Low**	**Rapid**	**>80 inches**	**0 to 6 inches**

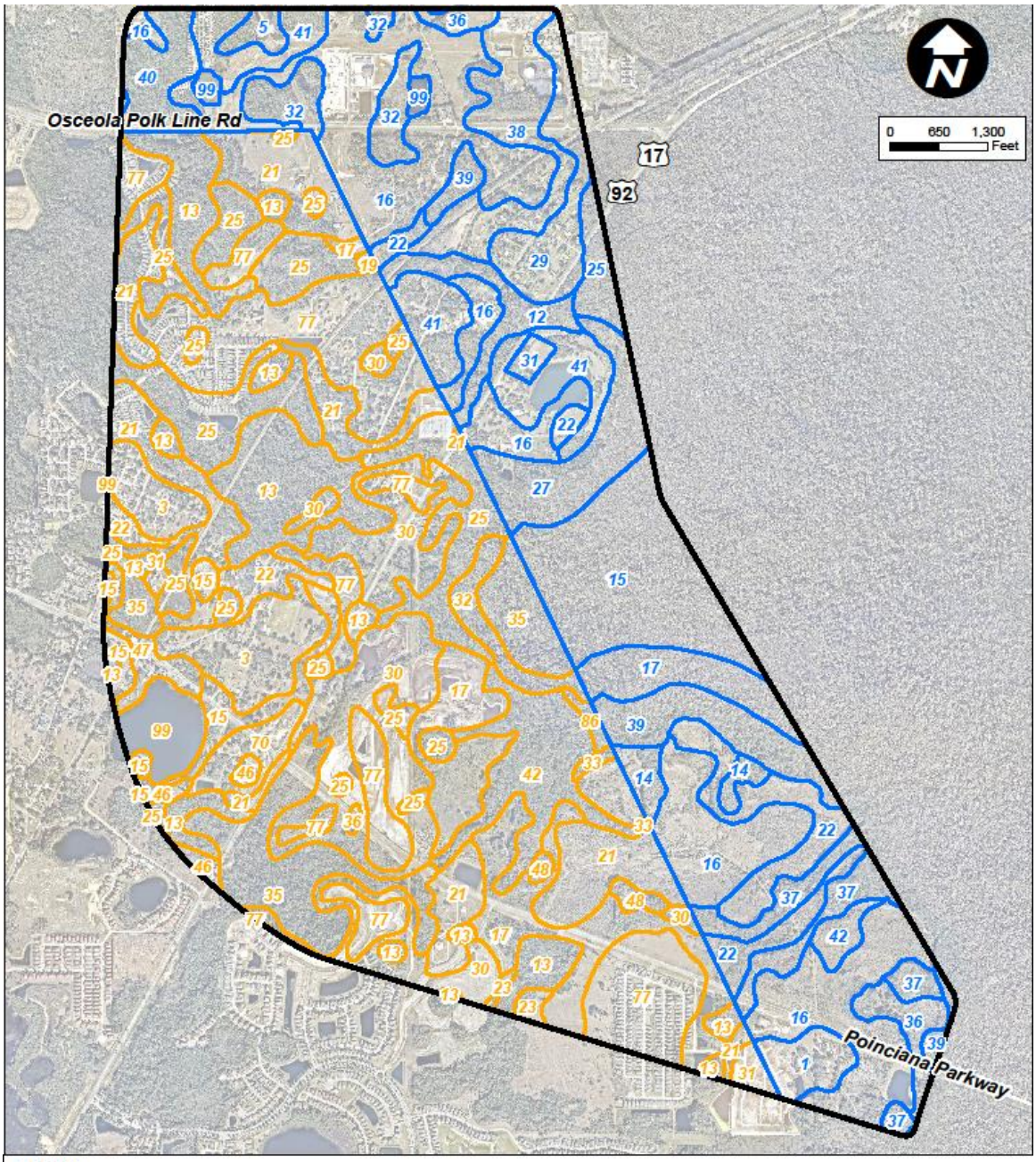
Bold denotes hydric soils.

Table 2B: NRCS Soils Identified in the Study Area in Polk County

Soil ID Number	Soil Name	% of Soil within Study Area	Parent Material	Drainage Class	Water Capacity	Hydraulic Conductivity	Depth to Restrictive Feature	Groundwater Depth
35	**Hontoon muck**	**4.32%**	**Herbaceous organic material**	**Very poorly drained**	**Very high**	**Rapid to very rapid**	**>80 inches**	**0 to 6 inches**
36	**Basinger mucky fine sand, depressional**	**0.05%**	**Sandy marine deposits**	**Very poorly drained**	**Low**	**Rapid to very rapid**	**>80 inches**	**0 inches**
42	**Felda fine sand**	**2.41%**	**Sandy and loamy marine deposits**	**Poorly drained**	**Low**	**Moderately rapid to rapid**	**>80 inches**	**0 to 12 inches**
46	Astatula sand, 0 to 8 percent slopes	0.41%	Sandy marine deposits	Excessively drained	Very low	Very rapid	>80 inches	>80 inches
47	Zolfo fine sand	0.62%	Sandy marine deposits	Somewhat poorly drained	Low	Moderately rapid to rapid	>80 inches	18 to 42 inches
48	**Chobee fine sandy loam, depressional**	**0.28%**	**Loamy marine deposits**	**Very poorly drained**	**High**	**Moderately low to moderately rapid**	**>80 inches**	**0 to 6 inches**
70	Duette fine sand	0.76%	Sandy marine deposits	Moderately well drained	Very low	Rapid	>80 inches	48 to 72 inches
77	Satellite sand	8.78%	Sandy marine deposits	Somewhat poorly drained	Very low	Very rapid	>80 inches	18 to 42 inches
86	**Felda fine sand, depressional**	**0.15%**	**Sandy and loamy marine deposits**	**Very poorly drained**	**Low**	**Moderately rapid to rapid**	**>80 inches**	**0 to 6 inches**

Bold denotes hydric soils.
Data compiled by Kimley-Horn and Associates, Inc., 2019

Figure 12: NRCS Soils Map



5.4 FLOODPLAINS/DRAINAGE/GROUNDWATER

5.4.1 FLOODPLAINS

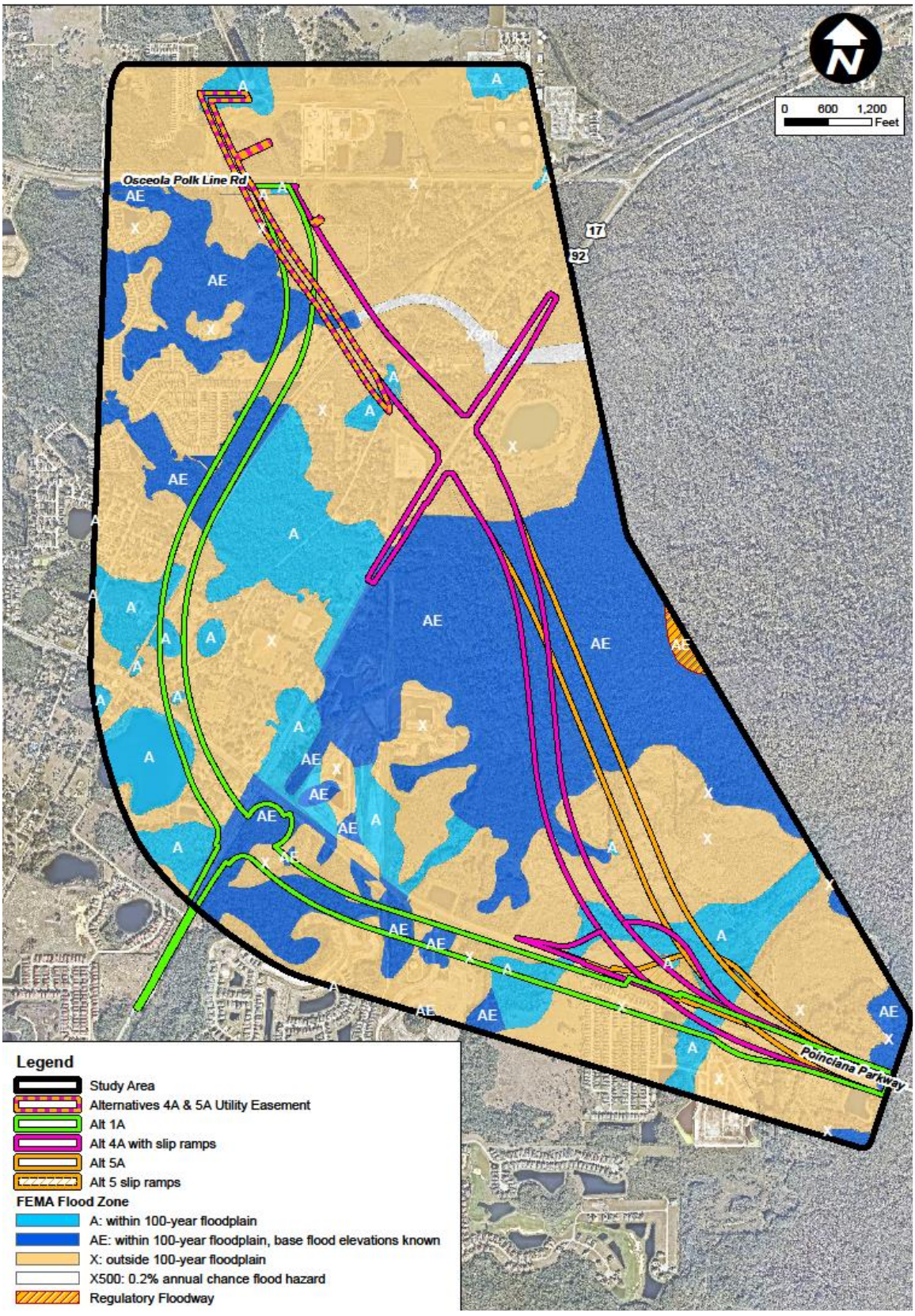
The study area is located within FEMA flood zones AE, A, X and X500 as shown on **Figure 13**. Zones A and AE include areas within the 100-year floodplain. Zone X represent areas outside the 100-year floodplain. There is one small area that is a regulated floodway within the study area; however, it is outside of the proposed alternatives and will not be impacted. Estimated impacts to flood zones by alternative are shown in **Table 3**.

Table 3: Flood Zone Area by Alternative (estimated)

Alternative	Flood Zone Area (Acres)		
	Zone AE	Zone A	Zone X
No Build	0	0	0
Alt 1A	52	19	99
Alt 4A	6	24	129
Alt 5A w/ slip ramps	6	21	126
Alt 5A w/o slip ramps	6	15	114

These acreages include existing roadways; therefore, actual floodplain impacts may be lower than reported here.

Figure 13: FEMA Flood Insurance Rate Map



5.4.2 GROUND WATER

The United States Geologic Survey (USGS) Ground Water Atlas of the United States (http://pubs.usgs.gov/ha/ha730) provided information on the aquifers within the proposed project area. The project is located within the Biscayne Sole Source Aquifer & Recharge Zones as indicated by USEPA in the Advance Notification comments. USEPA stated:

> "*the proposed project area is within the Florida Surficial Aquifer System and the Biscayne Sole Source Aquifer streamflow and recharge zone. Human activities have the potential to degrade ground water, and it is important to maintain and protect the quality of water because it provides much of the drinking water in Florida. An increase in impervious or semi-impervious surfaces may contribute to surface drainage and non-point sources that may impact surface and groundwater quality. The EPA recommends that the PD&E discuss adequate sediment and erosion control measures that would be used to prevent the discharge of pollutants into water bodies; project measures that would reduce pollution runoff from construction activities; best management practices that would control erosion, sediment release and storm water runoff to minimize adverse impacts on water resources; and ensure drainage design is major part of planning for the project. "*

As suggested by USEPA, this PD&E study includes an evaluation of potential water quality impacts and a pond siting analysis for stormwater management. Avoidance and minimization measures have been evaluated to minimize impacts on the water quality and the aquifer systems. The stormwater management system will be designed to provide an additional 50% treatment of runoff, per water management district criteria. The results of these evaluations are summarized in the Pond Siting Report, the Water Quality Impact Evaluation and in the Preliminary Engineering Report (under separate cover). Best Management Practices for erosion control would be included in future project design and implementation.

Polk County

Three (3) principle hydrogeologic units are present within the portion of the project study area in Polk County. These hydrogeologic units include the following: the surficial aquifer system (SAS), the intermediate aquifer system (IAS), and the Upper Floridan Aquifer (UFA) system. The SAS in Polk County is unconfined and consists of the unconsolidated sediments from the land surface to the clay-confining layer of the IAS. The unconsolidated sediments are composed primarily of Holocene to Pliocene-age quartz sand, silty sand, and clayey sand. The thickness of the aquifer varies depending upon the land surface topography and the depth of the underlying clay-confining unit. Near the project study area, the surficial aquifer is approximately 50 feet thick. The water table within the SAS generally mimics the topography of the land surface. Fluctuations in the water table area are generally the result of recharge to the SAS through rainfall. Furthermore, the SAS acts as a recharge source for the underlying aquifers. The SAS is generally not used for public potable supply in the county. Nevertheless, it typically does serve as a source for domestic potable and irrigation supply. The shallow groundwater flow direction in the study area is reported to be generally easterly.

The IAS is present in the southern and western portions of the county and is separate from the overlying SAS by a clay-confining unit. The IAS consists of permeable sand, limestone, and dolomite of Pliocene to Miocene age. These deposits include the Peace River and Arcadia Formation of the Hawthorn Group as well as undifferentiated Pliocene-age deposits. Near the project study area, the IAS is less than 100 feet thick. The IAS is generally used as a source of water south of the City of Lakeland because, within the

area, it generally has sufficient thickness and permeability. Regionally, flow with the IAS radiates outward in all directions from the potentiometric high in Polk County. Throughout most of Polk County there is a positive head difference between the water table and the potentiometric surface of the IAS.

Underlying the IAS is the UFA which consists of carbonate units ranging in age from Oligocene to Eocene. The units that comprise the UFA include, in descending order, the Suwannee Limestone, the Ocala Limestone, and the Avon Park Formation. The permeable units of the UFA are separated from the IAS by a basal clay-confining unit of the Hawthorn Formation. The depth to the top of the UFA ranges from 50 feet in the northwestern portion of the county to more than 400 feet in the southwestern corner of the county. The corresponding thickness of the UFA ranges from less than 900 feet in northern Polk County to more than 1,200 feet in the southern portions of the county. The UFA is the principal source of groundwater in the County. Estimated withdrawals exceeded 285 million gallons per day (MGD) in 2002.

Osceola County

The Floridan aquifer system is the most important source of water in Osceola County, supplying about 90 percent of all groundwater used. The Floridan aquifer system beneath Osceola County consists of carbonate rocks of Paleocene to Eocene age that are about 2,400 to 2,900 feet thick. Hydraulically, it is subdivided based on permeability into the UFA (about 300 to 350 feet thick), the middle semi-confining unit (about 450 to 700 feet thick), and the Lower Florida aquifer (about 1,400 to 2,100 feet thick). An overlying SAS supplies most of the remainder of the groundwater used in the County. The SAS consists mostly of unconsolidated deposits of Pleistocene and Holocene age that range in thickness from about 30 to 270 feet. The surficial and Floridan aquifer systems are separated by a 40 to 300-foot-thick, low-permeability unit of Miocene age known as the intermediate confining unit.

5.4.3 SURFACE WATER DRAINAGE

A more detailed discussion of the existing surface water drainage is included in the Location Hydraulics and Pond Siting Reports provided separately. In general, surface water drainage within the project study area occurs via swales and drainage ditches along the ROW of Poinciana Parkway and US 17/92. Most of the northern and eastern portions of the project study area lie within the Reedy Creek Swamp. The project study area is situated mostly within the SFWMD jurisdiction with a portion on the westernmost section of the study area within the Southwest Florida Water Management District (SWFWMD) jurisdiction. These WMDs hold the primary authority over water management within the project study area.

The project study area lies within the northern upland portion of the Peace River basin in Polk County and in the southern wetland portion of the Reedy Creek basin in Osceola County. The Peace River basin encompasses approximately 1,367 square miles across Polk, Hardee, DeSoto, and Charlotte counties in west-central Florida. The Peace River is 106 miles long and empties into Charlotte Harbor and eventually the Gulf of Mexico. The Reedy Creek basin encompasses approximately 269 square miles across Lake, Polk, Orange, and Osceola counties in central Florida, and is part of the Upper Kissimmee River Watershed.

6.0 WETLANDS EVALUATION

6.1 DATA COLLECTION

In accordance with Executive Order 11990, Protection of Wetlands, and FHWA Technical Advisory T6640 8A, the extent and types of wetlands in the study area were documented. Each wetland site was identified in the field using the delineation methods described in the *Federal Manual for Identification and Delineation of Wetlands* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0) (November 2010)*, and in accordance with Chapter 62-340, of Florida Administrative Code (FAC), *Delineation of the Landward Extent of Wetlands and Surface Waters*. Wetland classifications occurring within the study area were determined based on FLUCFCS, as well as the USFWS publication *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). These methods consider the prevalence of wetland vegetation, hydric soil indicators, and wetland hydrology.

All wetlands and surface waters identified in the field were compiled onto digital aerial imagery of the study area. Acreage calculations of the existing area and area of impact were then calculated using GIS software. It was not practical to obtain total acreage calculations for some of the wetlands and surface waters that extended outside the study area**.** Formal wetland delineations including field flagging and approval by the SFWMD, SWFWMD, or USACE have not been conducted, but will occur during the design and permitting phase of the project.

Due to limitations in accessing the study area encompassing Reedy Creek Mitigation Bank, evaluation methods relied on a variety of data sources to interpolate the extent and characteristics of the wetlands present. Wetland boundaries were primarily determined by review of aerial photography for this area. The characteristics (vegetative species, function levels, and hydrology) were determined from a variety of sources including previous site visits to the RCMB, comparison to similar adjacent wetlands (including aerial photography analysis), evaluation of previous regulatory permits that include these wetland systems and a physical site visit to the boundary of the RCMB.

6.2 WETLAND CHARACTERIZATION

Baseline information characterizing the wetlands within the study area including contiguity, vegetative structural diversity, edge relationships, wildlife habitat value, hydrologic functions, public use, and integrity is found in **Table 4**. The wetland polygons were individually characterized based on their FLUCFCS type and are depicted on **Figure 14A-14C**. A photographic log of the wetlands is included in **Appendix E**. Due to the large size of the study area, the number of wetland and surface water features that occur and the similarity among the various wetlands observed, the wetlands and surface waters described in **Table 4** are grouped based on FLUCFCS type and general quality. Each individual wetland is not described.

Table 4: Wetland and Surface Water Descriptions

FLUCFCS Code	Wetland/ SW ID	FLUCFCS Description	USFWS Code	Contiguity	Vegetative Structural Diversity	Edge Relationships	Wildlife Habitat Value	Hydrologic Function	Public Use	Integrity	Size (Acres)*
523	WL 12	Lakes Greater than 10 acres but less than 100 acres	L1UBH	This lake appears to have a hydrological connection to other wetlands to the southeast.	Open water areas are devoid of emergent vegetation. Nearshore areas exhibit herbaceous wetland plants.	Primarily surrounded by low-density development.	High value for aquatic species. This lake likely supports most species of fish endemic to the area. Foraging habitat for birds.	These lakes primarily provide flood storage.	This area likely provides recreational fishing and boating activities for those who have access. Access appears to be limited to surrounding landowners.	This area does not exhibit obvious signs of impairment from its natural condition.	2
534	SW 1-4	Reservoirs less than 10 acres	PUBHx	N/A	Some emergent vegetation is visible. Primarily open water.	Primarily surrounded by residential development.	A majority of these reservoirs contain little to no vegetation therefore, these reservoirs provide limited foraging habitat for terrestrial and aquatic species,	Man-made stormwater detention and treatment areas. Hydrologic function is consistent with design and maintenance of each pond.	N/A	Man-made.	3
610	WL 1, 2, 6, 8, 9, 10, 11, 14, 15, 26	Wetland Hardwood Forests	PFO1C	These areas are fragmented, although a hydrological connection remains, sometimes through man-made ditches and culverts.	These areas are like WL 20 and 23, but have a lower quality due to fragmentation, hydrologic changes and the introduction of invasive vegetative species.	Primarily surrounded by low-density development.	Moderate. These areas still have value for terrestrial and aquatic species, but it is reduced by the impaired community structure and hydrology.	These areas are subject to periodic inundation but do not exhibit standing water during normal conditions. These areas provide nutrient uptake and sediment settling functions.	Private property	These areas exhibit widespread fragmentation due to development. Hydrology is visibly altered by the construction of drainage ditches. Invasive species are visible throughout.	33
610	WL 21, 21A, 22	Wetland Hardwood Forests	PFO1C	Part of the Reedy Creek Swamp	These areas are structurally diverse with a variety of canopy, mid-story and understory species.	These areas exist between the Cypress-Mixed Hardwoods and surrounding upland areas.	Provides foraging habitat, life cycle support, and refuge opportunities for reptiles, amphibians, invertebrates, wading birds, and aquatic and terrestrial mammals.	These areas are subject to periodic inundation but do not exhibit standing water during normal conditions. These areas provide nutrient uptake and sediment settling functions.	These wetlands are located in the RCMB and the Upper Lakes Basin Watershed. There is no public access for the RCMB. Portions of the SFWMD-owned Upper Lakes Basin Watershed are open to the public for hiking; however, the sections within the study area are not open to the public.	These areas primarily exhibit endemic flora, although some exotic species are present, such as Peruvian primrose willow and Chinese tallow.	24

*Size (acreage) is only the area included within the proposed alternatives. Many of the wetlands and surface waters extend off-site, outside the limits of the alternatives.

Table 4: Wetland and Surface Water Descriptions

FLUCFCS Code	Wetland/ SW ID	FLUCFCS Description	USFWS Code	Contiguity	Vegetative Structural Diversity	Edge Relationships	Wildlife Habitat Value	Hydrologic Function	Public Use	Integrity	Size (Acres)*
621	WL 29	Cypress	PFO4C	Hydrologically connected to Reedy Creek but part of fragmented landscape	Closed canopy of cypress. Sparse herbaceous understory composed of native species such as duck potato, pickerelweed and maidencane.	Located adjacent to some undeveloped uplands but primarily developed areas.	Good value for aquatic species and fish.	Nutrient uptake, sediment removal and storage.	N/A	Relatively high for this wetland, although the larger landscape is fragmented by development and historic alteration for agriculture and silviculture.	1
611	WL 24	Bay Swamps	PFO6F	Part of the Reedy Creek Swamp	Structurally diverse. This area is actively managed	Edge between deeper swamp areas and surround uplands.	High value for terrestrial and amphibian species. This area is not normally inundated, so no value for fish.	Nutrient uptake and sediment removal.	Hiking.	High. This area is actively managed by SFWMD.	2
625	WL 17, 19, 26, 27, 28	Hydric Pine Flatwoods	PFO7C	These areas are largely fragmented by road construction and development.	Structural diversity is characteristic for this community type. The canopy is closed and dominated by slash pine.	These areas primarily border developed areas.	Value is primarily for terrestrial and amphibious species. These areas have limited value for fish, as inundation is seasonal and shallow.	Limited due to fragmentation from larger watershed. Provides some storage capacity.	Private property.	These areas are fragmented due to development. Exotic species cover is relatively low.	13
630	WL 23	Wetland Forested Mixed	PFO1/3C	Part of the Reedy Creek Swamp	These areas are structurally diverse with a closed canopy of cypress and hardwoods that tolerate year-round standing water such as black gum (*Nyssa biflora*). The understory is populated by shade-tolerant species such as royal fern and lizard's tail.	Generally, the edges are composed of bay swamp communities (description below) that then transition into uplands	Provides foraging habitat, life cycle support, and refuge opportunities for fish, reptiles, amphibians, invertebrates, wading birds, and aquatic and terrestrial mammals.	Provides nutrient uptake and sediment settling. Part of the watershed for Reedy Creek, which is part of the Kissimmee River headwaters.	Public use is generally limited by the dense and largely impassable nature of this area as well as limited public access points. Most of this area is part of the RCMB.	This area exhibits a high degree of endemic flora. The hydrology in this area is relatively natural, although alterations to the watershed both upstream and downstream of this area have undoubtedly impacted this system.	

*Size (acreage) is only the area included within the proposed alternatives. Many of the wetlands and surface waters extend off-site, outside the limits of the alternatives.

Table 4: Wetland and Surface Water Descriptions

FLUCFCS Code	Wetland/ SW ID	FLUCFCS Description	USFWS Code	Contiguity	Vegetative Structural Diversity	Edge Relationships	Wildlife Habitat Value	Hydrologic Function	Public Use	Integrity	Size (Acres)*
630	WL 4	Wetland Forested Mixed	PFO1C	This area has been somewhat fragmented from surrounding wetlands by development, although a hydrological connection remains, sometimes through man-made ditches and culverts.	This area is like the above category, but with significantly lower quality from a function standpoint, due to fragmentation, hydrologic changes and the introduction of invasive vegetative species.		Moderate. This area still has value for terrestrial and aquatic species, but it is reduced by the impaired community structure and hydrology.	This area is subject to periodic inundation but do not exhibit standing water during normal conditions (outside of the ditch cut through the area). This area provides nutrient uptake and sediment settling functions.	Private Property	This area exhibits widespread fragmentation due to development. Hydrology is visibly altered by the construction of a drainage ditch through the middle. Invasive species are visible throughout.	0.7
643	WL 3, 7, 16	Wet Prairies	PEM1F	These areas are fragmented, although a hydrological connection remains, sometimes through man-made ditches and culverts.	Low. These are not natural wet prairie systems. These areas were likely Wetland Hardwoods or Hydric Pine Flatwoods historically but have been disturbed for power and pipeline easements.	Bounded by a variety of upland land uses as well as less-disturbed wetland systems.	Some value for species with low cover requirements.	Limited storage function.	Not accessible to the public	Low. These areas have been cleared and are maintained so that the power transmission and pipeline infrastructure is accessible.	2

*Size (acreage) is only the area included within the proposed alternatives. Many of the wetlands and surface waters extend off-site, outside the limits of the alternatives.

Figure 14A: Wetlands and Surface Waters Map

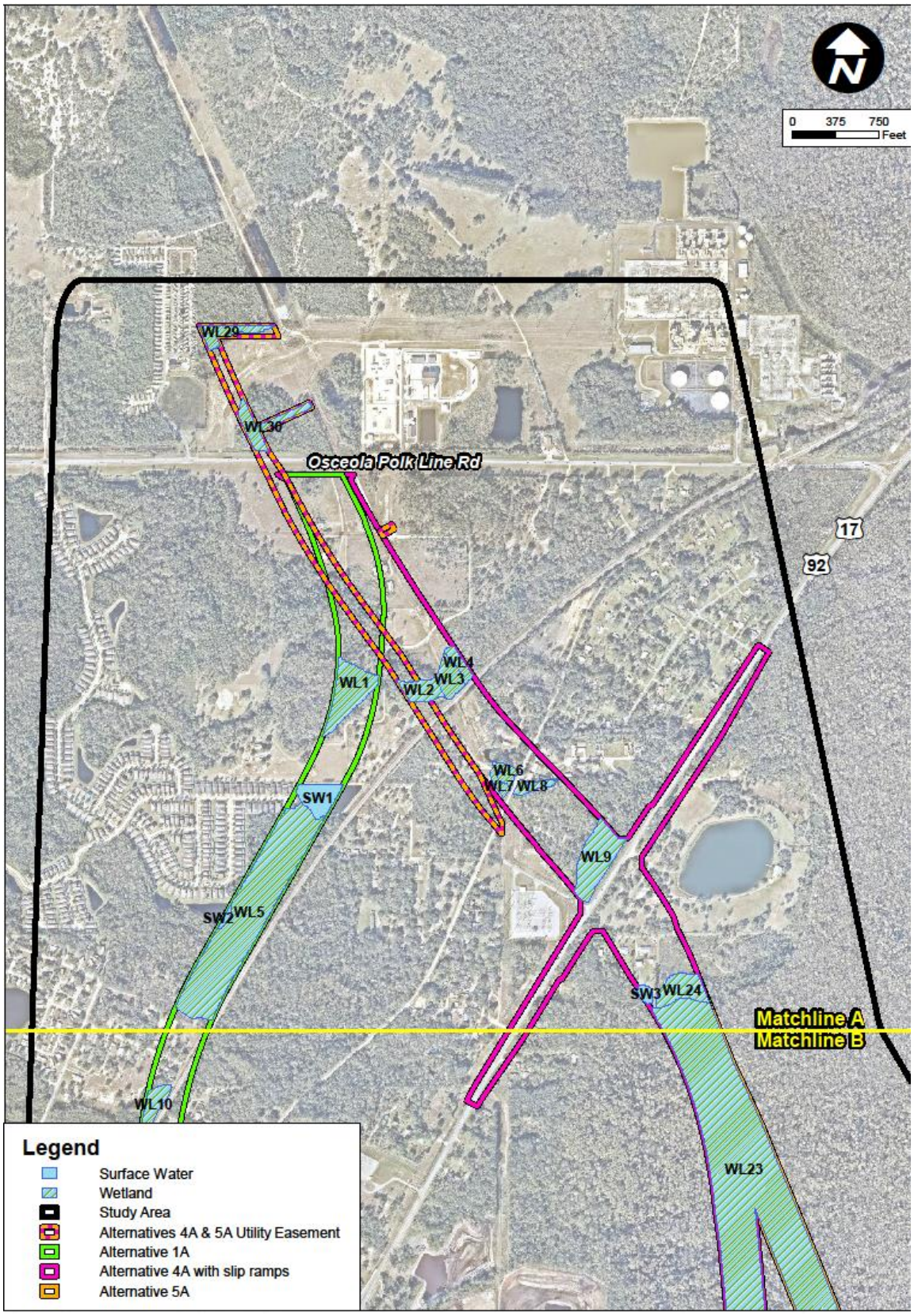


Figure 14B: Wetlands and Surface Waters Map

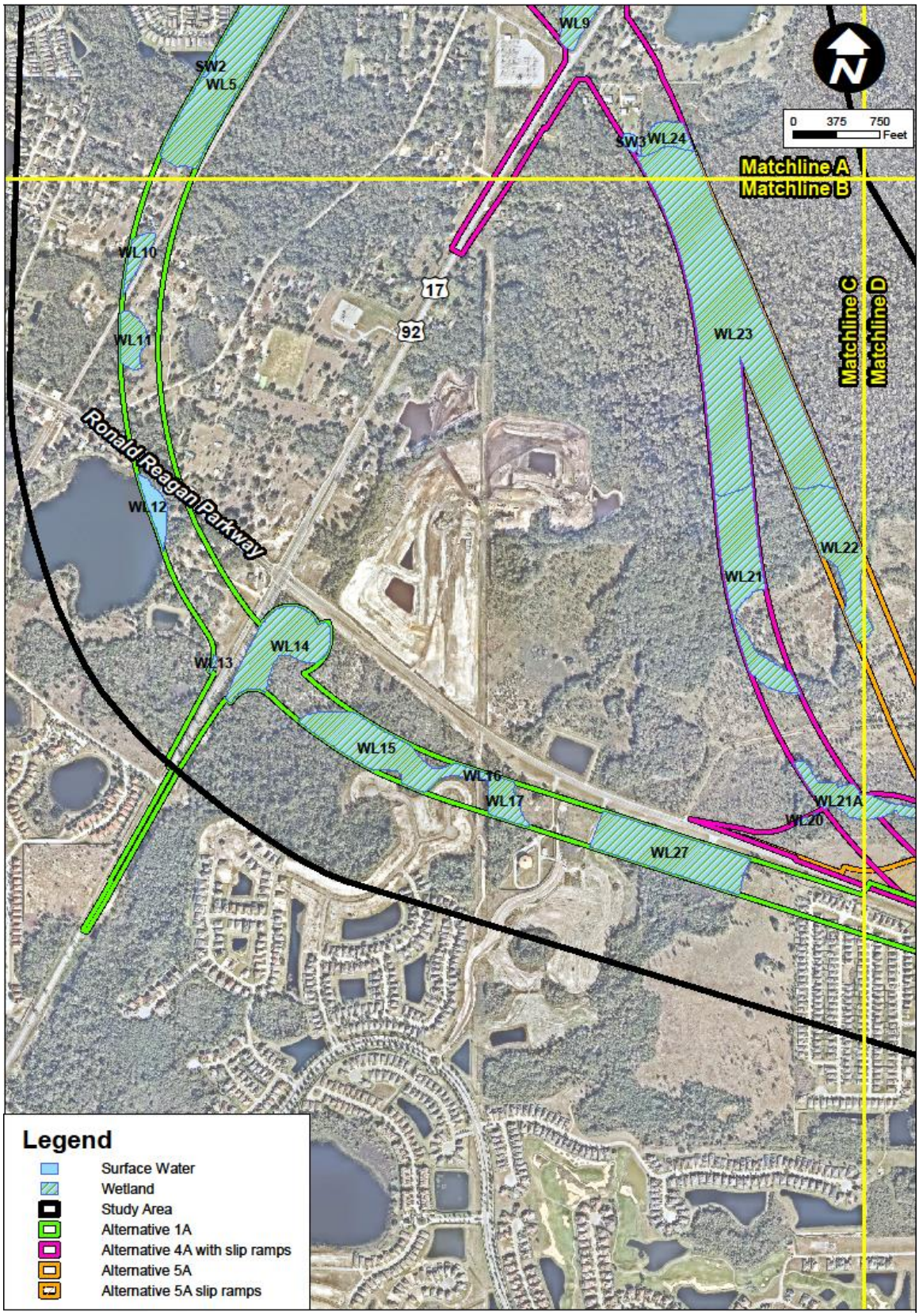
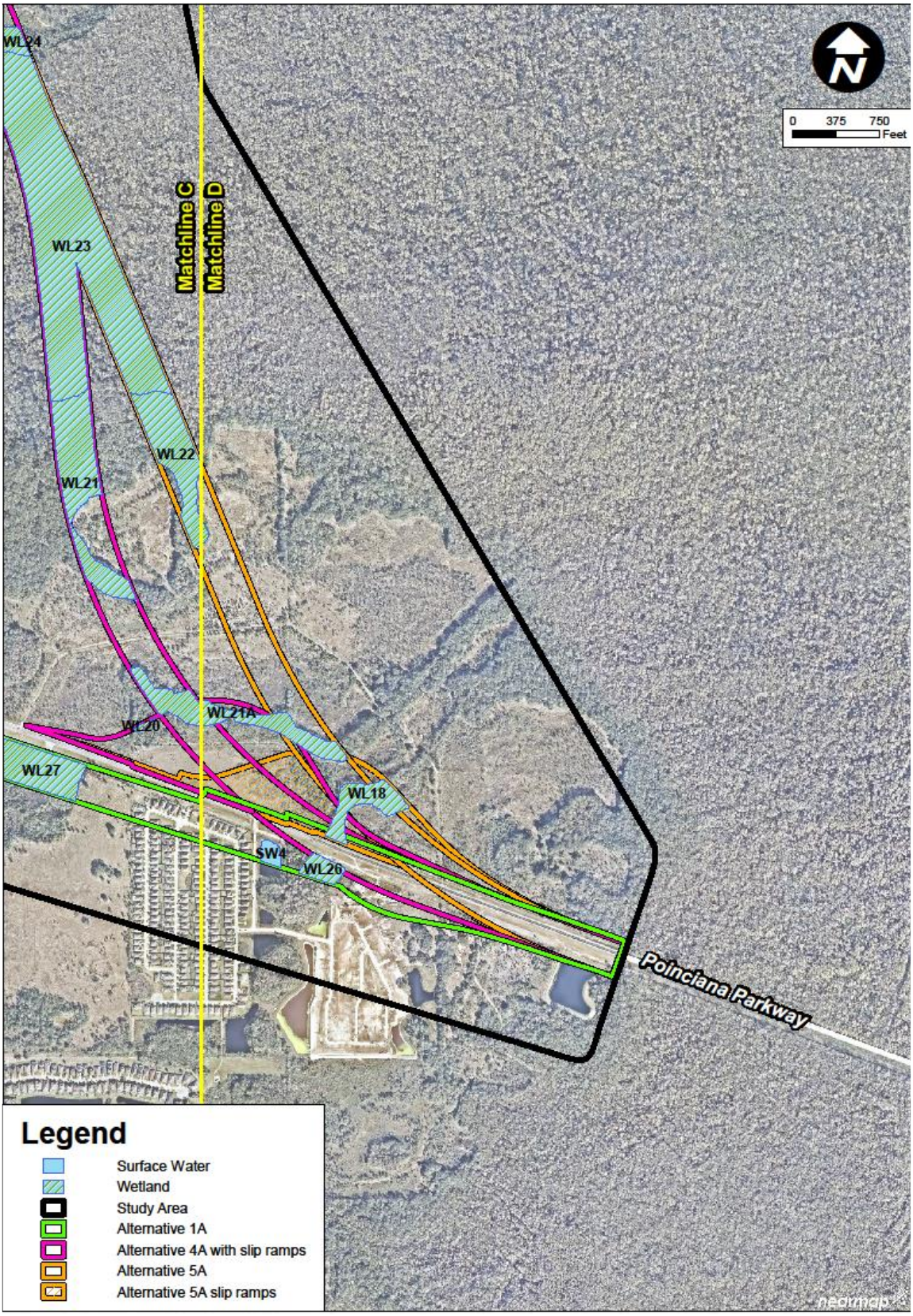


Figure 14C: Wetlands and Surface Waters Map



6.3 WETLAND AND SURFACE WATER IMPACTS ANALYSIS

Within the study area, impacts to wetlands and surface waters are anticipated to occur based on the proposed build alternatives and are discussed in the following sections.

6.3.1 PERMANENT IMPACTS

The approximate wetland and surface water permanent impacts were calculated based on the total footprint of the proposed build alternatives.

The proposed permanent impacts (dredge and fill) are shown in **Table 5**. Based upon the proposed typical section described and shown in Section 4.1, all four alternatives will consist of a 330-foot wide ROW, therefore the impacts include dredge and fill within the entire 330-foot wide footprint. These impacts assume that the design plan contemplates raised bridge sections through the swamp portions that are located within the RCMB and Upper Lakes Basin Watershed. But impacts for the purposes of this evaluation included the entire footprint, though not all this area consists of dredge and fill. The No Build Alternative would result in no impacts to wetlands or surface waters.

Table 5: Estimated Direct Wetland and Surface Water Impacts by Alternative (acres)

SW/WL Number	Alt 1A	Alt 4A w/ Slip Ramps	Alt 5A w/ slip ramps	Alt 5A w/o slip ramps
SW 1	2	-	-	-
SW 2	<0.5	-	-	-
SW 3	-	<0.5	<0.5	<0.5
SW 4	0.7	-	-	-
Total Surface Water Impacts	**2.7**	**<0.5**	**<0.5**	**<0.5**
WL1	3	-	-	-
WL 2, 6, 8, 9, 30	-	8	8	8
WL 3, 7	-	2	2	2
WL 4	-	0.7	0.7	0.7
WL 5	15	-	-	-
WL 10, 11, 13, 14, 15, 26	20	-	-	-
WL 12	2	-	-	-
WL 16	<0.5	-	-	-
WL 17, 27	12	-	-	-
WL 18, 21, 21A, 22	-	15	13	12
WL 20	-	<0.5	-	-
WL 23	-	25	26	26
WL 24	-	2	2	2
WL 26	1	<0.5	-	-
WL 29	-	1	1	1
Total Wetland Impacts	**54**	**54.7**	**53.7**	**51.7**
Grand Total Surface Water and Wetland Impacts	**56.7**	**54.7**	**53.7**	**51.7**

6.3.2 SECONDARY IMPACTS

The approximate secondary impacts to wetlands and surface waters were calculated for the proposed build alternatives. The impact values were calculated based on the size, location and type of wetland. Secondary impacts were evaluated based on a 50-foot buffer from the wetlands. Wetland impact areas that are located adjacent to wetlands or uplands that are part of RCMB may require additional secondary impacts buffers, but this will be determined during permitting and design. For the previous, Poinciana Parkway crossing of the bank a buffer of 225 feet was used but this was based on specific quality analysis and a site-specific noise analysis conducted for the area. This buffer also assumed mostly dredge and fill and was not modified when the permit was modified to include a bridge. However, when evaluating the potential mitigation costs during this phase of the project the functional loss was doubled to account for additional secondary impacts and impacts to the loss of mitigation credits.

Secondary impacts to upland community types are not typically evaluated, but because the uplands within RCMB have been assessed and permitted to provide mitigation, any reduction in quality to those upland systems must also be considered and were taken into account when developing the approximate mitigation requirements.

Table 6 provides a summary of the potential secondary impacts to wetlands from construction for each alternative and are broken down based on whether the wetland or portions of the wetland are within the RCMB, Upper Lakes Basin or in a regulatory conservation easement.

Table 6: Secondary Wetland Impacts by Alternative (acres)

SW/WL Number	Alt 1A	Alt 4A w/ Slip Ramps	Alt 5A w/ slip ramps	Alt 5A w/o slip ramps
WL 1	1	-	-	-
WL 2	-	<0.5	<0.5	<0.5
WL 4	-	2	2	2
WL 5	5	-	-	-
WL 9	-	1	1	1
WL 10	0.5	-	-	-
WL 11	<0.5	-	-	-
WL 12	0.9	-	-	-
WL 13	1	-	-	-
WL 14	2	-	-	-
WL 15				
Portion in Regulatory Easement	0.6	-	-	-
Portion not in Easement	0.5	-	-	-
WL 17	0.7	-	-	-
WL 18				
In RCMB	1	0.9	2	1
WL 20	-	<0.5	-	-
WL 21	-			
In RCMB	-	3	-	-
Portion not in Easement or RCMB	-	<0.5	<0.5	<0.5
WL 21A	-			
In RCMB	-	1	<0.5	<0.5
WL 22	-			
In RCMB	-	-	1	1
In ULBW	-	-	1	1
WL 23	-			
In RCMB	-	2	1	1
In ULBW	-	4	6	6
Portion not in RCMB or ULBW	-	1	1	1
WL 24	-			
In ULBW	-	<0.5	-	-
WL 26	0.5	<0.5	-	
Easement	<0.5	-	-	-
Wetland	1	-	-	-
WL 29	-	1	1	1
WL 30	-	2	2	2
Total Secondary Wetland Impacts	**14.7**	**18**	**18**	**17**

RCMB-Reedy Creek Mitigation Bank; ULBW-Upper Lakes Basin Watershed.

6.4 FUNCTIONAL ASSESSMENT

6.4.1 METHODOLOGY

The Uniform Mitigation Assessment Methodology (UMAM), as established by the FAC, Chapter 62-345, was used to complete a functional assessment of the wetlands and surface waters within the study area. The UMAM is a rating index that assists in evaluating the functions and values of a wetland system. It establishes a numerical ranking for a wetland based on various ecological or anthropogenic variables known to influence the functional value of a wetland. UMAM scores are based on the total of three categories, scored from zero (0) (lowest) to ten (10) (highest), divided by the total maximum score for the variables (30). The UMAM value is expressed as a number between zero (0) and one (1), with one being assigned to the highest valued/functioning wetlands. The three (3) categories are described as follows:

Location and Landscape Support

The location and landscape support evaluates the location of the assessment area in relation to the connectivity and landscape position of the surrounding areas and the impact, or lack thereof, for the utilization of fish and wildlife. The potential for use by wildlife (i.e. availability of cover, food, and nesting areas) is also evaluated in this category.

Water Environment

The water environment evaluates the quantity of water in an assessment area, including timing, frequency, depth, duration, and quality. These characteristics may compromise the ability of the area to support wildlife.

Community Structure

Community structure evaluates the vegetation and benthic habitat present in an assessment area. This evaluation includes the presence, abundance, health, condition, appropriateness, and distribution of plant communities and benthic habitats.

6.4.2 UMAM RESULTS

The wetlands and surface waters identified within the study area were assessed based on the UMAM criteria and a summary of the scores are provided in **Table 7**. UMAM data forms and comments for each wetland type within the study area are included in **Appendix F**.

Table 7: Summary of UMAM Scores

Wetland Number/FLUCFCS Code	Location & Landscape Support	Water Environment	Community Structure	UMAM Composite Score
WL1/610	6	7	7	0.67
WL 2, 6, 8, 9/610	3	3	4	0.33
WL 3, 7/643	2	2	1	0.17
WL 4/630	2	3	4	0.3
WL 5/610	6	7	7	0.67
WL10, 11, 13, 14, 15, 26/610	4	4	5	0.43
WL12/523	4	8	5	0.57
WL 16/643	3	2	1	0.20
WL 17, 27, 28/625	3	4	4	0.37
WL 18, 21, 21A, 22/610	7	7	6	0.67
WL 20/610	7	7	6	0.67
WL 23/630	9	9	8	0.87
WL 24/611	8	8	8	0.80
WL 26/610	3	4	4	0.37
WL 29/621	5	7	7	0.63

Potential wetland functional loss based on the composite UMAM scores was calculated for each habitat type and is presented in **Table 8**.

Table 8: Potential Wetland Functional Loss

Alternative	Wetland Number/FLUCFCS	Direct Impacts (Acres)	UMAM Composite Score	Potential Functional Loss[1]
Alt 1A	**WL 1/610**	3	0.67	-2
	WL 5/610	15	0.67	-10
	WL 10, 11, 13, 14, 15, 26/610	20	0.43	-9
	WL 12/523	2	0.57	-1
	WL 16/643	<0.5	0.20	-0.03
	WL 17, 27, 26/610	13	0.37	-5
Alt 4A w/ slip ramps	**WL 2, 6, 8,9, 30/610**	8	0.33	-3
	WL 3, WL 7/643	2	0.17	-0.3
	WL 4/630	0.7	0.3	-0.2
	WL 18, 21, 21A/610	15	0.67	-10
	WL 20	<0.5	0.67	-0.07
	WL 23	25	0.87	-22
	WL 24/611	2	0.80	-2
	WL 26	<0.5	0.37	-0.1
	WL 29	1	0.63	-0.6
Alt 5A w/ slip ramps	**WL 2, 6, 8, 9, 30/610**	8	0.33	-3
	WL 3, WL 7/643	2	0.17	-0.3
	WL 4/630	0.7	0.3	-0.2
	WL 18, 21A, 22/610	13	0.67	-9
	WL 23/630	26	0.87	-23
	WL 24/611	2	0.80	-2
	WL 29/621	1	0.63	-0.6
Alt 5A w/o slip ramps	**WL 2, 6, 8, 9, 30/610**	8	0.33	-3
	WL 3, WL 7/643	2	0.17	-0.3
	WL 4/630	0.7	0.3	-0.2
	WL 18, 21A, 22/610	12	0.67	-8
	WL 23/630	26	0.87	-22
	WL 24/611	2	0.8	-2
	WL 29/621	1	0.63	-0.6

[1] Functional loss rounded to the nearest whole integer.

7.0 PROTECTED SPECIES AND HABITAT ASSESSMENT

7.1 DATA COLLECTION

Information on the potential occurrence of federal and state listed species within the project study area was qualitatively assessed based on a review of available literature, database review, and based on field reconnaissance that was conducted within the study area. The results of the database and GIS review are as follows:

FNAI

FNAI reported several occurrences of state and federal listed species near the study area. Gopher tortoise (*Gopherus polyphemus*) was the only listed species documented within the study area. The following listed species were reported within 1 mile from the study area: blue-tailed mole skink (*Plestiodon egregious lividus*), Lewton's polygala (*Polygala lewtonii*), Florida scrub-jay (*Aphelocoma coeurulescens*), nodding pinweed (*Lechea cernua*), Chapman's sedge (*Carex chapmannii*), celestial lily (*Nemastylis floridana*), scrub buckwheat (*Eriogonum longifolium*) Small's jointweed (*Polygonella myriophylla*), and sand skink (*Plestiodon reynoldsi*). Additionally, FNAI reported scrub habitat near the study area and consideration should be taken to avoid impacts to this natural community type.

USFWS

The project study area is located within the Core Foraging Area (CFA) of two active wood stork (*Mycteria americana)* nesting colonies (Lake Russell and Gatorland). Lake Russell is located within Osceola County, while Gatorland Is located within Orange County. The CFA in south Florida counties (Osceola) is defined as 18.6 miles from an active nesting colony, while the CFA in central Florida counties (Orange) is 15 miles.

The project is not within any USFWS designated critical habitat.

The project study area is also located within the USFWS Consultation Areas for the Florida scrub-jay (*Aphelocoma coerulescens*), Audubon's crested caracara (*Polyborus plancus audubonii*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), red-cockaded woodpecker (*Picoides borealis*), sand and blue-tailed mole skink (*Neoseps reynoldsi* and *Eumeces egregious lividus*), and Lake Wales Ridge plants.

Several species were included in the IPaC Trust Resources Report because USFWS includes historical data. However, when comparing current conditions for the study area, it was determined that many of these species would not occur in the study area (e.g. Florida panther, Ivory-billed woodpecker, whooping crane, Florida ziziphus, and scrub mint). The Consultation Area for the Florida bonneted bat has been defined and the project is not within the Consultation Area of the bat. Therefore, these species are not discussed further in the document.

Maps of USFWS Consultation Areas are included in **Appendix G**.

7.2 LISTED SPECIES

Pursuant to Section 7(c) of the Endangered Species Act of 1973, the study area was evaluated for the potential occurrence of federal and/or state listed threatened and endangered species, species classified by federal agencies as candidates for listing, and state species classified as species of special concern. The likelihood of species occurrences considered for the study area was determined based on several factors, including: whether the species were positively identified by project biologists during field

surveys, suitable habitat was observed or is known to occur, species life history, and local knowledge. Based on the data and literature review and subsequent field surveys, state and federally listed species that may occur in the study area are identified in **Table 9**. Species observed or signs of the species (tracks, scat, vocalizations, etc.) during field surveys are in bold.

Table 9: Potential Federal and State Protected Fauna and Flora

Common Name	Scientific Name	Federal Status	State Status[1]	Likelihood of Occurrence
Mammals				
Florida black bear	*Ursus americanus floridanus*	NL*	NL*	Medium
Birds				
Red-cockaded woodpecker	*Picoides borealis*	E	FE	None
Everglade snail kite	*Rostrhamus sociabilis*	E	FE	None
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*	E	FE	None
Audubon's crested caracara	*Polyborus plancus audubonii*	T	FT	None
Florida scrub-jay	*Aphelocoma coerulescens*	T	FT	None
Wood stork	*Mycteria americana*	T	FT	High
Florida burrowing owl	*Athene cunicularia floridana*	NL	ST	Medium
Florida sandhill crane	***Grus canadensis pratensis***	**NL**	**ST**	**High**
Southeastern American kestrel	*Falco sparverius paulus*	NL	ST	Medium
Bald eagle	***Haliaeetus leucocephalus***	**NL****	**NL****	**High**
Reptiles				
Eastern indigo snake	*Drymarchon couperi*	T	FT	Medium
Florida sand skink	***Plestiodon reynoldsi***	**T**	**FT**	**High**
Blue-tailed mole skink	***Plestiodon egregius lividus***	**T**	**FT**	**High**
Gopher tortoise	***Gopherus polyphemus***	**C**	**ST**	**High**
Plants				
Short-leaved rosemary	*Conradina brevifolia*	E	FE	Medium
Lewton's polygala	*Polygala lewtonii*	E	FE	Medium
Small's jointweed/Sandlace	*Polygonella myriophylla*	E	FE	Medium
Pygmy fringe-tree	*Chionanthus pygmaeus*	E	FE	Medium
Perforate reindeer lichen	*Cladonia perforata*	E	FE	Medium
Avon park rabbit-bells	*Crotalaria avonensis*	E	FE	Low
Garrett's scrub balm	*Dicerandra christmanii*	E	FE	Medium
Highlands scrub hypericum	*Hypericum cumulicola*	E	FE	Medium
Florida blazing star	*Liatris ohlingerae*	E	FE	Medium
Scrub lupine	*Lupinus aridorum*	E	FE	Medium
Britton's beargrass	*Nolina brittoniana*	E	FE	Medium
Florida jointweed	*Polygonella basiramia*	E	FE	Medium
Scrub plum	*Prunus geniculata*	E	FE	Medium

Table 9: Potential Federal and State Protected Fauna and Flora

Common Name	Scientific Name	Federal Status	State Status[1]	Likelihood of Occurrence
Clasping warea	*Warea amplexifolia*	E	FE	Low
Carter's mustard	*Warea carteri*	E	FE	Medium
Scrub buckwheat	*Eriogonum longifolium var. gnaphalifolium*	T	FT	Medium
Florida bonamia	*Bonamia grandiflora*	T	FT	Medium
Scrub pigeon-wing	*Clitoria fragrans*	T	FT	Low
Paper-like whitlow-wort	*Paronychia chartacea ssp. chartacea*	T	FT	Low
Nodding pinweed	*Lechea cernua*	NL	ST	Medium
Pine-woods bluestem	*Andropogon arctatus*	NL	ST	Medium
Ashe's savory	*Calamintha ashei*	NL	ST	Low
Many-flowered grass-pink	*Calopogon multiflorus*	NL	ST	Low
Chapman's sedge	*Carex chapmanii*	NL	ST	Medium
Sand butterfly pea	*Centrosema arenicola*	NL	SE	Low
Piedmont jointgrass	*Coelorachis tuberculosa*	NL	ST	Low
Chapman's skeletongrass	*Gymnopogon chapmanianus*	NL	ST	Medium
Hartwrightia	*Hartwrightia floridana*	NL	ST	Low
Star anise	*Illicium parviflorum*	NL	SE	Medium
Pine pinweed	*Lechea divaricata*	NL	SE	Medium
Florida spiny-pod	*Matelea floridana*	NL	SSE	Medium
Celestial lily	*Nemastylis floridana*	NL	SE	Medium
Florida beargrass	*Nolina atopocarpa*	NL	ST	Medium
Cutthroat grass	*Panicum abscissum*	NL	SE	Medium
Giant orchid	*Pteroglossaspis ecristata*	NL	ST	Medium
Florida willow	*Salix floridana*	NL	SE	Low
Scrub bluestem	*Schizachyrium niveum*	NL	SE	Low

Based on *Florida's Endangered and Threatened Species* updated December 2018 available on http://myfwc.com/wildlifehabitats/imperiled/ . *5B-40.0055 Florida Administrative Code (FAC) Regulated Plant Index*

Federal Status: E = Endangered; T = Threatened; T(S/A) = Threatened due to Similarity of Appearance; C = Candidate Species; NL = Not Listed

State Status: FE = Federally Endangered; FT = Federally Threatened; FT(S/A) = Federally Threatened due to Similarity of Appearance. ST= State Threatened; SE = State Endangered; SSC = Species of Special Concern. Note: Coordination is not required with FWC for federally listed species.

Bold = observed during field reconnaissance

*The Florida Black Bear is still protected under Florida Black Bear Conservation Rule 68A-4.009 (F.A.C.) and the FWC Florida Black Bear Management Plan.

**The Bald eagle is still protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act and FWC Management Plan regulations.

7.3 FIELD SURVEYS

Habitat, gopher tortoise surveys, and plant surveys were conducted on September 13, and October 2, 2018. A pedestrian skink survey was completed during the September and October 2018 site visits. Crested caracara surveys took place during eighteen survey events between January 2019 through April 2019. The results of the crested caracara surveys are summarized in the *Audubon's Crested Caracara Report* (June 2019). Scrub-jay surveys occurred on March 11-15, 2019. The results of the scrub-jay surveys were summarized in the *Florida Scrub-Jay Report* (June 2019). The caracara and Florida scrub-jay reports are included in **Appendices H and I**.

Additionally, observations of flora and fauna or indicators of wildlife within the corridor were noted such as tracks, burrows, scat, calls (avian), and evidence of foraging activities. The results of plant and animal surveys are summarized in the following sections. **Table 10** lists wildlife species/signs that were observed within the study area during field reconnaissance.

Table 10: Wildlife Species/Signs Observed within the Study Area

Scientific Name	Common Name
Falco sparverius	American kestrel
Spinus tristis	American goldfinch
Setophaga discolor	Prairie warbler
Quiscalus quiscula	Common grackle
Setophaga coronata	Yellow-rumped warbler
Ardea herodias	Great blue heron
Setophaga palmarum	Palm warbler
Troglodytes aedon	House wren
Phalacrocorax auratus	Double-crested cormorant
Setophaga pinus	Pine warbler
Cryocopus pileatus	Pileated woodpecker
Mniotilta varia	Black-and-white warbler
Strix varia	Barred owl
Baeolophus bicolor	Tufted titmouse
Dryobates pubescens	Downy woodpecker
Sayornis phoebe	Eastern phoebe
Poecile carolinensis	Carolina chickadee
Vireo solitarius	Blue-headed vireo
Anas platyrhynchos	Mallard
Vireo olivaceus	Red-eyed vireo
Accipiter cooperii	Cooper's hawk
Columbina passerina	Common ground-dove
Agelaius phoeniceus	Red-winged blackbird
Sialia sialis	Eastern bluebird
Turdus migratorius	American robin
Myiarchus crinitus	Great-crested flycatcher
Bubulcus ibis	Cattle egret
Pandion haliaetus	Osprey
Vireo flavifrons	Yellow-throated vireo
Setophaga americana	Northern parula
Colaptes auratus	Northern flicker

Table 10: Wildlife Species/Signs Observed within the Study Area

Scientific Name	Common Name
Meleagris gallopavo	Wild turkey
Megaceryle alcyon	Belted kingfisher
Dumetella carolinensis	Gray catbird
Cathartes aura	Turkey vulture
Coragyps atratus	Black vulture
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Cardinalis cardinalis	Northern cardinal
Ardea alba	Great egret
Cyanocitta cristata	Blue jay
Neoseps reynoldsi or Eumeces egregious lividus	Sand or Blue-tailed mole skink
Haliaeetus leucocephalus	Bald eagle
Zenaida macroura	Mourning dove
Corvus brachyrhynchos	American crow
Vireo griseus	White-eyed vireo
Polioptila caerulea	Blue-gray gnatcatcher
Grus canadensis pratensis	Sandhill crane
Corvus ossifragus	Fish crow
Melanerpes carolinus	Red-bellied woodpecker
Eudocimus albus	White ibis
Mimus polyglottos	Northern mockingbird
Gopherus polyphemus	Gopher tortoise
Odocoileus virginianus	White-tailed deer

7.4 HABITAT IMPACTS

7.4.1 POTENTIAL PROJECT IMPACTS

Uplands and wetlands were mapped based on the FLUCFCS (FDOT, 1999) and FLUCFCS maps are included as **Figures 9A-9C**. Wetland habitat descriptions and upland habitat descriptions were discussed in Section 5.2. A summary of the approximate upland habitat impacts within the project study area is presented in **Table 11.**

Table 11: Upland Habitat Impacts by Alternative (acres)

FLUCFCS Code	Description	Alt 1A	Alt 4A	Alt 5A W/ Slip Ramps	Alt 5A W/O Slip Ramps
211	Improved Pastures	11	19	19	19
213	Woodland Pastures	1	9	8	8
310	Herbaceous (Dry Prairies)	4	0.7	0.7	0.7
320	Shrub and Brushland	-	2	2	2
410	Upland Coniferous Forests	7	4	4	4
420	Upland Hardwood Forests	2	-	-	-
421	Xeric Oak	6	7	7	7
434	Hardwood-Conifer Mixed	-	4	4	4
441	Pine Plantations	6	31	37	29

7.5 LISTED SPECIES SURVEY RESULTS AND IMPACTS

7.5.1 FEDERAL LISTED FAUNA

Birds

Red cockaded woodpecker

Red-cockaded woodpeckers inhabit open, mature pine woodlands that have a diversity of grass and shrub species. Preferred habitat includes longleaf pine flatwoods in north and central Florida and mixed longleaf pine and slash pine in south-central Florida. The red-cockaded woodpecker creates cavities within the longleaf pine tree and relies on the tree's production of resin to protect them from predators. Development of longleaf pine habitat as well as fire exclusion in this fire-dependent ecosystem has led to a large decrease in populations of red-cockaded woodpeckers.

The study area is located within the USFWS consultation area for the red-cockaded woodpecker; however, habitat for the red-cockaded woodpecker does not occur within the study area. Additionally, no red-cockaded woodpeckers or evidence of red-cockaded woodpeckers have been observed. Thus, the project will have ***no effect*** on the red-cockaded woodpecker.

Everglade snail kite

The Everglade snail kite has experienced degradation of its foraging habitat. This species has a highly specific diet, which is made up almost exclusively of apple snails (*Pomacea paludosa*). Snail kites typically prefer large, open, freshwater marshes and shallow lakes (< 4 ft. deep) with a low-density of emergent vegetation and typically nest in low trees or shrubs over water (commonly willow, wax myrtle, pond apple, or buttonbush, but also in non-woody vegetation like cattail or sawgrass).

The study area does fall within the USFWS Consultation Area for the snail kite; however, there is no USFWS critical habitat within the study area. No apple snails, apple snail eggs, or snail kites were observed during field reconnaissance. Although there are a few lakes within the study area, none contain the characteristic low vegetation required by the snail kite for nesting. Thus, the project will have ***no effect*** on the Everglade snail kite.

Florida grasshopper sparrow

The Florida grasshopper sparrow is a subspecies of the more widespread grasshopper sparrow. This subspecies lives and breeds in grassland habitats of central and southern Florida, most notably prairies north and west of Lake Okeechobee and up to Osceola County, Florida. This species is a small, short-tailed bird with a white median stripe at the top of a flattened head.

There are few known populations of the species left. As of 2010, only three populations were known to exist, reduced to two in 2012 when one of those populations was believed to have died out. The two populations can be found at Three Lakes Wildlife Management Area and Kissimmee Prairie Preserve State Park. Although IPAC listed this species as possibly occurring with the study area, the project is not located within the NRCS-defined consultation area for this species. Additionally, there is no suitable habitat (treeless grasslands dominated by bunch grasses, low shrubs, and saw palmetto). Thus, the project will have ***no effect*** on the Florida grasshopper sparrow.

Audubon's crested caracara

Audubon's crested caracara (caracara) are year-round residents in Florida. The species has been reported from the Kissimmee, Caloosahatchee and Upper St. Johns River basins, and the Kissimmee

prairie. The crested caracara is strongly associated with open habitats, preferring large expanses of pastures, grasslands, or prairies with numerous shallow ponds and sloughs and single or small clumps of cabbage palms, live oaks, and cypress. Notable changes in land use patterns have occurred throughout central Florida. As a result, the caracara's range in Florida is now smaller than historically documented. Caracara now occurs almost exclusively on privately owned cattle ranches in the south-central part of the state.

The caracara is an opportunistic feeder with a broad diet consisting of carrion and live prey, including invertebrates associated with carrion and dung in pastures. They forage in a wide variety of habitats including pastures, along roads, wetlands and agricultural lands including citrus groves.

Following a desktop review of caracara related resources, field reconnaissance was conducted to verify existing conditions and identify areas of potential habitat. Suitable habitat was documented within the study area during the September and October 2018 site visits, and the site falls within the USFWS crested caracara consultation area. A meeting was held with USFWS to discuss the proposed caracara survey stations. Based on this meeting, three survey stations were established within the study area. Suitable habitats for the crested caracara within the project study area were surveyed in accordance with the *USFWS Crested Caracara Survey Protocol* (USFWS, 2016) from January through April 2019. The results of the surveys are summarized in **Appendix H – Audubon's Crested Caracara Survey Report (June 2019)**. A single crested caracara was observed on one day at station 2 flying from west to east across the station. No signs of nesting caracaras were observed during the surveys. Therefore, a determination of ***no effect*** has been made for the crested caracara.

Florida scrub-jay

The Florida scrub-jay (scrub-jay) prefers low growing oak scrub habitats, including sand pine and scrubby flatwoods. Optimal habitat includes scrub oak with most of the oaks and other shrubs limited to 1-4 meters in height, interspersed with numerous small patches of bare sand. Fire is a frequent natural event in scrub habitats and serves to maintain the habitat. Fire suppression and development of the habitat has made this species vulnerable to extinction.

Scrub-jays are similar in size and shape to their relative, the blue jay, but they differ strikingly in color pattern and exhibit subtle markings as opposed to the blue jay. They have a pale blue head, nape, wings and tail and are pale gray on the back and belly. A white eyebrow blends with a frosted white forehead. The throat and upper breast are faintly striped and bordered by pale blue, forming a distinct bib. The scrub-jay is relatively sedentary and rarely sustains a flight of more than a kilometer. The Florida scrub-jay is a non-migratory species.

FNAI reported scrub-jay sightings on two separate occasions (1987 and 1992) within one mile of the study area. Due to the presence of suitable habitat and known historic occurrences, call surveys were conducted on March 11-15, 2019. Suitable habitats for the Florida scrub-jay within the study area was surveyed in accordance with the *Florida Scrub-Jay General Survey Guidelines and Protocols* (USFWS, 2007). The results of the call surveys are summarized in **Appendix I - Florida Scrub-Jay Survey Report (June 2019)** and are incorporated here by reference. Scrub-jays were not observed during the call surveys; therefore, a determination of ***no effect*** has been made for the scrub-jay.

Wood stork

Wood storks are typically found in marshes, cypress swamps, and mangrove swamps, but their presence in artificial ponds, seasonally flooded roadside or agricultural ditches, and managed impoundments has become common. Wood stork breeding areas extend from South Florida through Georgia and along the coastal areas of South Carolina. Large, colonial nesting areas are typically established in swamps or islands surrounded by broad, open water areas. The same colony site may be used over many years, provided the site remains undisturbed and sufficient foraging habitat is available. Wood storks are known to nest with other wading bird species, including white ibis, tricolored herons, snowy egrets, and great blue herons. Foraging habitat consists of nearly any calm, shallow water area (between 10 and 25 centimeters) or wetland depression that concentrates fish and is not overgrown with dense, aquatic vegetation. Some examples of foraging habitat include freshwater marshes, stocked ponds, shallow ditches, narrow tidal creeks, shallow tidal pools, and depressional areas of cypress heads and swamp sloughs.

There is suitable foraging habitat (SFH) throughout the study area. During design and permitting, a site-specific foraging analysis will be conducted to determine mitigation requirements because impacts to SFH exceed five acres. A mitigation plan will be developed that would appropriately mitigate for wood stork foraging habitat impacts.

In accordance with the *USFWS Wood Stork Effect Determination Key* (May 18, 2010) with the implementation of a mitigation plan, the determination sequence of A>B>C>D>E = a determination of ***may affect, not likely to adversely affect*** for the wood stork.

Reptiles

Eastern indigo snake

In south Florida, preferred habitat for the eastern indigo snake includes a diverse assemblage including pine flatwoods, scrubby flatwoods, floodplain edges, sand ridges, dry glades, tropical hammocks, edges of freshwater marshes, muckland fields, coastal dunes, and xeric sandhill communities (*Eastern Indigo Snake Programmatic Effect Determination Key (South Florida) – Revised July 2017*). Eastern indigo snakes are often found in strong association with gopher tortoises, though this is more prevalent where temperatures drop to below 50 degrees regularly in the winter, but are also known to use the burrows of armadillos, cotton rats, and land crabs (in coastal areas). These snakes require large tracts of land for survival and are typically restricted to xeric habitats on pine-oak sandhills. Indigo snakes forage in hydric habitats, often along wetland ecotones. Gopher tortoise burrows provide this species with shelter from cold winter temperatures and relief from desiccation. Suitable habitats, such as xeric oak and hydric habitats, were documented within the study area; however, no indigo snakes were observed during field reconnaissance. All alternatives will impact more than 25 acres of eastern indigo snake habitat, therefore according to the *Eastern Indigo Snake Programmatic Effect Determination Key (South Florida) – Revised July 2017*, a determination of ***may affect*** has been made for this species. Further coordination with USFWS will be required during design and permitting.

Florida sand skink and blue-tailed mole skink

The sand skink and blue-tailed mole skink typically inhabit scrub, sandhill, and xeric hammock habitats located along the central ridge of Florida, from Putnam to Highlands County. Skinks are found at elevations above 82 feet and utilize twenty (20) distinct soil types of which the following occur within the study area: Candler sand and Satellite sand. The study area falls within the USFWS Consultation Area

for both skink species and contains suitable soils. Approximately 420 acres of the overall study area have been mapped with skink soils (**Figure 15**).

Using USFWS-approved survey protocol, Kimley-Horn conducted visual pedestrian surveys of suitable habitat in September and October 2018. Sinusoidal skink tracks were observed and recorded at several different locations within the study area, specifically within and near Alternative 1A (See **Figure 16 – Listed Species Observations Map**).

Based on discussions with USFWS, because there is continued development and growth in the study area, cover board surveys would not be conducted during the PD&E phase. USFWS would not concur with an effect determination for this species until cover board surveys are completed. Cover board surveys would be conducted, if required, during permitting and design. If occupied skink habitat will be impacted, mitigation at a 2:1 ratio will be required and would consist of purchase of species mitigation credits in an approved species mitigation bank. From the results of the pedestrian survey and the identification of suitable habitat, it is anticipated that Alternative 1A ***may affect*** sand skinks, while Alternatives 4A and 5A ***may affect, but are not likely to adversely affect*** sand skinks.

Figure 15: Sand Skink Soils Map

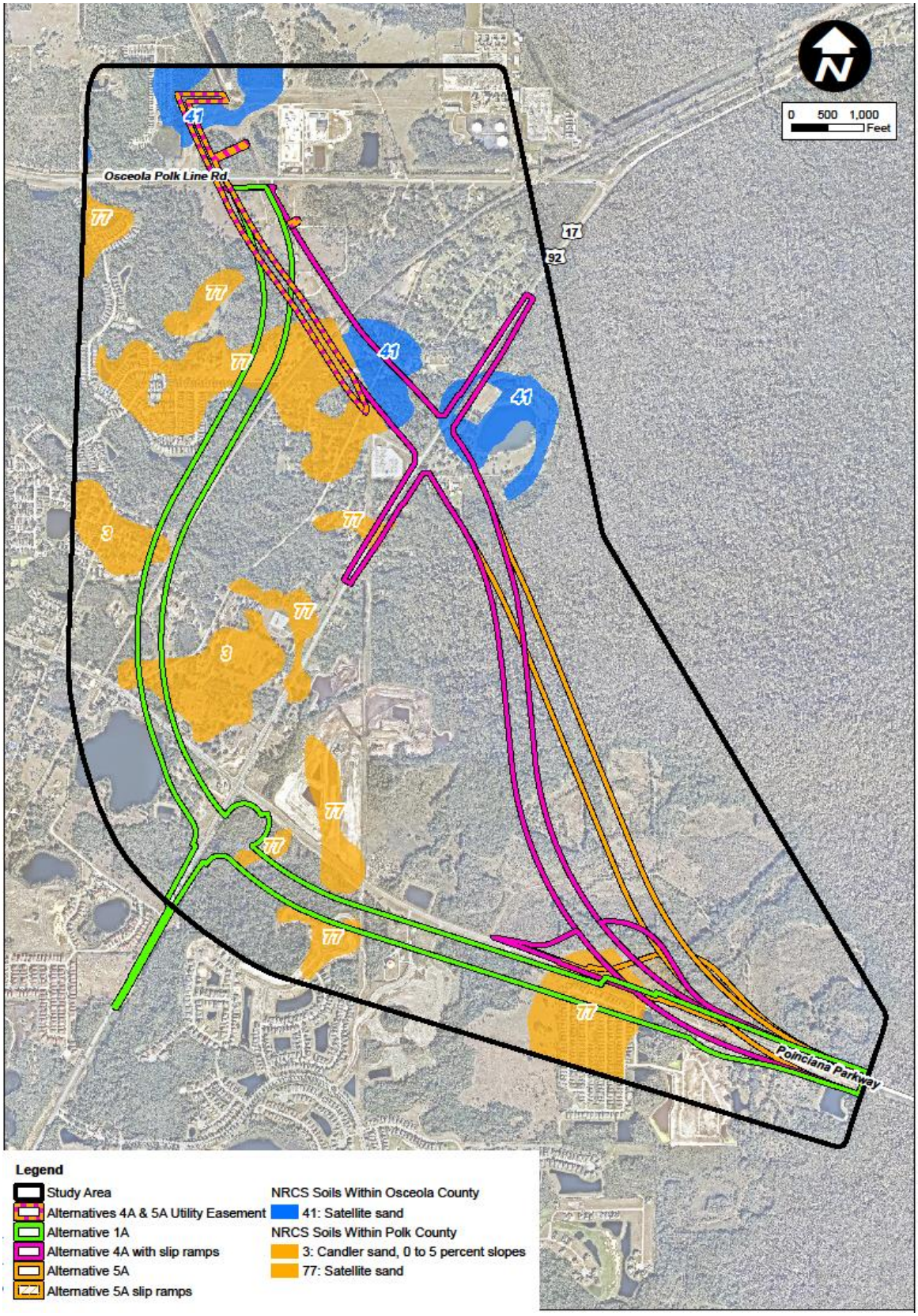


Figure 16: Listed Species Observations Map

7.5.2 STATE LISTED FAUNA

Birds

Florida burrowing owl

The Florida burrowing owl is a small, ground-dwelling owl that is boldly spotted and barred with brown and white. They often dig their own burrow and line the entrance with decorative materials prior to laying eggs at the bottom of the burrow. They inhabit high, sparsely vegetated, sandy ground and can be found in ruderal areas such as pastures, airports, ball fields, and road ROWs.

There are no known burrowing owl locations within the study area according to the Species Action Plan for the Florida Burrowing Owl (2013). Although no burrowing owls were observed within the study area, marginal habitat exists within the study area, specifically in the improved pastures, woodland pastures, and herbaceous, dry prairie areas. Therefore, an updated burrowing owl survey should be completed during design and permitting to determine if any burrows exist within the limits of construction. If burrows are present, a permit will be required from FWC for impacts to burrowing owls. Adverse effects are not anticipated to this species

Florida sandhill crane

The Florida sandhill crane is a tall grey bird with a red forehead, and long neck and legs. The Florida sandhill crane is non-migratory and inhabits open grasslands, freshwater marshes, swampy edges of lakes and ponds, river banks, prairies, pasture lands and occasionally pine savanna throughout the state. Florida sandhill cranes typically start nesting on the margins of marshes and wet grasslands in late December and continue into June. The nests, which are built by both adults, generally consist of sticks, reeds, grasses and mosses. Sandhill cranes are omnivorous and have been known to feed on seeds, grains, berries, insects, earthworms, mice, small birds, snakes, lizards, frogs, and crayfish.

Potential nesting habitat occurs within the study area and sandhill cranes were observed flying over the study area (**Figure 15 – Listed Species Observation Map)**; however, no nests were observed. An updated nest survey should be conducted during design and permitting to determine if any nests exist within the proposed limits of construction or within 400-feet from the limits of construction. If a nest exists within the construction limits, further coordination with FWC will be required. Adverse impacts are not anticipated.

Southeastern American kestrel

The southeastern American kestrel is the smallest falcon in United States. The male kestrel has blue-gray wings, while the female is larger and has more uniformly rufous back and wings. Both sexes have a mustached black-and white facial pattern with strong perpendicular lines extending below the eye and ear, and a black band at the base of the rufous tail. The alarm call is highly distinguishable and given frequently in flight.

The Kestrel's range is limited by a combination of nest and perch site availability, food supply and suitable foraging habitat. Kestrels require all these elements near one another. Kestrels are secondary cavity nesters using abandoned woodpecker cavities. Kestrels nest in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. Nest sites are in tall dead trees or utility poles generally with an unobstructed view of surroundings. Sandhill habitats seem to be preferred, but kestrels have been observed in flatwoods settings. Open patches of grass or bare ground are necessary for kestrels to effectively utilize flatwoods settings, since thick palmettos may prevent detection of prey.

Habitat for the southeastern American kestrel is located throughout the study area. Cavity trees were not observed during field reconnaissance; however, kestrels were observed perched along powerlines near CR 532. These observations were conducted during a period when the migratory populations of the American kestrel would be present in Florida. During the survey period for southeastern American kestrels (April through September), the migratory populations of American kestrels leave Florida. The remaining kestrels are assumed to be the southeastern subspecies. Surveys need to be updated during design and permitting as this is a highly mobile species and areas of the study are were not accessible. Surveys during the appropriate months will be conducted during design and permitting. No one alternative would result in more or less impact to this species. Mitigation may be required to replace lost nest sites.

Reptiles

Gopher tortoise

The gopher tortoise ranges throughout the southeastern U.S. and occurs in suitable habitat in parts of all Florida counties. The gopher tortoise excavates extensive underground burrows and spends much of its life in these burrows. Gopher tortoise habitat typically includes well drained, sandy soils, abundant groundcover, relatively open canopy and sparse shrub cover.

These habitat characteristics occur in a variety of Florida's native upland communities, including scrub communities, coastal strand and pine flatwoods. Development pressures on many of the upland communities in Florida have been increasing, resulting in suboptimal habitat such as fence rows, old fields, range lands, and canal banks providing for a higher potential for gopher tortoises occupancy. Gopher tortoise burrows are important shelter for a variety of species including the eastern indigo snake, gopher frog and Florida mouse.

Surveys for this species were conducted whenever appropriate habitat was encountered. Preferred habitat for this species was observed within the study area, primarily along Alternative 1A, and six potentially occupied gopher tortoise burrows were documented (see **Figure 16 – Listed Species Observation Map**). It is anticipated that there could be more gopher tortoises as most of the uplands within the study area could provide habitat for this species. FNAI reports one occurrence of this species within the project study area (in the same location where the other burrows were observed). Due to the presence of suitable habitat and burrows being observed, a 100% gopher tortoise survey will be required prior to construction. If gopher tortoise burrows cannot be avoided, a FWC gopher tortoise relocation permit will be required. A gopher tortoise relocation permit allows the permittee to relocate any gopher tortoise onsite to a protected approved recipient site by an authorized agent per the *FWC Gopher Tortoise Permitting* Guidelines (April 2008, revised January 2017). All build alternatives contain suitable habitat, but Alternatives 1A and 4A have the least amount of potential habitat. Alternative 5A has more potential habitat primarily due to habitat within RCMB. Adverse effects to this species are not anticipated with relocation during construction.

7.5.3 LISTED PLANT SPECIES

Descriptions for federally and state listed plant species known to occur within the study area or habitats found within the study area are listed below. None of the below-mentioned listed species were observed within the study area; however, updated surveys are recommended during design and permitting for the preferred alternative and in areas that were not accessible during this study.

The following federally listed plant descriptions are excerpted from the Multi-Species Recovery Plan for South Florida (USFWS 1999).

Federally-Listed Plants

Short-leaved Rosemary

Short-leaved rosemary is a short-lived, erect, woody, perennial shrub that can grow to about 1 meter in height. This shrub has alternate, 6.0 to 8.2 mm long leaves on the well-developed flowering branches. This shrubby mint is only found at 30 sites on the Lake Wales Ridge in Polk and Highland Counties. This species prefers white sand scrub with evergreen scrub oaks and sand pine. Habitat is limited within the study area and no individuals were observed during field reconnaissance. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Lewton's Polygala

This perennial herb produces one to several annual stems, which are spreading, upward-curving or erect, and are often branched. The leaves are small, rather succulent, broader toward the tip, and are borne upright, tending to overlap along the stem, like shingles. The flowers are about 0.5 cm long and bright pink. This species is found in widely scattered populations that frequently occur in transitional habitats between high pine and turkey oak barrens. Habitat does not exist within the study area and no individuals were observed during field reconnaissance. Therefore, a determination of **no effect** has been made for this species.

Small's Jointweed/Sandlace

This sprawling shrub forms low mats on the ground from its many zig zagging branches. The leaves are needle-like and are from 0.3 to 10.0 mm long. The small, white or cream-colored flowers have white petal-like sepals up to 3.4 mm long. This species thrives in bare white or yellow sands on the central Florida ridge. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Pygmy Fringe Tree

This shrub or small tree, usually less than 10 feet tall, has somewhat leathery leaves 2 to 4 inches long. The flowers are less than 0.5-inch-long, each with four narrow petals with white, fragrant, showy clusters. This species is found in scrub, sandhill, and xeric hammock, primarily on the Lake Wales Ridge. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Perforate Reindeer Lichen

This species is a member of the reindeer lichen family but is differentiated by the conspicuous holes or perforations below each dichotomous branch point and its wide, smooth, yellowish gray-green branches. It is restricted to the high, well-drained sands of rosemary scrub in Florida. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Avon Park Rabbit-bells

This spreading, perennial herb has one to three hairy, flowering stems that grow 2 to 10 cm above the surface. The leaves of this plant are 8 to 19 mm long, broadly elliptic or round, somewhat succulent, and coated with white or yellowish-white hairs. The flower, shaped like a typical pea flower, has a yellow corolla 8 to 9 mm long. This species inhabits scrub communities found on the Lake Wales Ridge where it typically grows in full sun on bare white sand but may also grow along trails, open edges, or previously disturbed roadbeds. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Garrett's Scrub Balm

This small, fragrant shrub reaches 50 cm in height with stiff vegetated shoots ascending from a ramose, woody base. The corolla buds yellow but at maturity is a pale yellow. This species is found in openings in oak scrub. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Highlands Scrub Hypericum

This small, short-lived perennial herb reaches 20 to 70 cm in height. It is branched from the base and has a woody, fibrous root system. Usually there are three stems, but there can be as many as 17 stems on a healthy plant. The leaves are opposite, simple, entire, and needle like. This species is almost exclusively found in the sunny openings in rosemary balds. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Florida Blazing Star

The Florida blazing star is a long-lived perennial herb with erect stems, usually unbranched, which can grow up to 1 m tall. Flower heads are well separated on the stem with individual disc flowers up to 1 cm broad; the inflorescences are up to 3 cm across. The corollas are bright purplish-pink in color. This species is one of the endemic plants found in rosemary balds. It is also found along the ecotone between these balds and surrounding scrub habitats. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Scrub Lupine

This species is a woody, perennial herb, with sprawling stems up to 1 m long. The leaves are obovate-elliptic, with the base and end of the leaves rounded with a sharp point at the leaf's end. A silvery pubescence covers the leaves and stems. The flowers are a pale flesh-colored pink and are 4 to 5 cm long. Habitat for this species includes sand pine and rosemary scrub. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Britton's Beargrass

This clump-forming perennial grows from a short, thick, fleshy, bulblike rootstock. The leaves are 1 to 2 m long and 6 to 13 mm wide, forming a rosette. When in bloom, these branches are covered with small white six-parted flowers. This species occurs in scrub, high pine, and even occasionally in hammocks and sandhills. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Florida Jointweed

This species is a short-lived, perennial herb which consists entirely of basal, compressed stems with narrow, alternate leaves. Stems and leaves range in color from green to dark red. As basal stems elongate, plants develop 1 to 46 slender, flowering, spike-like panicles as tall as 0.8 m. This species is endemic to the central ridges of the Florida peninsula. Habitat exists throughout the study area; however, no individuals were observed during field reconnaissance. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Scrub Plum

The scrub plum is a heavily branched, broad-crowned shrub that can reach 2 m in height, although 0.5 m may be more typical at sites with frequent fires. It grows from gnarled, half-buried trunks and spreads by sucker shoots. The scrub plum's leaves are crowded on the spur and are widely spaced on the normal shoots. This species is endemic to the oak scrub and high pine communities of the Lake Wales Ridge. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Clasping Warea

This annual herb has a stalk that may be unbranched or, more often, branching midway up the stem. Leaves are alternate, from 2 to 5 cm long, and 1 to 3 cm wide, smaller as they ascend the stalk, with a rounded apex and entire margin. The pale lavender flowers vary in individuals from almost white to almost purple. This species is endemic to high pine (sandhill) habitat. Habitat does exist scattered throughout the study area; however, no individuals were observed during field reconnaissance. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Carter's Mustard

This annual herb contains several branching stems that are slender and up to 40 in tall. The leaves are up to 2 inches long near the base of the stem and decrease in size upwards. The leaves are alternate, are pale yellow-green, and have rounded tips. The flowers are in clusters and contain up to 60 white flowers. Habitat for this species includes sandhill, scrubby flatwoods, and inland and coastal scrub. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Scrub buckwheat

Scrub buckwheat is a perennial herb with a taproot and one to three above-ground stems up to one meter tall. It has a basal rosette of leaves that are 15 to 20 cm long, narrow, and white-woolly on the underside. The flowers are green with pink anthers. This species is endemic to central Florida and found within sandhill, turkey oak barrens, oak-hickory scrub, and high pinelands. Habitat exists within the study primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Florida Bonamia

This perennial vine has leathery leaves up to 4 cm in length and ovate in shape. The flowers are solitary and sessile in the leaf axils. The funnel-shaped corolla is 7 to 10 cm long and 7 to 8 cm across. It has a deep blue or bluish-purple color with a white throat. This species occurs within or near scrub in the central Florida ridge. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Scrub Pigeon-wing

This 15 to 100 cm tall, long-lived perennial herb has a thick horizontal root which may grow to more than 2 m long. It bears one to several purplish, glaucous, wiry, straight stems. The leaves are leathery and consist of three leaflets. The species is reportedly found in habitats in high pine and scrub, turkey oak barrens, the edges of high pines, scrubby high pine, and hickory-dominated scrub. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

Paper-like Whitlow-wort

The paper-like whitlow-wort is mat-forming with many bright yellowish-green branches radiating flatly from a strong taproot. The stems are 5 to 20 cm long and are wiry. The leaf blades are sessile, 1.5 to 3.0 mm long, ovate to triangular-ovate in shape, and strongly revolute. It has numerous small cream-colored to greenish flowers. This species is endemic to the scrub community on the Lake Wales Ridge in Highlands, Polk, Osceola, Orange, and Lake counties. Habitat exists within the study area primarily within the xeric oak habitats. Alternative 1A has the most potential for this species to occur based on the presence of habitat, though it was not identified during surveys. Therefore, a determination of **may affect, not likely to adversely affect** has been made for this species.

State-Listed Plants

Nodding Pinweed

Nodding pinweed is a perennial herb that has slender, erect, flowering stems, rising from a dense mat of spreading branches. Leaves are short (>0.4 in), narrowly oval and alternating, with pointed tips, disappearing by flowering time. Nodding pinweed flowers occur in tight clusters at the ends of short branches with 3 tiny purple or green petals. The entire plant is covered with spreading, gray hairs and has a tiny, hard capsule fruit. Habitat includes scrub and scrubby flatwoods. Although habitat exists throughout the study area, this species was not observed during field surveys.

Pine-woods Bluestem

This perennial herb is native to both Florida and southern Alabama. This grass species grows up to 5 feet tall with long narrow leaves. Flowers are densely covered with tawny hairs and are light brown in color. Preferred habitat includes flatwoods and scrub and possibly flatwoods that have converted to unimproved pasture. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Ashe's Savory

This perennial shrub grows up to 5 m tall and has narrow grey-green leaves mostly 1 cm long or somewhat less. This plant produces inflorescence that are a whitish to pale lavender-rose color. This species is most commonly found in openings in sand pine scrub but can also be found in disturbed areas such as fire lanes, road shoulders, and abandoned fields. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Many-flowered Grass-pink

Many-flowered grass-pink is an herb belonging to the orchid family and has 1 to 2 basal, grass-like leaves. Leaves are 0.1 m long and less than 0.5 cm wide. The flower stalk is leafless and up to 0.4 m long. There can be up to 15 dark pink flowers at one time. The preferred habitat is dry to moist flatwoods with longleaf pine, wiregrass, and saw palmetto. Management for this species includes prescribed burning. Habitat for this species does exist within the study area (dry flatwoods); however, no many-flowered grass-pink was observed during field reconnaissance.

Chapman's Sedge

This perennial sedge forms small to large tufts which increase by its slender, spreading rhizomes. It is characterized by its elongate rhizomes projecting from the culm and its brown-colored culm bases. This species is found in well-drained hammock woodlands, sandy hammocks, and floodplains of blackwater streams with intermittent, brief floods. Habitat for this species is limited and no individuals were observed during field reconnaissance.

Sand Butterfly Pea

Sand butterfly pea is a perennial vine with stems up to 10 feet long and is commonly found intertwined with other species of bushes. Leaves are dark green and somewhat leathery. The flowers are 1.5 in wide and are purplish-blue. This species prefers sandhills, scrubby flatwoods, and dry upland woods. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Piedmont Jointgrass

Piedmont jointgrass is listed as threatened by FWC. Piedmont jointgrass is a tall, tufted, perennial grass. This particular jointgrass has 3 spikelets (1.3-2 mm wide); first glume with scattered small or no transverse ridges. Habitat includes flatwoods, swamps, savannas, ponds, ROWs, and ditches. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Chapman's Skeletongrass

This perennial grass has broadly lance-shaped leaf blades extending 1-8 cm long. This species has several to many stiff, slender, divergent branches loosely scattered along the upper parts of the stem, which stands about 30-40 cm tall. Chapman’s skeletongrass can be found in sandhills, sand pine scrub, sandy

prairies, and pine flatwoods. Habitat does exist within the study area; however, no plants were documented during field surveys.

Hartwrightia

This aromatic, herbaceous perennial has solitary, erect stems that grow an average of 1 m high. The small flower heads are produced on a branched flat-topped inflorescence covered with club-shaped scales. These flower heads are white to pinkish-lavender and bloom in late September to November. Typical habitat for this species is slash and longleaf pine forests, flatwoods, and pineland swamps and bogs. Habitat does exist within the study area (flatwoods); however, no plants were documented during field surveys.

Star Anise

This perennial evergreen shrub/small understory tree sometimes reaches 7 m tall. The smooth bark is grayish/brown and the leathery leaves have a dark, glossy green upper surface and a pale, dotted lower surface. This species is restricted to habitats with continually moist soils in forested wetlands. Habitat does exist throughout the study area; however, no plants were documented during field surveys.

Pine Pinweed

This perennial herb has slender, erect flowering stems with leaves that are less than 0.4 inches long. Flowers are found at the ends of the shore branches and contain three tiny, purple or green petals. The fruit is a tiny, hard capsule that does not split into segments when mature. The entire plant is covered by spreading, gray hairs. This plant is typically found in pine rocklands, scrub, scrubby flatwoods and even disturbed uplands. Habitat does exist within the study area; however, no plants were documented during field surveys.

Florida Spiny-pod

This perennial vine has slender stems variable in length. The leaves are opposite and pubescent, usually 2-6 cm in length. Clusters of flowers ranging in color from greenish-yellow to deep maroon bloom during spring and early summer. Habitat for this species includes upland hardwood forests and can tolerate fairly moist woods. Habitat does exist within the study area; however, no plants were documented during field surveys.

Celestial Lily

Celestial lily is a perennial herb forming from a bulb with a single, tall slender stem. The flower has six dark blue petals and it opens around 4:00 pm and closes by dusk. Preferred habitat includes wet flatwoods, prairies, marshes, and cabbage palm hammock edges. Burning of flatwoods and prairie habitat every two to three years helps for management of this species. This species is endemic to eastern and central counties in Florida, primarily in the St. Johns River drainage basin. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Florida Beargrass

Florida beargrass is a perennial herb that is approximately 2.5 feet to 4.5 feet tall. Leaves are simple and alternate. Flowers are white and they bloom during the summer months. Preferred habitat includes pine flatwoods, which is available throughout the study area. However, no individuals were observed during field reconnaissance.

Cutthroat Grass

Cutthroat grass is a robust grass that grows 50-70 cm tall and has leaf blades which grow 15-25 cm long. This species is densely tufted and compressed. This species is found in herbaceous wetlands, scrub/shrub wetlands, and temporary pools; which are found throughout the study area. However, no individuals were observed during field reconnaissance.

Giant Orchid

Giant orchid is a perennial herb with 2 to 4 basal leaves that are 6-28 inches long. The flower stalk can be as tall as 5.5 feet tall and contains 5-30 flowers on a terminal spike. The sepals of the flowers are yellow-green and are folded forward over the lip. Preferred habitat includes sandhill, scrub, pine flatwoods and pine rocklands. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Florida Willow

This small, deciduous tree or shrub grows to about 4 m in height. The branches and smaller limbs are brittle and green with the pubescent leaves ranging from about 1-2 cm long to 8-16 cm long in mature leaf blades. This species is found within forested wetlands. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

Scrub Bluestem

This small, strongly tufted perennial grass grows from slender fibrous roots, which is perennating by short lateral offshoot buds from the base. The leaves are 6-10 cm long and hairless except for a few hairs at their bases. It is very narrow, flat, and held horizontal to the stem. Flowering stalk are erect to 75 cm tall, then loosely branched at the top with only one inflorescence at the tip of each branch. Joints of the flowering stalk are covered with silvery-white hairs. This species is found in sandhills, scrub communities, rosemary scrub, also sand pine scrub and oak scrub. Habitat for this species exists throughout the study area; however, no individuals were observed during field reconnaissance.

7.5.4 NON-LISTED SPECIES

Florida Black Bear

The Florida black bear was removed from the FWC list of state-threatened species in August 2012; however, the Florida black bear remains protected under other laws, primarily the Florida Black Bear Conservation Rule 68A-4.009 (F.A.C.) and the FWC Florida Black Bear Management Plan. Based on these regulations, pursuing, hunting, molesting, capturing, killing, or attempting those actions, whether or not such actions result in possession of the bear is unlawful. In addition, Rule 68A-4.009, F.A.C., generally prohibits anyone from possessing, injuring, shooting, wounding, trapping, collecting, or selling bears or their parts or attempting to engage in such actions without prior authorization from FWC. Black Bear Management Units (BMU) have also been established based on the seven geographically distinct bear subpopulations in Florida. The study area is located within the South Central BMU. Specifically, according to FWC, black bears occasionally occur in the study area (https://myfwc.com/wildlifehabitats/wildlife/bear/bmu/).

Black bears are adaptable and inhabit a variety of forested habitats including seasonally inundated pine flatwoods, tropical hammocks, hardwood swamps and xeric sand pine-scrub oak communities. Based on a review of GIS databases, there are no reported bear telemetry, nuisance reports, or road kills within the study area. However, there is one nuisance report from 2001 just west of the study area (see **Figure 17 – Bear Nuisance Report Map**). It is anticipated that Florida black bears could occasionally occur in the

project study area; though none were observed, and no sign of bear activity was observed. Impacts to habitat that could potentially be utilized by the Florida black bear are anticipated as a result of the proposed alignments; however, a large majority of impacts to native habitat include wetlands, where black bears do not inhabit. Additionally, the undeveloped portions of the study area are rapidly being converted to residential developments. As discussed, Alternatives 4A and 5A include a bridge section which would allow for continued movement of black bears, were they to occur. Consistent with the June 2012 FWC Black Bear Management Plan, garbage and food debris will need to be properly removed during construction to eliminate possible sources of food that could encourage and attract bears. Nuisance bears will be reported to the FWC at the Wildlife Alert Hotline at 1-888-404-3922.
Adverse effects to the Florida black bear are not anticipated.

Bald Eagle

As of 2008, the bald eagle is no longer listed by the USFWS or FWC. Bald eagles are still protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and FWC's bald eagle rule (F.A.C. 68A-16.002). Potential habitat for bald eagles (e.g. tall pine trees) occurs throughout the project study area, and commonly includes areas in proximity to bays, rivers, lakes, or other bodies of water that provide concentrated prey availability. Eagles usually nest in tall trees (mostly live pines) that provide clear views of the surrounding area. Nest PO172 occurs within the study area as shown on **Figure 18 – Bald Eagle Nest Map**. There are two nests associated with this location with two bald eagles nesting (assumed to be one pair of adult eagles utilizing alternate nests). The second nest is called Alternate Nest #1 and has not been assigned an ID number by FWC. An adult bald eagle was observed inside Alternate Nest #1 during a site visit conducted on October 2, 2018. This nesting pair has been monitored for several years as part of the Providence DRI. Eagle permits were obtained for the development. The most recent survey was conducted for the 2018/2019 nesting season.

Based on the USFWS National Bald Eagle Management Guidelines and the FWC Bald Eagle Management Plan, construction activities proposed at least 660 feet from an eagle nest do not require an Eagle Permit from the USFWS. FWC also defines a 330-foot buffer and a 100-foot buffer for protection particularly in more urban environments. For both nests, Alternatives 4A and 5A with or without Slip Ramps do not encroach upon any buffers associated with nest PO172 or Alternate nest #1. Alternative 1A avoids the 660-foot buffer for PO172, but Alternate Nest #1 lies within the center of the alignment for Alternative 1A. During design and permitting, updated nest data should be obtained to confirm the nest is still present, has not moved, or no new nests have been built. Technical assistance and possible permitting would occur following the updated survey, when the current condition of the nest is known.

Potential minimization measures could include:

- Restrictions on construction timing.
- Contractor education to avoid impacts.
- Nest monitoring during construction.
- Create a visual buffer between the construction activities and the nest by planting appropriate native pines or hardwoods.
- Shielding of lights so they do not shine directly on the nest.

Figure 17: Bear Nuisance Report Map

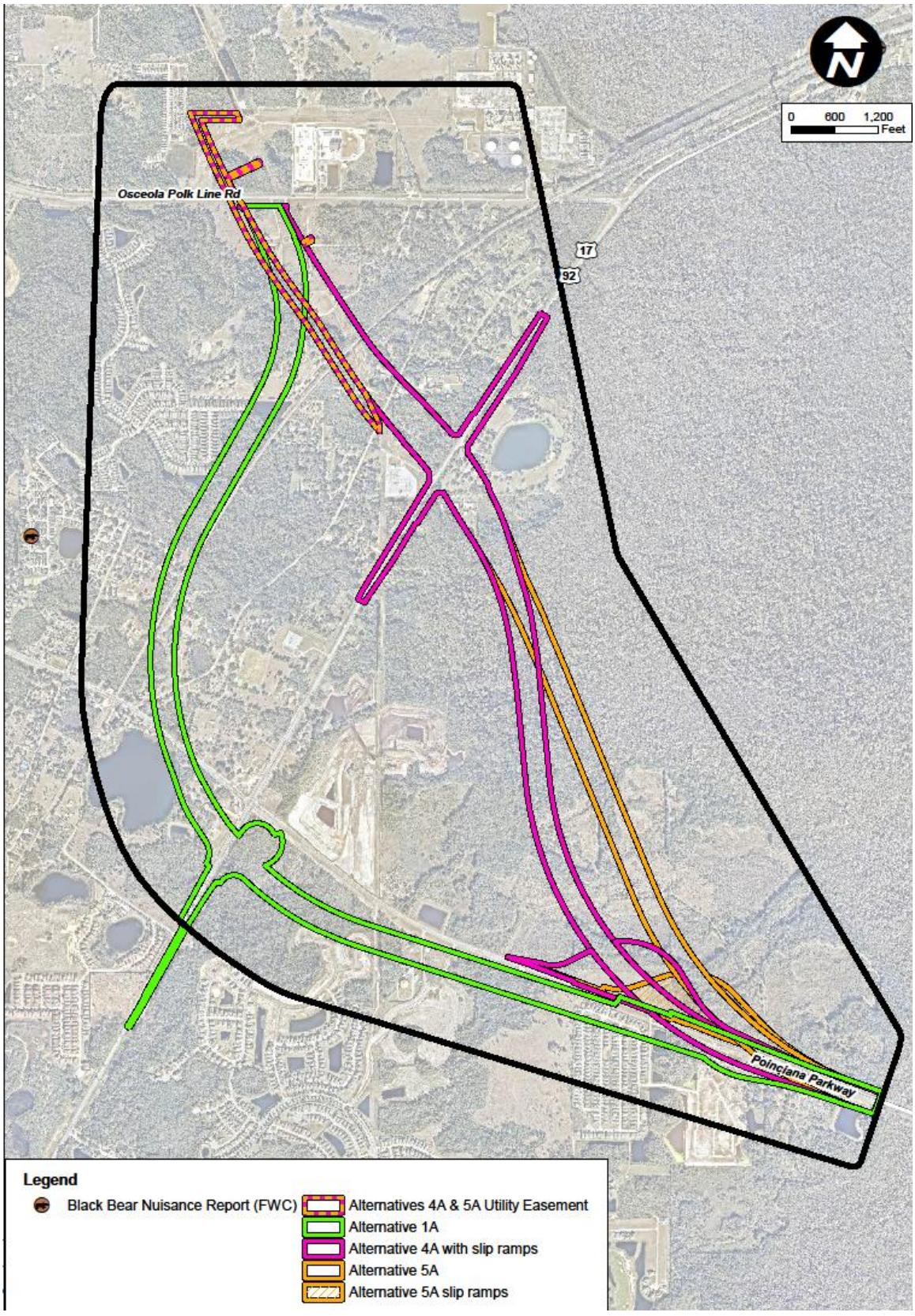
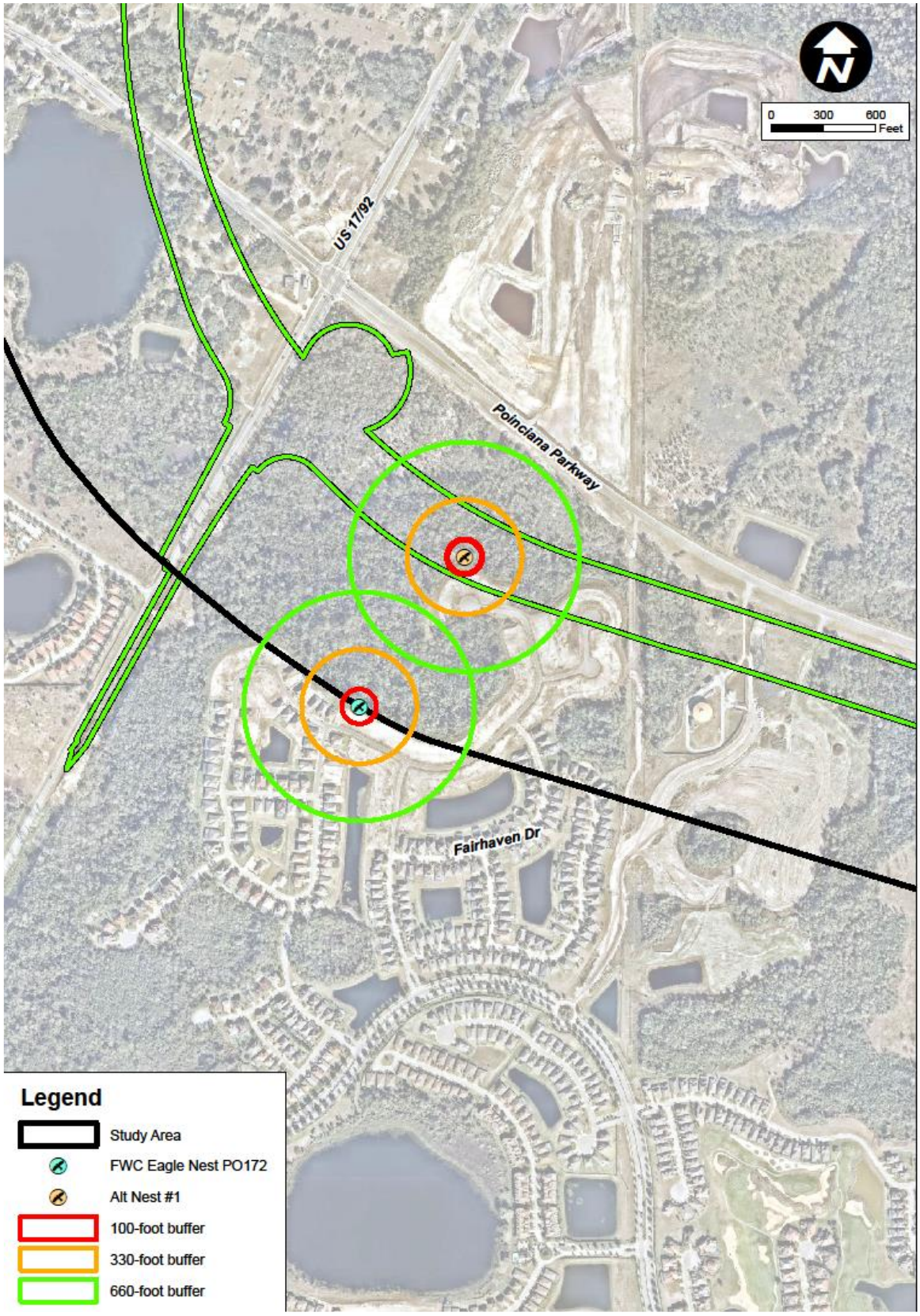


Figure 18: Bald Eagle Nest map



8.0 INDIRECT AND CUMULATIVE EFFECTS

8.1 INDIRECT EFFECTS

In addition to the permanent and temporary impacts previously discussed in Section 6.0, indirect effects were also considered. Indirect effects "are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable." (Council on Environmental Quality (CEQ) 1986, 40 Code of Federal Regulations (CFR) 1508.8). Two types of indirect effects considered in this study include induced growth effects and encroachment/alteration effects.

Induced Growth Effects

Induced growth effects are related to changes in patterns of land use, population density or growth rate and their effects on natural systems. As this is a limited access expressway and land use patterns are already well established, including large preserve lands (RCMB, Upper Lakes Basin, SFWMD and SWFWMD conservation easements), the proposed improvements are not anticipated to result in substantial induced development. This is a high growth region for all three counties (Orange, Osceola and Polk) and development continues to expand, especially residential development (single and multi-family). This expansion of residential development results in more constrained transportation facilities. Though this increased development is not a direct result of the proposed improvements, the improvements are expected to reduce capacity constraints and facilitate traffic movement. One positive effect of the reduced capacity constraints and improved traffic movement is a potential to reduce idling vehicles on congested roadways. This would result in a localized improvement to air quality.

Habitat and Wildlife Effects

Encroachment/alteration effects could include habitat fragmentation, degradation of habitat from pollution, water quality degradation from stormwater runoff or roadway spills, changes in hydrology, exotic/invasive species range expansion, disruption of natural processes and disruption of management processes with RCMB. SFWMD has indicated that there is currently minimal management of the Upper Lakes Basin property and prescribed fire is not used in this area. Furthermore, though other parts of the RCMB are subjected to prescribed fire, those portions of the bank within the study area are not currently burned, so indirect effects on fire management of the RCMB and Upper Lakes Basin property are expected to be negligible. There are also several existing and proposed residential developments adjacent to the RCMB to the south and east that could further limit the ability to burn. Minimization of these indirect effects are discussed further in the Section 10.0 Avoidance and Minimization.

The indirect effects resulting from fragmentation and edge effects are greater for Alternatives 4A and 5A but have been minimized due to proposed bridge structures. Habitat impacts will be addressed by applying a secondary impact buffer and mitigating for secondary impacts. Stormwater runoff will include an additional 50% water quality treatment, consistent with water management district criteria.

8.2 CUMULATIVE EFFECTS

Cumulative effects of a project result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (Council on Environmental Quality (CEQ) (40CFR Section 1508.7)). Cumulative effects are also largely dependent upon the size of the road/bridge corridor, the relative position of the project within the landscape, and the relative condition of the habitats being traversed (pristine vs. degraded).

Historical aerials were obtained and reviewed from 1941 to the present. The 1941 aerial shows much of the study area consisting of wetlands, lakes, pastures, groves and some rural development. US 17/92, a railroad and another cleared linear feature in the general location of the current Ronald Reagan Parkway/Poinciana Parkway is evident. Thus, some conversion of land primarily for agricultural had already begun in the early 1940s with land clearing appearing to be mostly within uplands. By 1959 more intense clearing for pasture is evident and more development has occurred around the local road system. By the late 1970s development continued to expand, but still appears to have avoided many of the larger wetland systems. This pattern of development continued through the 80s and 90s. By the early 2000s, several of the larger housing developments such as Providence DRI were under construction. But the development pattern of avoiding large wetland systems continued much like present day; focusing many of the impacts into smaller isolated wetlands and uplands. Many of the preserved wetland systems are interconnected even if on different development sites. This helps maintain, to some degree, wildlife corridors but does not provide large areas for wetland-upland interface or preservation of native upland habitat.

When evaluating cumulative impacts to wetlands, floodplains, water quality or wildlife, a watershed approach is often utilized. The study area is located within the Kissimmee River Watershed and more specifically within the Reedy Creek Drainage Basin. Using GIS, the total area of the watershed and drainage basin areas were calculated as well as the total protected wetlands and floodplains. The protected wetlands and floodplains were based on an analysis of data layers showing Florida Managed Lands and SFWMD conservation easements. Due to the size of the watershed and drainage basin, this study did not include a review of every individual permit to determine if the wetlands are preserved or not, but from aerial review there are other areas of wetlands, for example in the Reedy Creek Improvement District and within developments in the study area, that are not in easement but appear to be protected wetlands that were not included in the overall numbers. Thus, the acreage of protected wetlands and floodplains is a conservative number and may be greater than determined in this analysis.

Wetlands

The Kissimmee River Watershed is approximately 1,946,927 acres with approximately 609,785 acres of wetlands. Approximately 199,836 acres of wetland are protected within RCMB, Upper Lakes Basin Watershed lands, conservation easements or some other Florida managed lands program. The wetland impacts for the alternatives range from approximately 51-54 acres or 0.008% of the watershed.

The Reedy Creek Drainage Basin is approximately 114,009 acres. For this basin, there is approximately 46,179 acres of wetlands of which approximately 20,004 acres are protected. The wetland impacts of the project represent approximately 0.11% of the overall drainage basin.

An analysis of the impacts to the SFWMD Upper Lakes Basin and the RCMB was also conducted. The SFWMD Upper Lakes Basin area includes several parcels within the overall drainage basin totaling approximately 12,997 acres, and the RCMB is approximately 3,494 acres within the Reedy Creek Drainage Basin. Impacts to the Upper Lakes Basin properties range from approximately 19 -28 acres or 0.15-0.22% of the Upper Lakes Basin lands. For the RCMB, the impacts range from approximately 0.26 (Alternative 1A) – 22 acres (Alternative 4A With Slip Ramps) or 0.007 – 0.63% of the RCMB. As discussed below in Section 10 – Avoidance and Minimization, the alternatives that impact the RCMB and Upper Lakes Basin Watershed property include bridging and, thus, the overall impacts to wetlands and floodplains would be less. As discussed in the mitigation section, it is anticipated that mitigation will be conducted through purchase of credits within the same watershed.

Floodplains

The Kissimmee River Watershed is approximately 1,946,927 acres with approximately 889,561 acres of floodplain. Approximately 311,611 acres of floodplain are protected within RCMB, Upper Lakes Basin Watershed lands, conservation easements or some other Florida managed lands program.

The Reedy Creek Drainage Basin is approximately 114,009 acres. For this basin, there is approximately 42,492 acres of area are within the 100-year floodplain of which approximately 23,963 acres are protected. The floodplain impacts range from 6 acres to 52 acres. However, these acreages include existing roadways and therefore actual floodplain impacts are anticipated to be lower than reported.

Future impacts are unknown and, due to the size of the watershed and/or drainage basin over multiple counties and jurisdictions, a review of all pending permits was not conducted. It is assumed that the development patterns within the more urbanized areas would continue to minimize impacts on the larger slough systems. Within the rural areas that are utilized more for agriculture, it is anticipated that impacts would be minimal. Thus, with minimization of the impacts, compensation of the floodplain impacts and mitigation in the same drainage basin, cumulative effects are not anticipated.

9.0 AVOIDANCE AND MINIMIZATION

The proposed improvements consist of the extension of Poinciana Parkway on a new alignment. As described in this report, the study area is in a rapidly developing area and in an area with several large wetland systems associated with Reedy Creek and the Reedy Creek Watershed. Thus, complete avoidance of wetlands, habitat and wildlife is not feasible with any build alternative. Furthermore, the impact evaluation must consider impacts to existing homes, businesses, communities, cultural resources and utilities and balance the impacts with the natural resource impacts.

Alternative 1A, while avoiding impacts to the SFWMD Upper Lakes Basin and most of the RCMB, results in wetland impacts similar to the other two alternatives and greater impact to lands within SFWMD regulatory conservation easements. In addition, this alternative results in the most impact to residents and businesses.

Alternative 4A and 5A With Slip Ramps to Ronald Reagan Parkway result in the most impact to the RCMB and SFWMD Upper Lakes Basin conservation lands. Alternative 5A has less direct impact to the bank and wetlands than Alternative 4A, but greater impact to the SFWMD Upper Lakes Basin property. However, early in the alternative development process, it was determined that Alternative 4A and 5A would include a bridge through the Upper Lakes Basin property and most of the RCMB. This reduces the direct fill impacts to the RCMB, allows for continued continuity for management of the RCMB, reduces habitat fragmentation, provides for greater wildlife connectivity, and reduces floodplain impacts to both the RCMB and Upper Lakes Basin property.

Following the alternatives meeting, Alternative 5A was further refined. Through coordination with Polk and Osceola Counties, it was determined that the slip ramps to Ronald Reagan Parkway could be eliminated, further reducing the impacts to the RCMB by approximately two acres and reduce the impact to a proposed development in the location of the slip ramps.

Other considerations for the impacts include minimizing the effects on RCMB management relating to fire management. Minimization measures that were implemented during the design, permitting and construction of the previous segment of Poinciana Parkway include those listed below and will also be considered during design and permitting phases for this project.

- Culverts will be sized to maintain current off-site flows. This is particularly important for the existing cross drains and creeks that extend across Ronald Reagan Parkway from RCMB.
- Fencing or other barriers will be considered to minimize wildlife vehicle conflicts.
- During design, non-intrusive roadway and bridge lighting will be evaluated adjacent to natural and residential areas. Measures to minimize illumination outside of the ROW could include the use of shielded light fixtures, mounting height or aiming adjustments, and using reduced wattage light fixtures.
- The *Standard Protection Measures for the Eastern Indigo Snake* will be implemented during project construction.
- To minimize water quality impacts, the stormwater management system design will include a site-specific pollutant loading analysis and an additional 50% water quality treatment volume.
- The surface water management system will be designed to maintain and support existing hydrologic flow patterns and regimes and avoid gradient drawdowns of the wetlands through a design that incorporates appropriate control elevations.

- Construction impacts will be minimized through implementation of Best Management Practices.
- Avoidance and minimization of wetland and listed species impacts will continue to be evaluated during the final design, permitting and construction phases of this project and all possible and practicable measures to avoid or minimize these impacts during design, construction and operation will be incorporated.

10.0 CONCEPTUAL MITIGATION

The final design of the project will avoid and minimize impacts to wetlands/wildlife and habitat to the greatest extent practicable and appropriate mitigation options will be provided for unavoidable impacts. Mitigation for unavoidable impacts will be achieved by purchasing credits from RCMB or Florida Mitigation Bank. Both RCMB and the Florida Mitigation Bank are in-basin, thus minimizing cumulative impacts for the WMD. Southport Ranch Mitigation Bank is also in-basin; however, credits are limited. Additionally, as described above, any alternative that traverses RCMB will necessitate a modification to the RCMB permits.

Based on coordination conducted with SFWMD and USACE, it was discussed that the methodology developed as part of the Poinciana Parkway permit (Application no. 060117-17) should be followed. As indicated in the staff report for this project, impacts of the roadway on the bank should "account for not only the immediate functional losses but also the reduction in opportunity to perform mitigation activities not yet undertaken or earned within the RCMB". Two categories of impacts were evaluated: Category 1 Standard Functional Loss (direct and secondary impacts) and Category 2: Reduction in future credits (identify credits no longer achievable within the mitigation bank due to the roadway presence). A similar process will be analyzed during the permitting phase to determine the required mitigation.

USACE recommended early coordination with the USACE's mitigation banking team to determine how the mitigation banking instrument (MBI) would be affected or modified. Further, USACE commented that the MBI credits were based on fire management and if burning options were further reduced this will need to be considered as well. Additional coordination will occur during design and permitting.

11.0 PERMITTING REQUIREMENTS AND PROJECT COORDINATION

Coordination meetings were held on November 27, 2018 with SFWMD and on December 13, 2018 with the USACE to discuss the proposed project alternatives, impacts, and future permit requirements. Copies of the meeting minutes from these meetings are included in **Appendix K**. The following permits will be required, for wetland impacts, regardless of alternative:

- Environmental Resource Program (ERP) permit. The study area overlaps both SFWMD and SWFWMD jurisdictional boundaries. Based on discussions with SFWMD, further coordination would be needed during design and permitting to determine the lead agency issuing the ERP and a Memorandum of Agreement would be prepared between the two agencies. All build alternatives have some impact to RCMB, but Alternative 4A and 5A traverse through the bank. The ERP would also need to address the proprietary impacts to state owned lands associated with Upper Lakes Basin. Any impacts to regulatory conservation easements associated with adjacent developments would have to be addressed as well.
- USACE Individual Permit. Per discussions with USACE, further coordination during design and permitting with the USACE mitigation banking team will be required to determine changes needed as it relates to RCMB permit.
- National Pollutant Discharge Elimination System (NPDES) Permit – An NPDES permit from FDEP would be required for construction.

An EAG was established for this project. The EAG included stakeholders such as USACE, SFWMD, FDOT, SJRWMD, FWC, USFWS, County officials and other environmental groups. Coordination meetings were held on August 15, 2018, February 19, 2019, and May 21, 2019, with the EAG and meeting minutes are included in **Appendix L**.

Meeting #1 August 15, 2018 – An overview of the project was given to the EAG. The prior feasibility study for this project was summarized to the meeting participants. Site-specific environmental constraints on the project were discussed, such as the RCMB and wetland impacts. During open discussion, several environmental issues were discussed, such as bridging the RCMB and including wildlife crossings.

Meeting #2 February 19, 2019 - A second EAG meeting was conducted by CFX to present updates to the project regarding potential environmental impacts and to receive feedback on the proposed project. Again, the prior PPE feasibility study was summarized to the meeting participants. As in the previous EAG meeting, site-specific environmental constraints on the project were discussed, such as the RCMB and wetland impacts. Several adjustments to the proposed alternatives were discussed. An evaluation matrix conducted by the project team was discussed as well. During open discussion, some environmental issues were discussed, such as potential fish and wildlife impacts and wildlife crossings.

Meeting #3 May 21, 2019 – A third EAG meeting was conducted by CFX in order to review revisions to the alternatives and update the public on the status of potential impacts and receive feedback. Again, the prior feasibility study was summarized to the meeting participants. The revisions to the proposed alternatives were analyzed and compared for potential environmental impacts. During open discussion, some environmental issues were discussed, including extending the bridge to include uplands north of the Upper Lakes Basin property to enhance the potential wildlife connection to uplands and wetlands adjacent to and west of the Upper Lakes Basin property. It was also discussed whether the lands between the Upper Lakes Basin and US 17/92 could be acquired and donated to SFWMD to mitigate for

impacts to the Upper Lakes Basin property, particularly since these private lands could be developed. This will be evaluated further during design.

12.0 CONCLUSIONS AND RECOMMENDATIONS

12.1 WETLANDS

Per the *Wetlands Evaluation*, two types of surface waters and seven types of wetlands were identified within the study area. The following two tables summarize the direct and secondary impacts to surface waters and wetlands for each of the three alternatives. The total direct impacts to surface waters and wetlands is 54 acres for Alternative 1A, 54 acres for Alternative 4A, 53 acres for Alternative 5A With Slip Ramps to Ronald Reagan Parkway, and 52 acres for Alternative 5A Without Slip Ramps to Ronald Reagan Parkway.

The total functional loss due to primary impacts is 27.03 units for Alternative 1A, 38.87 units for 4A, 38.1 units for 5A With Slip Ramps to Ronald Reagan Parkway, and 37.1 units for 5A Without Slip Ramps to Ronald Reagan Parkway. A summary of the approximate wetland impacts, and functional loss are shown in **Table 12**. Approximate secondary wetland impacts are shown in **Table 13**.

Table 12: Summary of Wetland Impacts and Functional Loss

SW/WL Number	Alt 1A	Alt 4A	Alt 5A w/ Slip Ramps	Alt 5A w/o Slip Ramps		Functional Loss Alt 1A	Functional Loss Alt 4A	Functional Loss Alt 5A W/ Slip Ramps	Functional Loss Alt 5A W/O Slip Ramps
SW 1	2	-	-	-		-	-	-	-
SW 2	>0.5	-	-	-		-	-	-	-
SW 3	-	>0.5	>0.5	>0.5		-	-	-	-
SW 4	0.7	-	-	-		-	-	-	-
Total Surface Water Impacts	**2.7**	>0.5	>0.5	>0.5		**-**	**-**	**-**	**-**
WL1	3	-	-	-		2	-	-	-
WL 2, 6, 8, 9, 30	-	8	8	8		-	3	3	3
WL 3, 7	-	2	2	2		-	0.3	0.3	0.3
WL 4	-	0.7	0.7	0.7		-	0.2	0.2	0.2
WL 5	15	-	-	-		10	-	-	-
WL 10, 11, 13, 14, 15, 26	20	-	-	-		9	-	-	-
WL 12	2	-	-	-		1	-	-	-
WL 16	>0.5	-	-	-		0.03	-	-	-
WL 17, 27	12	-	-	-		5	-	-	-
WL 18, 21, 21A, 22	-	15	13	12		-	10	9	8
WL 20	-	>0.5	-	-		-	0.07	-	-
WL 23	-	25	26	26		-	22	23	22
WL 24	-	2	2	2		-	2	2	2
WL 26	1	>0.5	-	-		-	0.1	-	-
WL 29	-	1	1	1		-	0.6	0.6	0.6
Total Wetland Impacts	**54**	**54.7**	**53.7**	**51.7**					
Grand Total Surface Water and Wetland Impacts	**56.7**	**54.7**	**53.7**	**51.7**	**Total Functional Loss**	**27.03**	**38.87**	**38.1**	**37.1**

Table 13: Secondary Impacts to Wetlands (acres)

SW/WL Number	Alt 1A	Alt 4A	Alt 5A w/ Slip Ramps	Alt 5A w/o Slip Ramps
WL 1	1	-	-	-
WL 2	-	>0.5	>0.5	>0.5
WL 4	-	2	2	2
WL 5	5	-	-	-
WL 9	-	1	1	1
WL 10	0.5	-	-	-
WL 11	>0.5	-	-	-
WL 12	0.9	-	-	-
WL 13	1	-	-	-
WL 14	2	-	-	-
WL 15		-	-	-
Portion in Regulatory Easement	0.6	-	-	-
Portion not in Easement	0.5	-	-	-
WL 17	0.7	-	-	-
WL 18				
In RCMB	1	0.9	2	1
WL 20	-	>0.5	-	-
WL 21	-			
In RCMB	-	3	-	-
Portion not in Easement or RCMB	-	>0.5	>0.5	>0.5
WL 21A	-			
In RCMB	-	1	>0.5	>0.5
WL 22	-			
In RCMB	-	-	1	1
In ULBW	-	-	1	1
WL 23	-			
In RCMB	-	2	1	1
In ULBW	-	4	6	6
Portion not in RCMB or ULBW	-	1	1	1
WL 24	-			
In ULBW	-	>0.5	-	-
WL 26	0.5	>0.5	-	
Easement	>0.5	-	-	-
Wetland	1	-	-	-
WL 29	-	1	1	1
WL 30	-	2	2	2
Total Secondary Wetland Impacts	**14.7**	**18**	**18**	**17**

RCMB- Reedy Creek Mitigation Bank; ULBW-Upper Lakes Basin Watershed.

12.2 PROTECTED SPECIES AND HABITAT

Per the *Protected Species and Habitat Assessment*, 25 federally-listed species and 25 state-listed species may occur within the study area. Surveys for gopher tortoise burrows and listed plant species and a pedestrian survey for sand and blue-tailed mole skink were conducted on September 13, 2018 and October 2, 2018. Sand and/or blue-tailed mole skink tracts were observed around and within Alternative 1A. A formal coverboard survey will be initiated during design and permitting within the chosen alternative to determine presence of skinks. Audubon's crested caracara surveys were conducted January through April 2019, which documented that crested caracaras are not nesting within the alignments of the alternatives. Florida scrub-jay surveys were conducted March 11-15, 2019, which documented that there is no occupied scrub-jay habitat within the alignments of the alternatives. Once a preferred alternative is chosen, a listed plant survey will be conducted during design and permitting. Effects determinations made for the federally listed species evaluated are shown in **Table 14**.

Table 14: Federally Listed Species Effects Determinations

Federally Listed Species	Effect Determination
Red-cockaded woodpecker	No effect
Everglade snail kite	No effect
Florida grasshopper sparrow	No effect
Audubon's crested caracara	No effect
Florida scrub-jay	No effect
Wood stork	May affect, not likely to adversely affect
Eastern indigo snake	May affect
Florida sand skink	May affect, not likely to adversely affect
Blue-tailed mole skink	May affect, not likely to adversely affect
Short-leaved rosemary	May affect, not likely to adversely affect
Lewton's polygala	May affect, not likely to adversely affect
Small's jointweed/Sandlace	May affect, not likely to adversely affect
Pygmy fringe-tree	May affect, not likely to adversely affect
Perforate reindeer lichen	May affect, not likely to adversely affect
Avon park rabbit-bells	May affect, not likely to adversely affect
Garrett's scrub balm	May affect, not likely to adversely affect
Highlands scrub hypericum	May affect, not likely to adversely affect
Florida blazing star	May affect, not likely to adversely affect
Scrub lupine	May affect, not likely to adversely affect
Britton's beargrass	May affect, not likely to adversely affect
Florida jointweed	May affect, not likely to adversely affect
Scrub plum	May affect, not likely to adversely affect
Clasping warea	May affect, not likely to adversely affect
Carter's mustard	May affect, not likely to adversely affect
Scrub buckwheat	May affect, not likely to adversely affect
Florida bonamia	May affect, not likely to adversely affect
Scrub pigeon-wing	May affect, not likely to adversely affect
Paper-like whitlow-wort	May affect, not likely to adversely affect

Twenty-five Florida Fish and Wildlife Conservation Commission (FWC) state-listed species were evaluated in this study. Six potentially occupied gopher tortoise burrows were observed within the study area. A 100% gopher tortoise survey will be conducted during design and permitting, and any gopher tortoises observed within 25 feet from construction, will be relocated pursuant to FWC guidelines. No adverse effects are anticipated to state listed species.

Mitigation will be provided for direct and secondary impacts to wetlands and listed species through a purchase of credits from the RCMB or other approved mitigation bank in the service area. Mitigation will also be provided for impacts to the loss of credits in RCMB and for impacts to the loss of state lands within Upper Lakes Basin if the Alternative 4A or 5A with or without ramp alternatives are selected as the final preferred alternative.

CFX commits to the following:

- Alternatives that impact RCMB and Upper Lakes Bain will include a bridge section.
- The *Standard Protection Measures for the Eastern Indigo Snake* will be implemented during project construction.
- Avoidance and minimization of wetland and listed species impacts will continue to be evaluated during the final design, permitting and construction phases of this project and all possible and practicable measures to avoid or minimize these impacts during design, construction and operation will be incorporated.
- Pre-construction surveys for the bald eagle, southeastern American kestrel, Florida sandhill crane, Florida burrowing owl, gopher tortoise, bald eagle, listed plants and any other listed species will be performed as required.
- BMPs to control erosion and sedimentation in accordance with Standard Specifications for Road and Bridge Construction will be implemented.

13.0 REFERENCES

A Species Action Plan for the Florida Burrowing Owl *Athene cunicularia floridana*, Final Draft. November 2013. Florida Fish and Wildlife Conservation Commission.

Bear Management Units (BMU). Florida Fish and Wildlife Conservation Commission. https://myfwc.com/wildlifehabitats/wildlife/bear/bmu/.

Cowardin *et. al*. U.S. Department of Interior - Fish and Wildlife Service. December 1979. Classification of Wetlands and Deepwater Habitats of the United States. USFWS/OBS-79/31.

Eastern Indigo Snake Programmatic Effect Determination Key – Revised July 2017. South Florida Ecological Service Office. US Fish and Wildlife Service.

Gopher Tortoise Permitting Guidelines. April 2008. Florida Fish and Wildlife Conservation Commission.

South Florida Multi-Species Recovery Plan. 1999. U.S. Fish and Wildlife Service, Southeast Region.

Stys, Beth. 1993. Florida Game and Freshwater Fish Commission, Nongame Wildlife Technical Report No. 13, Ecology and Habitat Protection Needs of the Southeastern American Kestrel (*Falco sparverius paulus*) on Large Scale Development Sites. March 1993

USFWS Concurrence in U.S. Army Corps of Engineers use of Eastern Indigo Snake Programmatic Effect Determination Key (North Florida). 2013.

USFWS Crested Caracara Survey Protocol. December 2016.

USFWS Florida Scrub-Jay General Survey Guidelines and Protocols. 2007.

USFWS Standard Protection Measures for the Eastern Indigo Snake. 2013.

APPENDIX A

Advance Notification Comments from USEPA and NMFS

From: White, Roshanna <White.Roshanna@epa.gov>
Sent: Friday, November 2, 2018 9:07 AM
To: Black, Amanda <Amanda.Black@kimley-horn.com>
Cc: Militscher, Chris <Militscher.Chris@epa.gov>; Buskey, Traci P. <Buskey.Traci@epa.gov>
Subject: Re: UPDATED - Advance Notification Package - Poinciana Parkway Extension PD&E - Osceola and Polk Counties, FL

Dear Ms. Black,

The U.S. Environmental Protection Agency reviewed an Advance Notification (AN) Package for the extension of Poinciana Parkway (SR-538). According to the AN, the proposed project would extend from SR-538, the northern end of the existing bridge over Reedy Creek Mitigation Bank, to CR-532 (Osceola Polk Line Road). The EPA understands that the extension of Poinciana Parkway is a new construction.

Based on our preliminary review of the proposed project's three alternatives (Alt. 1, Alt. 4, and Alt. 5), the EPA offers the following environmental comments for your consideration in preparation of the draft Project Development and Environmental Study (PD&E):

Wetlands and Other Surface Waters: The AN states that within a 500-ft. study buffer Alternative 1 GIS analysis indicates 192.42 acres palustrine wetlands and 12.78 acres of lacustrine wetlands, Alternative 4 GIS analysis indicates 198.37 acres palustrine wetlands, and Alternative 5 GIS analysis indicates 219.35 acres palustrine wetlands. Consistent with Section 404 of the Clean Water Act, the selected site should avoid and minimize, to the maximum extent practicable, placement of fill into jurisdictional waters of the U.S., which include wetlands and streams. Additionally, consider that the potential increase in impervious surface may increase storm water runoff and may increase pollutants into nearby water bodies and wetlands as a result of the project. Also, habitat loss due to the new construction would threaten the survival of fish and wildlife. The EPA recommends that the PD&E discuss the actual wetland acreage impact for the proposed project, storm water collection and treatment mechanisms that would be designed to protect the function of surrounding wetlands that will and have already experienced secondary impacts from roadway runoff, and avoidance and minimization measures that would be included in the project design. Compensatory mitigation, best management practices during project construction activities, and an evaluation of low-impact development storm water management practices should be considered during the development of the PD&E. Additionally, it is important to prevent further fragmentation, degradation, and loss of wildlife habitat through preservation of the remaining habitat in the project area.

The EPA acknowledges that the AN indicates that a Wetlands Evaluation and Conceptual Mitigation Plan will be included in the Natural Resources Evaluation (NRE). We request a copy of the NRE document for review and a further understanding of the significance of the impacts to wetlands.

Water Quality and Quantity: The AN states that the proposed project is within the Reedy Creek Drainage Basin. A healthy watershed provides clean drinking water, productive fisheries, and outdoor recreation which support a healthy environment and quality of life. Water movement to and from ground water, and storm water runoff patterns are factors that influence the health of the watershed. Moreover, the proposed project area is within the Florida Surficial Aquifer System and the Biscayne Sole Source Aquifer streamflow and recharge zone. Human activities have the potential to degrade ground water, and it is important to maintain and protect the quality of water because it provides much of the drinking water in Florida. An increase in impervious or semi-impervious surfaces may contribute to surface drainage and non-point sources that may impact surface and groundwater quality. The EPA recommends that the PD&E discuss adequate sediment and erosion control measures that would be used to prevent the discharge of pollutants into water bodies; project measures that would reduce pollution runoff from construction activities; best management practices that would control erosion, sediment release and storm water runoff to minimize adverse impacts on water resources; and ensure drainage design is major part of planning for the project.

Environmental Justice: The AN identified four census block groups within a 1,320-ft buffer. Within that buffer Alternative 1 total population is 1,240 people (1990 population of 700 increased to 1,240 people in 2016) and minority population of 55.40%, Alternative 4 total population is 974 people (1990 population of 375 increased to 974 people in 2016) and minority population of 75.26%, and Alternative 5 Alternative 1 total population is 1,175 people (1990 of population 389 increased to 1,175 people in 2016) and minority population of 76.60%. The potential residential impacts (relocations or partially impacted parcels) for each Alternative is as follows: Alterative 1 would potentially impact 90 parcels, Alternative 4 would potentially impact 75 parcels, and Alternative 5 would potentially impact 65 parcels. Environmental features and community elements help individuals maintain health and well-being. The EPA recommends that the PD&E identify and address the environmental health impacts and safety risks that may have a disproportionate impact on vulnerable populations; develop the project in accordance with Executive Order 12989 on Environmental Justice.

We acknowledge that the AN states that public outreach will be conducted to solicit input and ensure that both social and transportation needs of the community are addressed. We recommend that social impacts are continually evaluated as the project continues into future phases and request to review the Sociocultural Effects Evaluation and Noise Study.

The EPA appreciates the opportunity to provide comments on the proposed project. Please provide updates of future project revisions or submissions of the environmental documents for the proposed project. If you have any questions regarding these comments, please contact me at the information below.

Sincerely,

Roshanna White │Life Scientist │NEPA Program Office
U.S. Environmental Protection Agency│Region IV
61 Forsyth Street SW │Atlanta, GA 30303
Voice: 404-562-9035 │Email: white.roshanna@epa.gov

From: Jennifer Schull - NOAA Federal <jennifer.schull@noaa.gov>
Sent: Thursday, October 4, 2018 2:54 PM
To: Tate, Clif <Clif.Tate@kimley-horn.com>
Cc: Black, Amanda <Amanda.Black@kimley-horn.com>; Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>; Jennifer Schull <Jennifer.Schull@noaa.gov>
Subject: NMFS Response: Poinciana Parkway Extension from Poinciana Parkway to CR 532

Dear Mr. Tate,

NOAA's National Marine Fisheries Service (NMFS) reviewed the Advanced Notification Package for the road improvement project along Poinciana Parkway Extension (State Road 538) from Poinciana Parkway to County Road 532 in Osceola County, Florida (CFX project number 599-224).

Based on the project location, information provided in the advanced notification package and GIS-based analysis of impacts, NMFS concludes that essential fish habitat (EFH) would not be impacted by the proposed project; accordingly, we offer no comments pursuant to the EFH provisions of the Magnuson-Stevens Act (P.L. 104-297); and this project will not require an EFH Assessment. However, the freshwater wetlands within the project corridor provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support aquatic ecosystems. Through hydrological connections, these wetlands also contribute plant material and other usable nutrients (both dissolved and particulate organic matter) into aquatic food webs that include recreationally, commercially, and ecologically important species downstream. If wetland impacts are unavoidable, sequential minimization and mitigation should take place. In addition to the direct impacts from filling wetlands, construction activities may impact adjacent wetlands through sedimentation and runoff.

The NMFS is not aware of any threatened or endangered species or critical habitat under NMFS' jurisdiction within the project area. However, it should be noted that a "no effect" determination must be made by the action agency and the reasoning underlying the determination should be documented in a project file. Please coordinate closely with the U.S. Fish and Wildlife Service for other species listed under the Endangered Species Act that may require consultation.

We appreciate the opportunity to provide these comments. The comments regarding sequential mitigation are in accordance with the Fish and Wildlife Coordination Act. Further consultation on this matter is not necessary unless future modifications are proposed and you believe that the proposed action may result in adverse impacts to EFH Please direct any future correspondence on this project to Ms. Jennifer Schull at our West Palm Beach field office ((561) 249-1652, jennifer.schull@noaa.gov, 400 N Congress Avenue, Suite 110, West Palm Beach, Florida 33401.)

--
Jennifer Schull
NOAA Fisheries Southeast Regional Office
Habitat Conservation Division
400 N. Congress Avenue STE 110
West Palm Beach, FL 33401
561 249-1652

APPENDIX B

Florida Natural Areas Inventory (FNAI)

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

February 19, 2019

Tori Bacheler
Kimley-Horn & Associates, Inc.
445 24th Street, Suite 200
Vero Beach, FL 32960

Dear Ms. Bacheler,

Thank you for requesting information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: Poinciana Parkway Extension PD&E Study

Date Received: 02/14/19

Location: Polk County

Based on the information available, this site appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area. Additional consideration should be given to avoid and/or mitigate impacts to these natural resources, and to design land uses that are compatible with these resources.

Element Occurrences

A search of our maps and database indicates that we currently have several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

Federally Listed Species

Our data indicate federally listed species are present on or very near this site, specifically *Plestiodon egregius lividus*, *Polygala lewtonii*, *Aphelocoma coerulescens* and *Plestiodon reynoldsi* (see enclosed map and tables for details). This statement should not be interpreted as a legal determination of presence or absence of federally listed species on a property.

The element occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, element occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Florida Scrub-jay Survey – U.S. Fish and Wildlife Service

This survey was conducted by staff and associates of the Archbold Biological Station from 1992 to 1996. An attempt was made to record all scrub-jay (*Aphelocoma coerulescens*) groups, although most federal lands were not officially surveyed. Each map point represents one or more groups.

This data layer indicates that there are potential scrub-jay populations on or very near your site. For additional information:

Fitzpatrick, J.W., B. Pranty, and B. Stith, 1994, Florida scrub jay statewide map, 1992-1993. U. S. Fish and Wildlife Service Report, Cooperative Agreement no. 14-16-004-91-950.

Managed Areas

Portions of the site appear to be located within the Upper Lakes Basin Watershed, managed by the South Florida Water Management District, and located within the Reedy Creek Mitigation Bank, managed by the Mitigation Resources, LLC.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

The Inventory always recommends that professionals familiar with Florida's flora and fauna conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

Thank you for your use of FNAI services. An invoice will be mailed separately. If I can be of further assistance, please contact me at (850) 224-8207 or at kbrinegar@fnai.fsu.edu.

Sincerely,

Kerri Brinegar

Kerri Brinegar
GIS / Data Services

Encl

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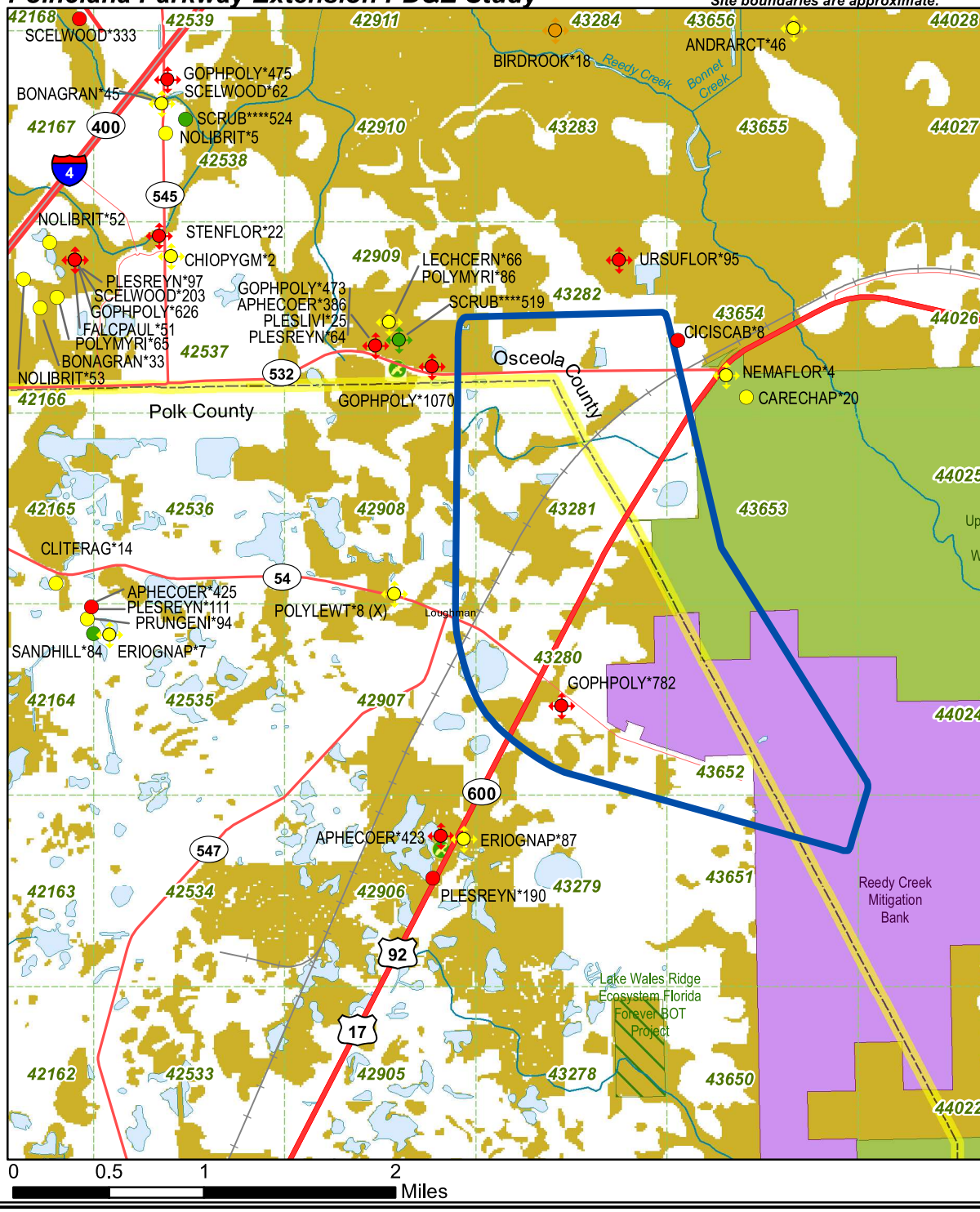
FLORIDA Natural Areas INVENTORY

Poinciana Parkway Extension PD&E Study

Site boundaries are approximate.



Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive

Point Indicates General Vicinity of Element

U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private
- State Aquatic Preserves

N

Land Acquisition Projects

- Florida Forever Board of Trustees Projects

- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

- County Boundary
- Interstate
- Turnpike
- Major Highway
- Local Road
- Railroad [Inactive railroads shown in Gray]
- Water

NOTE
Map should not be interpreted without accompanying documents.

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FNAI ELEMENT OCCURRENCE REPORT on or near

CFX PDE

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description
APHECOER*386	*Aphelocoma coerulescens*	Florida Scrub-Jay	G2?	S2	T	FT	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
APHECOER*423	*Aphelocoma coerulescens*	Florida Scrub-Jay	G2?	S2	T	FT	1992-06-23	DENSE SCRUB, WITH OAKS AND DENSE PALMETTO WITH NO NATURAL OPENINGS.
BIRDROOK*18	Bird Rookery		G5	SNR	N	N	1976-06	CYPRESS SWAMP ALONG CREEK; NESTING SUBSTRATE OF CYPRESS OVER WATER.
CARECHAP*20	*Carex chapmannii*	Chapman's sedge	G3	S3	N	T	1996-03-19	1996-03-19: DRIER OUTER ZONES OF HYDRIC HAMMOCK, WHERE THE SOIL IS MOIST AND HIGH IN HUMUS, BUT NOT CONSTANTLY SATURATED TO THE SURFACE (U96BRI02FLUS).
CICISCAB*8	*Cicindela scabrosa*	Scrub Tiger Beetle	G3	S3	N	N	1992-06-23	SMALL PATCH OF OPEN SCRUB, WITH SOME DENSE AREAS. THE SCRUB INCLUDED 3-5 M OAKS WITH SOME SHORT- AND LONG-NEEDLED PINES AND PALMETTO.
ERIOGNAP*87	*Eriogonum longifolium var. gnaphalifolium*	scrub buckwheat	G4T3	S3	T	E	1977-06-25	1977-06-25: Dry, sandhill type vegetation (Wunderlin and Shuey).
GOPHPOLY*1070	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1987-11-17	Scrub
GOPHPOLY*473	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
GOPHPOLY*782	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1992-06-23	DENSE OAKS AND PALMETTO.

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CFX PDE

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description
LECHCERN*66	*Lechea cernua*	nodding pinweed	G3	S3	N	T	1987-11-17	1987-11-17: DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY(U88CHR01FLUS).
NEMAFLOR*4	*Nemastylis floridana*	celestial lily	G2	S2	N	E	1977-09-04	1977-09-04: RICH, MOIST SOIL AMONG GRASSES AND HERBS BETWEEN THE ROAD AND LOW HARDWOOD FOREST (S77SHUSFFLUS).
PLESLIVI*25	*Plestiodon egregius lividus*	Blue-tailed Mole Skink	G5T2	S2	T	FT	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
PLESREYN*190	*Plestiodon reynoldsi*	Sand Skink	G2	S2	T	FT	2016-08-16	Disturbed scrub adjacent to US highway. Local vicinity includes wetlands and residential development.
PLESREYN*64	*Plestiodon reynoldsi*	Sand Skink	G2	S2	T	FT	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
POLYLEWT*8	*Polygala lewtonii*	Lewton's polygala	G2	S2S3	E	E	1981-03-23	OPEN OAK PASTURE
POLYMYRI*86	*Polygonella myriophylla*	Small's jointweed	G3	S3	E	E	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.

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CFX PDE

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description
SCRUB****519	Scrub		G2	S2	N	N	2004	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
URSUFLOR*95	*Ursus americanus floridanus*	Florida Black Bear	G5T4	S4	N	N	2016	Large area of pine plantation, mesic and wet flatwoods, and dome and basin swamps; Largely private commercial timberland, nurseries, and small neighborhoods; public lands are dominated by pine plantation but also have flatwoods interspersed with dome swamps and patches of scrub; Large area of sand pine and oak scrub, mesic flatwoods, sandhill, depression marshes and hardwood swamps, pine plantation; regular harvesting of sand pine (U05SIM01FLUS).

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(850) 681-9364 Fax

Florida Natural Areas Inventory

Biodiversity Matrix Report

Matrix Unit ID: 42907

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Likely					
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Sandhill		G3	S2	N	N
Sandhill upland lake		G3	S2	N	N
Potential					
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 42908

Likely

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Scrub		G2	S2	N	N
Upland hardwood forest		G5	S3	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT

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Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 42909

Documented

Scrub		G2	S2	N	N

Documented-Historic

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Lechea cernua	nodding pinweed	G3	S3	N	T
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Polygonella myriophylla	Small's jointweed	G3	S3	E	E

Likely

Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Mesic flatwoods		G4	S4	N	N

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Florida Natural Areas Inventory

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Mycteria americana	Wood Stork	G4	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 43279					
Likely					
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE

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Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43280

Likely

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Sandhill upland lake		G3	S2	N	N
Upland hardwood forest		G5	S3	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T

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Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43281

Likely

Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43282

Likely

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT

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Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Scrub		G2	S2	N	N
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N

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Florida Natural Areas Inventory

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Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 43651					
Likely					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43652

Likely

Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 43653					
Likely					
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N

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Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43654

Documented

Carex chapmannii	Chapman's sedge	G3	S3	N	T
Cicindela scabrosa	Scrub Tiger Beetle	G3	S3	N	N

Likely

Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 44023

Likely

Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T

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Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 44024

Likely

Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea carteri	Carter's warea	G3	S3	E	E

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Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

Elements and Element Occurrences

An **element** is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature.

An **element occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location.

Element Ranking and Legal Status

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range).
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
GX = Believed to be extinct throughout range.
GXC = Extirpated from the wild but still known from captivity or cultivation.
G#? = Tentative rank (e.g., G2?).
G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
G#T#Q = Same as above, but validity as subspecies or variety is questioned.
GU = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
GNR = Element not yet ranked (temporary).
GNRTNR = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
S4 = Apparently secure in Florida (may be rare in parts of range).
S5 = Demonstrably secure in Florida.
SH = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
SX = Believed to be extirpated throughout Florida.
SU = Unrankable; due to a lack of information no rank or range can be assigned.
SNA = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
SNR = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
E = Endangered: species in danger of extinction throughout all or a significant portion of its range.
E, T = Species currently listed endangered in a portion of its range but only listed as threatened in other areas
E, PDL = Species currently listed endangered but has been proposed for delisting.
E, PT = Species currently listed endangered but has been proposed for listing as threatened.
E, XN = Species currently listed endangered but tracked population is a non-essential experimental population.
T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
PE = Species proposed for listing as endangered
PS = Partial status: some but not all of the species' infraspecific taxa have federal
PT = Species proposed for listing as threatened
SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: http://www.doacs.state.fl.us/pi/.

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

A = Excellent estimated viability
A? = Possibly excellent estimated viability
AB = Excellent or good estimated viability
AC = Excellent, good, or fair estimated viability
B = Good estimated viability
B? = Possibly good estimated viability
BC = Good or fair estimated viability
BD = Good, fair, or poor estimated viability
C = Fair estimated viability
C? = Possibly fair estimated viability
CD = Fair or poor estimated viability
D = Poor estimated viability
D? = Possibly poor estimated viability
E = Verified extant (viability not assessed)
F = Failed to find
H = Historical
NR = Not ranked, a placeholder when an EO is not (yet) ranked.
U = Unrankable
X = Extirpated

*For additional detail on the above ranks see: http://www.natureserve.org/explorer/eorankguide.htm

FNAI also uses the following EO ranks:

H? = Possibly historical
F? = Possibly failed to find
X? = Possibly extirpated

The following offers further explanation of the H and X ranks as they are used by FNAI:

The rank of H is used when there is a lack of recent field information verifying the continued existence of an EO, such as (a) when an EO is based only on historical collections data; or (b) when an EO was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. This definition of the H rank is dependent on an interpretation of what constitutes "recent" field information. Generally, if there is no known survey of an EO within the last 20 to 40 years, it should be assigned an H rank. While these time frames represent suggested maximum limits, the actual time period for historical EOs may vary according to the biology of the element and the specific landscape context of each occurrence (including anthropogenic alteration of the environment). Thus, an H rank may be assigned to an EO before the maximum time frames have lapsed. Occurrences that have not been surveyed for periods exceeding these time frames should not be ranked A, B, C, or D. The higher maximum limit for plants and communities (i.e., ranging from 20 to 40 years) is based upon the assumption that occurrences of these elements generally have the potential to persist at a given location for longer periods of time. This greater potential is a reflection of plant biology and community dynamics. However, landscape factors must also be considered. Thus, areas with more anthropogenic impacts on the environment (e.g., development) will be at the lower end of the range, and less-impacted areas will be at the higher end.

The rank of X is assigned to EOs for which there is documented destruction of habitat or environment, or persuasive evidence of eradication based on adequate survey (i.e., thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location).

APPENDIX C

USFWS Information for Planning and Consultation (IaPC)

Trust Resources

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Field Office
1339 20th Street
Vero Beach, FL 32960-3559
Phone: (772) 562-3909 Fax: (772) 562-4288
http://fws.gov/verobeach

In Reply Refer To:
Consultation Code: 04EF2000-2019-SLI-0508
Event Code: 04EF2000-2019-E-01304
Project Name: Poinciana Parkway Extension PDE

February 13, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

South Florida Ecological Services Field Office
1339 20th Street
Vero Beach, FL 32960-3559
(772) 562-3909

Project Summary

Consultation Code: 04EF2000-2019-SLI-0508

Event Code: 04EF2000-2019-E-01304

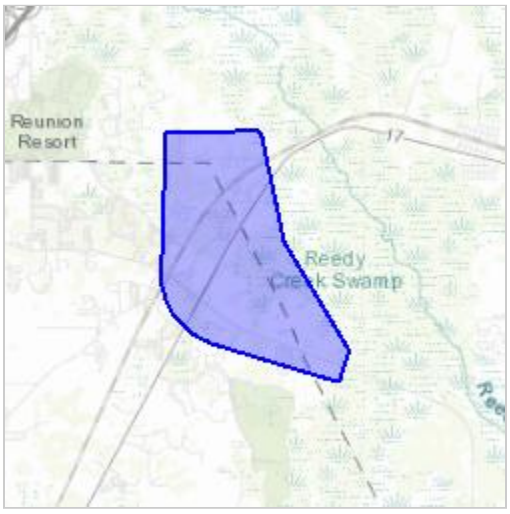
Project Name: Poinciana Parkway Extension PDE

Project Type: TRANSPORTATION

Project Description: PD&E study evaluating alternatives for the extension of Poinciana Parkway to CR 532

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/28.24377500952129N81.55387330085358W



Counties: Osceola, FL | Polk, FL

Endangered Species Act Species

There is a total of 35 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Florida Bonneted Bat *Eumops floridanus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8630	Endangered
Florida Panther *Puma (=Felis) concolor coryi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1763 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/8/office/41420.pdf	Endangered
Puma (=mountain Lion) *Puma (=Felis) concolor (all subsp. except coryi)* Population: FL No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6049	Similarity of Appearance (Threatened)

Birds

NAME	STATUS
Audubon's Crested Caracara *Polyborus plancus audubonii* Population: FL pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8250	Threatened
Everglade Snail Kite *Rostrhamus sociabilis plumbeus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7713 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/1221/office/41420.pdf	Endangered
Florida Grasshopper Sparrow *Ammodramus savannarum floridanus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/32	Endangered
Florida Scrub-jay *Aphelocoma coerulescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6174	Threatened
Ivory-billed Woodpecker *Campephilus principalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8230	Endangered
Red-cockaded Woodpecker *Picoides borealis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered
Whooping Crane *Grus americana* Population: U.S.A. (CO, ID, FL, NM, UT, and the western half of Wyoming) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential
Wood Stork *Mycteria americana* Population: AL, FL, GA, MS, NC, SC No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8477 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/124/office/41420.pdf	Threatened

Reptiles

NAME	STATUS
American Alligator *Alligator mississippiensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/776	Similarity of Appearance (Threatened)
Bluetail Mole Skink *Eumeces egregius lividus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2203 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/178/office/41420.pdf	Threatened
Eastern Indigo Snake *Drymarchon corais couperi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/646	Threatened
Sand Skink *Neoseps reynoldsi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4094 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/179/office/41420.pdf	Threatened

Flowering Plants

NAME	STATUS
Avon Park Harebells *Crotalaria avonensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7093	Endangered
Britton's Beargrass *Nolina brittoniana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4460	Endangered
Carter's Mustard *Warea carteri* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5583	Endangered
Florida Bonamia *Bonamia grandiflora* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2230	Threatened
Florida Ziziphus *Ziziphus celata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2950	Endangered
Highlands Scrub Hypericum *Hypericum cumulicola* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2940	Endangered
Lewton's Polygala *Polygala lewtonii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6688	Endangered
Papery Whitlow-wort *Paronychia chartacea* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1465	Threatened
Pigeon Wings *Clitoria fragrans* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/991	Threatened
Pygmy Fringe-tree *Chionanthus pygmaeus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1084	Endangered
Sandlace *Polygonella myriophylla* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5745	Endangered
Scrub Blazingstar *Liatris ohlingerae* No critical habitat has been designated for this species.	Endangered

NAME	STATUS
Species profile: https://ecos.fws.gov/ecp/species/864	
Scrub Buckwheat *Eriogonum longifolium var. gnaphalifolium* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5940	Threatened
Scrub Lupine *Lupinus aridorum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/736	Endangered
Scrub Mint *Dicerandra frutescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/799	Endangered
Scrub Plum *Prunus geniculata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2238	Endangered
Short-leaved Rosemary *Conradina brevifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2929	Endangered
Wide-leaf Warea *Warea amplexifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/412	Endangered
Wireweed *Polygonella basiramia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1718	Endangered

Lichens

NAME	STATUS
Florida Perforate Cladonia *Cladonia perforata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7516	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX D

Pre-Coordination for Federally Listed Wildlife Species Report and

USFWS Meeting Minutes

USFWS Pre-Coordination for Federally Listed Wildlife Species

Poinciana Parkway Extension (SR 538) From Poinciana Parkway to CR 532

CFX Project Number: 599-224

Prepared for:

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

OCTOBER 2018

Prepared by:

Kimley-Horn and Associates, Inc.

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FIGURES

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Poinciana Parkway Extension is a proposed tolled expressway improvement project that includes widening the existing Poinciana Parkway to 4-lanes and extending it to CR 532. The goals of this proposed limited-access facility include:

- Reduced congestion and delays on local roads
- Expand regional connectivity
- Provide transportation infrastructure to support planned growth
- Provide consistency with local plans and policies
- Enhance safety

1.2 PURPOSE OF REPORT

This document is provided to facilitate the U.S. Fish and Wildlife Service (USFWS) determination of the sufficient level of survey effort needed to address impacts to federally listed species within the study area. Further, we request written concurrence on the list of federal species being evaluated in this study. Portions of the current study area have been the subject of several studies conducted by the Osceola County Expressway Authority, Florida Department of Transportation (FDOT), and the Central Florida Expressway (CFX). An Advanced Notification Package was also recently sent to state and federal agencies for the current Project Development and Environment (PD&E) Study. Most recently, this study area has been previously reviewed for potential impacts to federally listed species as part of CFX's *Concept, Feasibility, and Mobility Study* completed in March 2018 utilizing primarily existing land use mapping and Geographic Information Systems (GIS) databases for known listed species occurrences. For this evaluation, field reviews were conducted to refine the habitat mapping and evaluate potential habitat to verify areas that require additional survey.

1.3 PROJECT LOCATION

The project location is identified on **Figure 1**. The study corridor of the proposed Poinciana Parkway Extension generally begins at the southern terminus of the existing Poinciana Parkway at Cypress Parkway, extends along the existing Poinciana Parkway alignment to the Osceola/Polk County line and then extends in a general north/northwest direction to connect with CR 532.

2.0 EXISTING CONDITIONS

In preparing for the initial site visit and surveys, site-specific mapping resources and additional literature were consulted to determine the possible occurrence of federally listed species within the study area. Data subjected to review included:

- Historical and current aerial photography from the FDOT Aerial Photo Look-up System (APLUS) and NearMap

- Habitat and species-specific information obtained from the US Fish and Wildlife Service (USFWS), the Florida Fish and Wildlife Conservation Commission (FWC), Florida Fish and Wildlife Research Institute (FWRI), Florida Geographic Data Library (FGDL), the Florida Natural Areas Inventory (FNAI)

- US Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS) Soil Survey from Polk County (1986)
- USDA/NRCS Soil Survey of Osceola County (1979)
- Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT, 1999)

2.1 LAND USE/LAND COVER

GIS data was obtained from the South Florida Water Management District (SFWMD) (2011) and the Southwest Florida Water Management District (SWFWMD) (2011) to assist in identifying land cover and natural communities. Additionally, field reconnaissance was conducted on September 13, 2018 and October 2, 2018 to verify existing land use. Land covers were classified according to the FLUCFCS. The general land cover within the study area consists of a mixture of developments (residential, commercial, community facilities), wetlands, agriculture (pastures), and native uplands (pine flatwoods, xeric oak, live oak and other hardwood forests). **Table 2-1** provides the FLUCFCS data and acreage within the study area. A FLUCFCS maps is included as **Figure 2.**

Table 2-1: Study Area FLUCFCS Summary and Acreage

FLUCFCS Code	FLUCFCS Description	Acreage
112	Mobile Home Units	91.5
118	Rural Residential	161.3
121	Residential, Medium Density, FSFU	5.3
129	Medium Density Under Construction	139.8
131	Residential, High Density, FSFU	85.0
132	Residential, High Density, FSFU	9.8
140	Commercial and Services	4.4
172	Religious Facilities	1.47
185	Parks and Zoos	12.5
190	Open Land	17.5
211	Improved Pastures	60.2
212	Unimproved Pastures	17.1
213	Woodland Pastures	98.9
241	Tree Nurseries	5.1
310	Herbaceous (Dry Prairie)	43.2
320	Upland Shrub and Bushland	9.5
410	Pine Plantations	48.2
420	Upland Hardwood Forests	4.5
421	Xeric Oak	19.1
427	Live Oak	5.7
434	Upland Mixed Coniferous/Hardwood	13.8
520	Lakes	25.4
530	Reservoirs	30.3
611	Bay Swamps	1.5
617	Mixed Wetland Hardwoods	461.6

FLUCFCS Code	FLUCFCS Description	Acreage
621	Cypress	274.6
625	Hydric Pine Flatwoods	35.9
630	Wetland Forested Mixed	140.8
641	Freshwater Marshes	9.4
644	Emergent Aquatic Vegetation	3.9
743	Spoil Areas	3.0
814	Roads and Highways	145.7
817	Oil, Water, or Gas Long Distance Transmission Lines	39.2
821	Transmission Towers	12.4
831	Electric Power Facilities	41.1

2.2 SOILS

Soils located within the study were determined based on a review of the USDA/NRCS Soil Survey for Polk and Osceola County (**Tables 2-2 and 2-3, respectively**). A NRCS soils map showing the soils types is included as **Figure 3a**.

Table 2-2: Polk County Soils Within the Study Area

Map ID	Soil Name	Skink Soil (Yes/No)
3	Candler sand, 0 to 5 percent slopes	Yes
13	Samsula muck	No
15	Tavares fine sand, 0 to 5 percent slopes	No
17	Smyrna and Myakka fine sands	No
19	Floridana mucky fine sand, depressional	No
21	Immokalee sand	No
22	Pomello fine sand	No
23	Ona fine sand	No
25	Placid and Myakka fine sands, depressional	No
30	Pompano fine sand	No
31	Adamsville fine sand	No
32	Kaliga muck	No
33	Holopaw fine sand, depressional	No
35	Hontoon muck	No
36	Basinger mucky fine sand, depressional	No
42	Felda fine sand	No
46	Astatula sand, 0 to 8 percent slopes	No
47	Zolfo fine sand	No
48	Chobee fine sandy loam, depressional	No
70	Duette fine sand	No
77	Satellite sand	Yes
86	Felda fine sand, depressional	No

Table 2-3: Osceola County Soils Within the Study Area

Map ID	Soil Name	Skink Soil (Yes/No)
1	Adamsville sand, 0 to 2 percent slopes	No
5	Basinger fine sand, 0 to 2 percent slopes	No
12	Floridana fine sand, depressional	No
14	Holopaw fine sand	No
15	Hontoon muck	No
16	Immokalee fine sand	No
17	Kaliga muck	No
22	Myakka fine sand	No
25	Nittaw muck	No
27	Ona fine sand	No
29	Parkwood loamy fine sand, occasionally flooded	No
31	Pits	No
32	Placid fine sand, depressional	No
36	Pompano fine sand	No
37	Pompano fine sand, depressional	No
38	Riviera fine sand	No
39	Riviera fine sand, depressional	No
40	Samsula muck	No
41	Satellite sand	Yes
42	Smyrna fine sand	No

Satellite sand and Candler sand are the only suitable skink soils found within the study area (See **Figure 3b** for the location of these soils). These areas are also at elevations of 82 feet NGVD or greater which is also a criterion used for determining potential for sand and bluetail mole skinks.

3.0 FEDERALLY LISTED SPECIES WITHIN THE STUDY AREA

Information on the potential occurrence of federal and state listed species within the project area was assessed based on a review of available literature and databases. Literature reviews were conducted and data was collected from numerous regulatory agencies including the USFWS, NRCS, FWC, FWRI, SFWMD, SWFWMD, Florida Department of Agriculture and Consumer Services (FDACS), FWC's Eagle Nest Locator Database (https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx, accessed 9/10/2018), FWC's Waterbird Colony Locator (http://atoll.floridamarine.org/WaterBirds/, accessed 9/10/2018), the Alternative Corridor Evaluation Report (ACER) for Interstate 4 Poinciana Parkway Connector (2015), and the Concept, Feasibility, and Mobility Study (March 2018). A standard data report from the FNAI and an IPaC Trust Resources Report from USFWS, which were included in the Feasibility Study, were also reviewed. Finally, GIS data from the FGDL was reviewed.

The study area lies within USFWS consultation areas for the Everglade snail kite (*Rostrhamus sociabilis plumbeus*), Audubon's crested caracara (*Polyborus plancus audubonii*), Florida scrub-jay (*Aphelocoma coerulescens*), red-cockaded woodpecker (*Picoides borealis*), sand skink (*Neoseps reynoldsi*), bluetail mole skink (*Eumeces egregious lividus*) and Lake Wales Ridge plants.

The following federally listed species have a possibility of occurrence within the study area:

Red-cockaded Woodpecker: The study area is within the USFWS consultation area for red-cockaded woodpecker.

Florida Panther (*Puma concolor coryi*): There are telemetry records from 1998 and 2000 within and near the study area; however, the study area does not fall within the USFWS consultation area for the panther. The project is not within a primary, secondary of dispersal zone as defined in the Recovery Plan 3rd edition. Suitable habitat does exist within the study area.

Wood Stork (*Mycteria americana*): Four wood stork core foraging areas overlap the study area. Additionally, there is suitable habitat within the study area.

Audubon's Crested Caracara: The study area is within the USFWS consultation area for Audubon's crested caracara and suitable habitat (open pastures) exists within the study area.

Florida Scrub-jay: The study area is within the USFWS consultation area for Florida scrub jay and there are documented occurrences of the scrub-jay within and near the study area. Additionally, suitable habitat exists within the study area (xeric oak, scrubby pine flatwoods).

Sand and Bluetail Mole Skink: The study area is within the USFWS consultation area for the sand skink and blue-tailed mole skink; however, there are no documented occurrences within the study area. There are suitable skink soils within the study area. Portions of the study area with suitable skink soils also have elevations exceeding 82 feet NGVD.

Eastern Indigo Snake (*Drymarchon couperi*): There are no documented occurrences of this species within the study area. However, suitable habitat exists within the study area.

The study area is not within any USFWS designated critical habitat.

Based on field reconnaissance conducted on September 13, 2018 and October 2, 2018 and existing database review, the following species are not expected to occur in the study area and no further surveys are proposed.

- Red-Cockaded Woodpecker
- Everglade Snail Kite

For the Eastern indigo snake, there is sufficient habitat and the effects will be evaluated during the PD&E Study based on habitat impact and the *Eastern Indigo Snake Programmatic Effect Determination Key* (South Florida). No specific surveys are proposed for this species.

A formal survey is proposed to confirm presence or absence of the following species:

- Audubon's Crested Caracara
- Florida Scrub-Jay
- Sand and Bluetail Mole Skink

As discussed further below, preliminary pedestrian surveys have documented the presence of sand skink and bluetail mole skink tracks. During the design phase, updated pedestrian surveys and/or cover board surveys will be conducted in suitable skink habitats.

Proposed survey methodologies for these species are discussed below.

4.0 PROPOSED SURVEY METHODOLOGY

4.1 AUDUBON'S CRESTED CARACARA

Prior to conducting field reconnaissance, crested caracara monitoring stations were mapped within appropriate habitats, such as pastureland or lightly wooded areas. Stations were not placed in unsuitable habitat that would not be utilized for caracaras, such as cypress domes and forested wetlands. The monitoring stations were established using GIS data and following the guidelines listed in the 2016 *USFWS Crested Caracara Survey Protocol*. Proposed survey stations are listed in **Table 4-1**, along with FLUCFCS types within a 1,500-meter buffer.

Table 4-1: Caracara Survey Locations

Survey Areas	Station Number	FLUCFCS Type(s)
Observation Block 1	1	211: Improved Pastures 213: Woodland Pastures 430: Upland Coniferous Forests
	2	
	3	
Observation Block 2	1	213: Woodland Pastures 617: Mixed Wetland Hardwoods 621: Cypress

Two Observation Blocks were selected for further review. Observation Block 1 was selected due to the presence of approximately 138 acres of improved pastures, 80 acres of unimproved pastures, 39 acres of woodland pastures, 48 acres of upland coniferous forests, 31 acres of pine flatwoods, 46 acres of hardwood-coniferous mixed forest, and 4 acres of upland hardwood forest within a 1,500-meter buffer. Due to the presence of suitable habitat both within and outside of the PD&E study area, there are three proposed survey stations within Observation Block 1. Three stations were chosen due to several visual obstructions within the Observation Block (heavily forested wetlands and a natural gas facility north of Osceola Polk Line Road). Proposed Observation Block 1 with three proposed survey stations are shown on **Figure 4a**.

Observation Block 2 was initially selected for further analysis due to the presence of woodland pastures just east of US 17/92. However, after further review of the entire 1,500-meter buffer, there are only 36 acres of woodland pastures. There is some additional suitable caracara habitat within the buffer from Observation Block 1 such as improved pastures and upland coniferous forests. However, approximately 75% of the buffer for Observation Block 2 is comprised of heavily forested wetlands, which is unsuitable habitat for the caracara. An additional 10-15% is rural residential within the buffer. Therefore, based on

review of the entire Observation Block 2, it is proposed to delete this station and not require a formal caracara survey. Observation Block 2 is shown on **Figure 4b**.

The field surveys will be performed in accordance with the 2016 *USFWS Crested Caracara Survey Protocol*. Each monitoring station is to be surveyed during eight field events, spaced two weeks apart. Each field survey event will include a morning survey to begin at least 15 minutes prior to sunrise and last for a minimum of three hours. For each survey event, a team of one or two biologists will arrive at a monitoring station. From a stationary position within a vehicle, the surveyors will search for caracara activity and presence of other birds that might elicit a response from caracara or indicate the presence of carrion that may attract caracara. Surveys will be conducted using high-power binoculars and a spotting scope. Field biologists will remain in contact within one another via cell phones. A photographic log of all potential caracara habitat can be found in **Appendix A**.

The Crested Caracara Survey Form (updated 12/9/2016), will be used as the field data sheets to record observations. Information to be recorded includes general survey data such as the date, start and stop times, station number, and weather conditions. Caracara observations will include the number of birds, estimated age, time of day, flight data, nesting data, and general observations. In addition to the data sheets, each surveyor will document all caracara observations on an aerial map of the survey site. Other wildlife observations will also be recorded on the data sheets.

4.2 FLORIDA SCRUB-JAY

Field reconnaissance included confirming suitable Florida scrub-jay habitat within the PD&E study area. Based on field mapping efforts, Florida scrub-jay monitoring stations were placed within appropriate habitats, such as xeric oak and upland scrub. The monitoring stations were established using GIS data and following the guidelines listed in the USFWS *Florida Scrub-Jay General Survey Guidelines and Protocols* (2007). Potential survey areas are outlined in **Table 4-2**, with a map of proposed transect locations shown on **Figure 5**. Proposed call stations were established along eight transects in suitable vegetative communities within the project study area. The positions of the stations will be transferred to a handheld GPS unit for location in the field. A photographic log of all potential scrub-jay habitat can be found in **Appendix A**.

The field surveys will be performed in accordance with the USFWS Florida Scrub-Jay Survey Protocol. Each monitoring station will be surveyed on at least five separate dates. Each field survey event will start approximately one hour after sunrise and will conclude before mid-day. Florida scrub-jay vocalizations that include territorial scolds and the female “hiccup” will be obtained from the Macaulay Library at the Cornell Lab of Ornithology. These vocalizations will be broadcast at every station for at least one minute in each cardinal direction, for a total of four or more minutes per station.

Data recorded during the survey will include the date, scientist name, transect and call station number, start time, wind speed and direction, temperature, precipitation and visibility, number of adult and juveniles observed, direction of flight and location, as well as any other notes of importance (i.e., other species observed). In addition to the data sheets, each surveyor will document all scrub-jay observations on an aerial map of the survey site. If scrub-jay territorial behavior is observed, the calls will be stopped, and the location(s) of observed jays, and territorial behaviors will be recorded. If any accipiters or other Florida scrub-jay predators are observed in the survey area, the calls will be stopped and resumed when the predator is gone.

Table 4-2: Florida Scrub-Jay Locations

Transects	FLUCFCS Type(s)
T1 (3 call stations)	421: Xeric Oak
T2 (2 call stations)	421: Xeric Oak
T3 (1 call station)	434: Hardwood-Conifer Mixed
T4 (3 call stations)	310: Herbaceous (dry prairie) & 421: Xeric Oak
T5 (3 call stations)	421: Xeric Oak & 434: Hardwood-Conifer Mixed
T6 (2 call stations)	421: Xeric Oak
T7 (2 call stations)	421: Xeric Oak
T8 (3 call stations)	421: Xeric Oak

4.3 SAND AND BLUETAIL MOLE SKINK

Field reconnaissance included a pedestrian visual survey in areas with suitable skink soils (see **Figure 3b**) within the PD&E study area in accordance with the *USFWS Sand Skink and Bluetail Mole Skink Survey Protocol* (2012). Positive identification of sinusoidal skink tracks was recorded and photographed. During the recent field reconnaissance conducted on September 13, 2018 and October 2, 2018, habitat and skink tracks were observed adjacent to Alternative 1, near the Kinney Harmon Cemetery. Since skink tracks were observed, 80-foot buffers were created from the locations where tracks were documented. These buffers are considered occupied skink habitat and are shown in **Figure 6**. No further survey is proposed in this area. Several other areas with suitable skink soils are present; however, many of these areas are either within rural neighborhoods, active horse pastures, have already been developed with roadways or residential neighborhoods, or are currently under construction.

The coverboard survey will be conducted during design and permitting in accordance with the *USFWS Sand and Bluetail Mole Skink Survey Protocol*. Where open sandy areas are present within suitable habitat, coverboards (2 feet x 2 feet untreated plywood boards) will be placed at a density of approximately 40 boards per acre. The boards will be placed to ensure full contact of the coverboard with the soil surface. The coordinates of the boards will be mapped utilizing GPS. The coverboards will be allowed to acclimate for 7 days prior to the first sampling event. A total of 4 sampling events/site visits will be conducted and the results will be recorded on field data sheets. Coverboards will be lifted and checked for evidence of skink activity (i.e. tracts or skink presence) once a week for 4 consecutive weeks. Coverboard deployment will take place within the appropriate survey window.

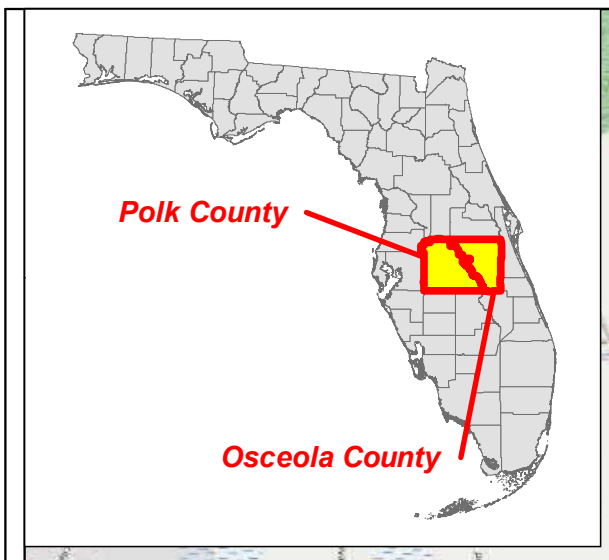
A photographic log showing observed skink tracts can be found in **Appendix A**.

5.0 SUMMARY

CFX requests that the USFWS provide written concurrence regarding the survey methodologies and locations described in this report and the list of federal species evaluated for this project. It is requested the USFWS provide written concurrence that though the project is within the consultation area for the red-cockaded woodpecker and the Everglade snail kite, based on the lack of suitable habitat within the study area formal surveys are not required for either species. Further, because the project is not in the

consultation area or the primary, secondary or dispersal zones of the Florida panther no further consultation with USFWS is required for the Florida panther.

FIGURES



NORTH

0 1,000 2,000 Feet

Legend

- Study Area
- Alternative 1
- Alternative 4
- Alternative 5

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Source: Aerials courtesy of ESRI

Project Location Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 1	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 2,000 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

NORTH

0 600 1,200 Feet

Osceola Polk Line Rd

17

92

Poinciana Parkway

Legend

- Study Area
- Alternative 1
- Alternative 4
- Alternative 5

FLUCFCS Code: Description

- 112: Mobile Home Units
- 118: Rural Residential
- 121: Low Density Under Construction
- 129: Medium Density Under Construction
- 131: Fixed Single Family Units
- 132: Mobile Home Units (6+ units per acre)
- 140: Commercial and Services
- 172: Religious
- 185: Parks and Zoos
- 190: Open Land
- 211: Improved Pastures
- 212: Unimproved Pastures
- 213: Woodland Pastures
- 241: Tree Nurseries
- 310: Herbaceous (Dry Prairies)
- 320: Shrub and Brushland
- 410: Upland Coniferous Forests
- 414: Pine Plantations
- 420: Upland Hardwood Forests
- 421: Xeric Oak
- 427: Live Oak
- 434: Hardwood-Conifer Mixed
- 520: Lakes
- 530: Reservoirs
- 611: Bay Swamps
- 617: Mixed Wetland Hardwoods
- 621: Cypress
- 625: Hydric Pine Flatwoods
- 630: Wetland Forested Mixed
- 641: Freshwater Marshes
- 644: Emergent Aquatic Vegetation
- 743: Spoil Areas
- 814: Roads and Highways
- 817: Oil, Water or Gas Long Distance Transmission Lines
- 821: Transmission Towers
- 831: Electric Power Facilities

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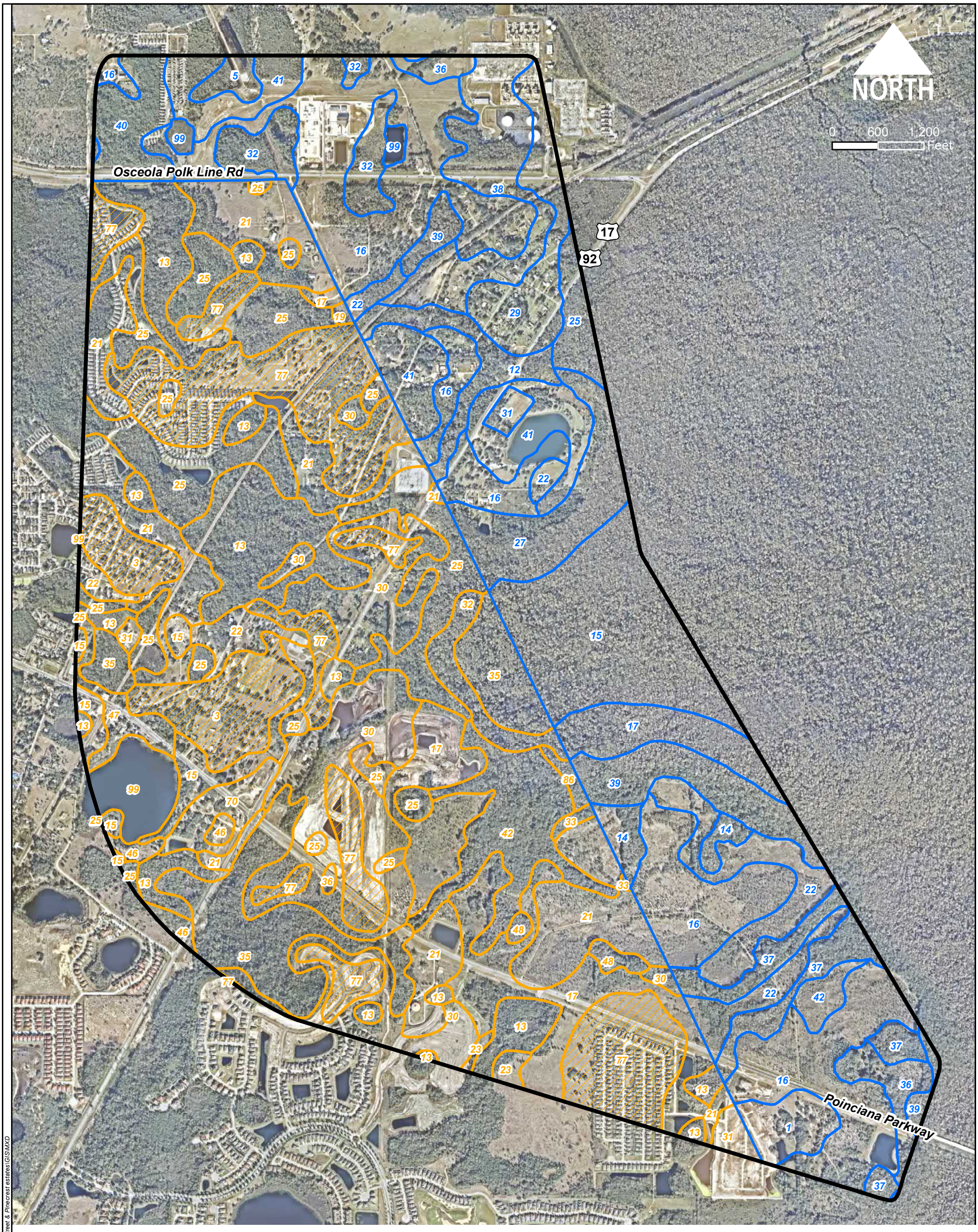
Aerials courtesy of NearMap (2017)

Florida Land Use, Cover, and Forms Classification System Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

Figure 2	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 1,200 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



Legend

Study Area

NRCS Soils Within Osceola County

- 1: Adamsville sand, 0 to 2 percent slopes
- 5: Basinger fine sand, 0 to 2 percent slopes
- 12: Floridana fine sand, depressional
- 14: Holopaw fine sand
- 15: Hontoon muck
- 16: Immokalee fine sand
- 17: Kaliga muck
- 22: Myakka fine sand
- 25: Nittaw muck
- 27: Ona fine sand
- 29: Parkwood loamy fine sand, occasionally flooded
- 31: Pits
- 32: Placid fine sand, depressional
- 36: Pompano fine sand
- 37: Pompano fine sand, depressional
- 38: Riviera fine sand
- 39: Riviera fine sand, depressional
- 40: Samsula muck
- 41: Satellite sand
- 42: Smyrna fine sand
- 99: Water

NRCS Soils Within Polk County

- 3: Candler sand, 0 to 5 percent slopes
- 13: Samsula muck
- 15: Tavares fine sand, 0 to 5 percent slopes
- 17: Smyrna and Myakka fine sands
- 19: Floridana mucky fine sand, depressional
- 21: Immokalee sand
- 22: Pomello fine sand
- 23: Ona fine sand
- 25: Placid and Myakka fine sands, depressional
- 30: Pompano fine sand
- 31: Adamsville fine sand
- 32: Kaliga muck
- 33: Holopaw fine sand, depressional
- 35: Hontoon muck
- 36: Basinger mucky fine sand, depressional
- 42: Felda fine sand
- 46: Astatula sand, 0 to 8 percent slopes
- 47: Zolfo fine sand
- 48: Chobee fine sandy loam, depressional
- 70: Duette fine sand
- 77: Satellite sand
- 86: Felda fine sand, depressional
- 99: Water

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Aerials courtesy of NearMap

Natural Resources Conservation Service (NRCS) Soils Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 3A	*CFX PROJECT NUMBER: 599-224*	*DATE:* *OCTOBER 2018*	*SCALE:* 1 inch = 1,200 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

NORTH

0 600 1,200 Feet

Osceola Polk Line Rd

17

92

Poinciana Parkway

41

77

3

Legend

- Study Area
- Alternative 1
- Alternative 4
- Alternative 5

NRCS Soils Within Osceola County

- 41: Satellite sand

NRCS Soils Within Polk County

- 3: Candler sand, 0 to 5 percent slopes
- 77: Satellite sand

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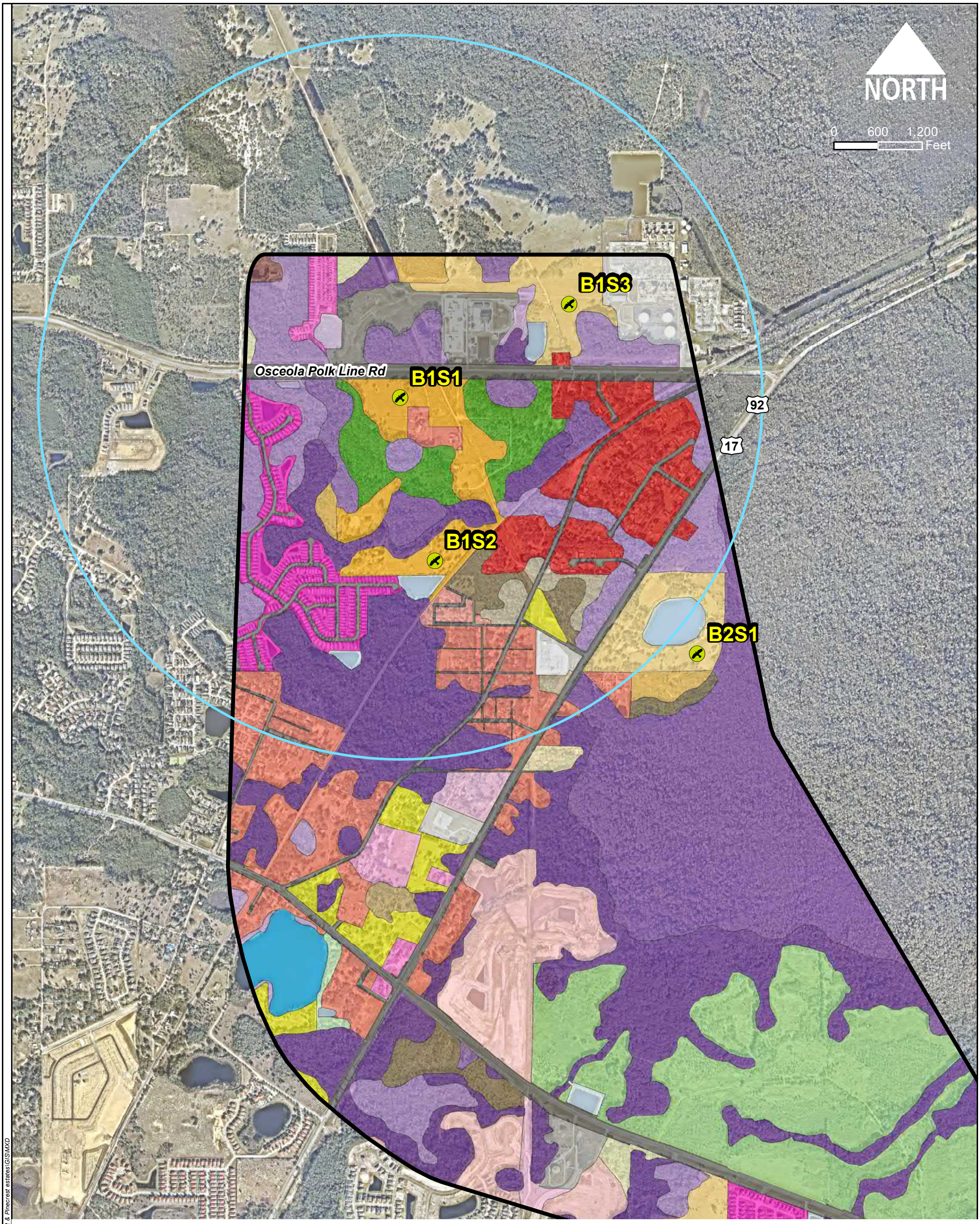
Aerials courtesy of NearMap

Sand and Bluetail Mole Skink Soils Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 3B	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 1,200 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



Legend

- Potential Caracara Station
- Observation Block 1 (1500m-buffer)
- Study Area

FLUCFCS Code: Description

- 112: Mobile Home Units
- 118: Rural Residential
- 121: Low Density Under Construction
- 129: Medium Density Under Construction
- 131: Fixed Single Family Units
- 132: Mobile Home Units (6+ units per acre)
- 140: Commercial and Services
- 172: Religious
- 185: Parks and Zoos
- 190: Open Land
- 211: Improved Pastures
- 212: Unimproved Pastures
- 213: Woodland Pastures
- 241: Tree Nurseries
- 310: Herbaceous (Dry Prairies)
- 320: Shrub and Brushland
- 410: Upland Coniferous Forests
- 414: Pine Plantations
- 420: Upland Hardwood Forests
- 421: Xeric Oak
- 427: Live Oak
- 434: Hardwood-Conifer Mixed
- 520: Lakes
- 530: Reservoirs
- 611: Bay Swamps
- 617: Mixed Wetland Hardwoods
- 621: Cypress
- 625: Hydric Pine Flatwoods
- 630: Wetland Forested Mixed
- 641: Freshwater Marshes
- 644: Emergent Aquatic Vegetation
- 743: Spoil Areas
- 814: Roads and Highways
- 817: Oil, Water or Gas Long Distance Transmission Lines
- 821: Transmission Towers
- 831: Electric Power Facilities

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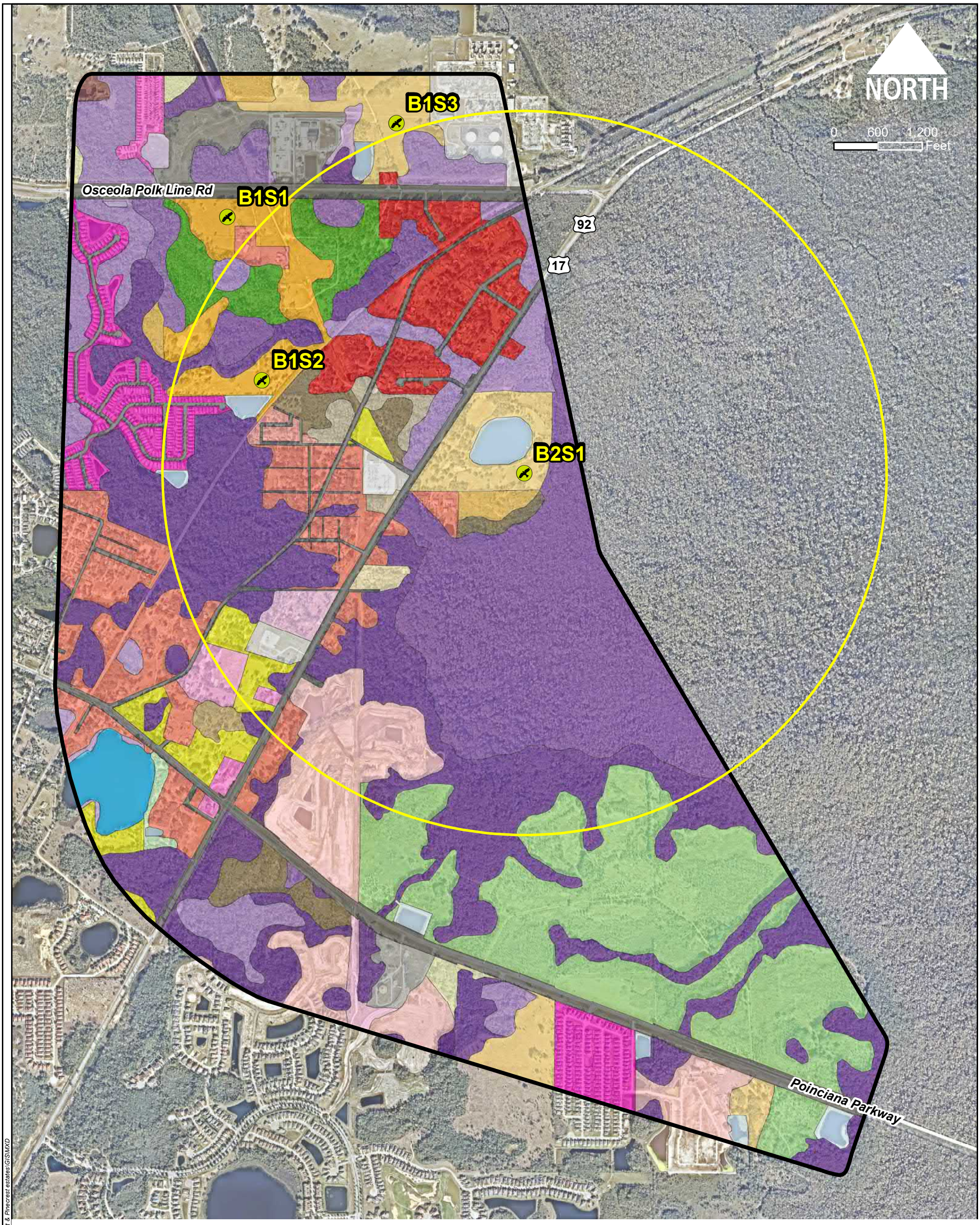
Aerials courtesy of NearMap

Observation Block 1 - Crested Caracara Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 4A	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 1,250 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



Legend

- Potential Caracara Station
- Observation Block 2 (1500m-buffer)
- Study Area

FLUCFCS Code: Description

- 112: Mobile Home Units
- 118: Rural Residential
- 121: Low Density Under Construction
- 129: Medium Density Under Construction
- 131: Fixed Single Family Units
- 132: Mobile Home Units (6+ units per acre)
- 140: Commercial and Services
- 172: Religious
- 185: Parks and Zoos
- 190: Open Land
- 211: Improved Pastures
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- 831: Electric Power Facilities

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Aerials courtesy of NearMap

Observation Block 2 - Crested Caracara Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 4B	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 1,250 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

NORTH

0 600 1,200 Feet

Osceola Polk Line Rd

17

92

T1

T2

T3

T4

T5

T6

T7

T8

Poinciana Parkway

Legend

- Possible Scrub-Jay Stations
- Possible Scrub Jay Transects
- Study Area
- Alternative 1
- Alternative 4
- Alternative 5

FLUCFCS Code: Description

- 112: Mobile Home Units
- 118: Rural Residential
- 121: Low Density Under Construction
- 129: Medium Density Under Construction
- 131: Fixed Single Family Units
- 132: Mobile Home Units (6+ units per acre)
- 140: Commercial and Services
- 172: Religious
- 185: Parks and Zoos
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- 211: Improved Pastures
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- 213: Woodland Pastures
- 241: Tree Nurseries
- 310: Herbaceous (Dry Prairies)
- 320: Shrub and Brushland
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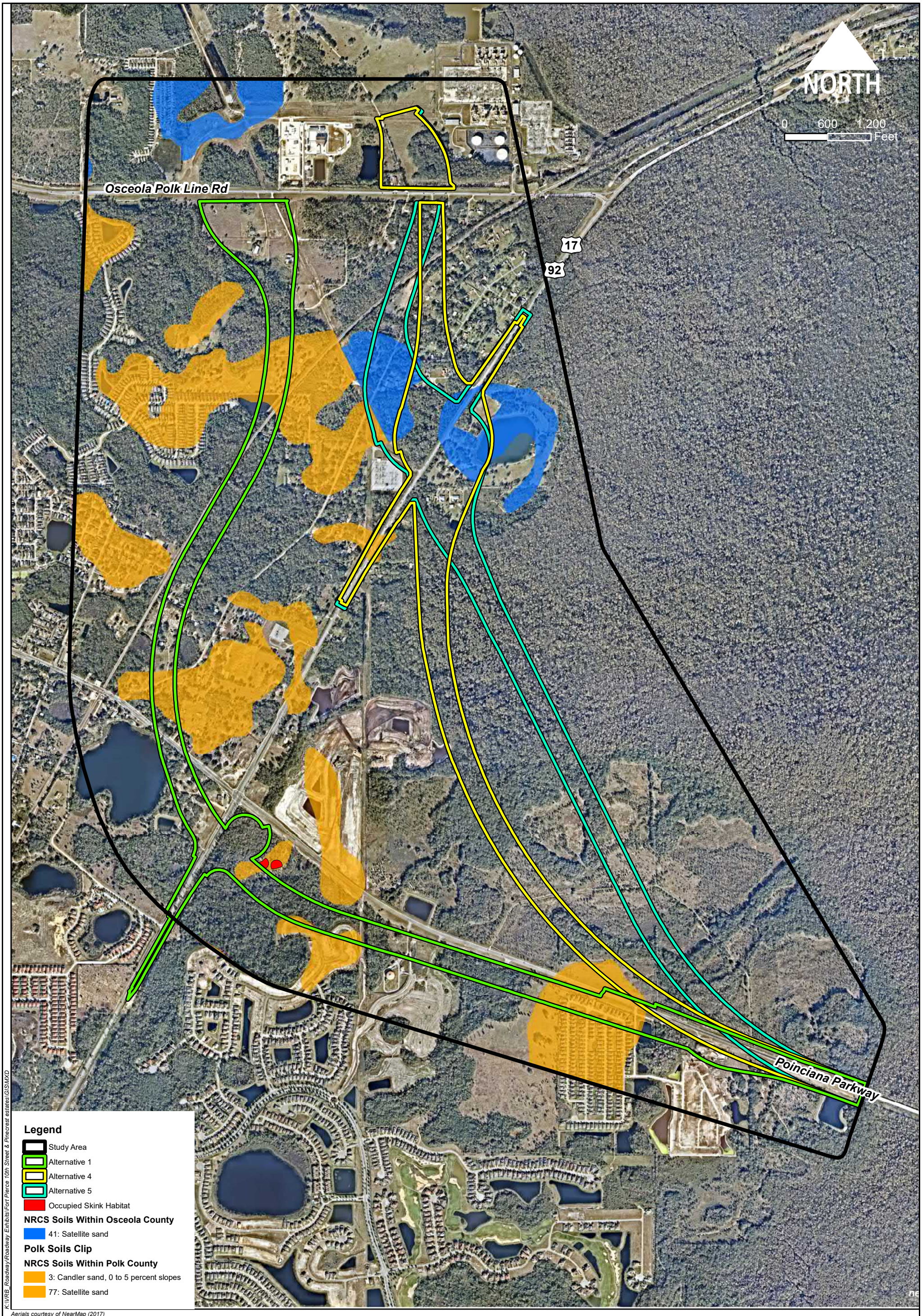
Aerials courtesy of NearMap

Potential Florida Scrub-Jay Survey Transect Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 5	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 1,200 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



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Aerials courtesy of NearMap (2017)

Occupied Skink Habitat Map

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

FIGURE 6	CFX PROJECT NUMBER: 599-224	DATE: OCTOBER 2018	SCALE: 1 inch = 1,200 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

APPENDIX A

Photographic Log of Potential Crested Caracara Stations, Florida Scrub-Jay Stations, and Coverboard Locations for Skinks

Caracara Observation Block 1, Station 1

PHOTOGRAPHIC LOG OF SURVEY STATIONS

Project Development and Environment (PD&E) Study – Poinciana Parkway Extension from Poinciana Parkway to CR 532
Polk and Osceola County, Florida
CFX Project Number: 599-224

Appendix A	*October 2018*	*Scale: NTS*

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Caracara Observation Block 1, Station 2

Caracara Observation Block 1, Station 3

Caracara Observation Block 2, Station 1

PHOTOGRAPHIC LOG OF SURVEY STATIONS

Project Development and Environment (PD&E) Study – Poinciana Parkway Extension from Poinciana Parkway to CR 532
Polk and Osceola County, Florida
CFX Project Number: 599-224

Appendix A	*October 2018*	*Scale: NTS*

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Scrub-Jay Transect 1 and 2

PHOTOGRAPHIC LOG OF SURVEY STATIONS

Project Development and Environment (PD&E) Study – Poinciana Parkway Extension from Poinciana Parkway to CR 532
Polk and Osceola County, Florida
CFX Project Number: 599-224

Appendix A	*October 2018*	*Scale: NTS*

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Scrub-Jay Transect 3

Scrub-Jay Transect 4 and 5

Scrub-Jay Transect 6, 7 and 8

Two Documented Skink Tracts near Alternative 1

PHOTOGRAPHIC LOG OF SURVEY STATIONS

Project Development and Environment (PD&E) Study – Poinciana Parkway Extension from Poinciana Parkway to CR 532
Polk and Osceola County, Florida
CFX Project Number: 599-224

Appendix A	*October 2018*	*Scale: NTS*

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

USFWS Meeting Summary
Poinciana Parkway Extension (SR 538) PD&E Study

MEETING DATE: December 13, 2018

MEETING TIME: 10:00 AM to 11:00 AM

LOCATION: USFWS Vero Beach Ecological Services Office
1339 20th Street, Vero Beach, FL 32960

ATTENDEES: John Wrublik, USFWS
Nicole Gough, Dewberry
Lynn Kiefer, Kimley-Horn and Associates, Inc. (Kimley-Horn)
Tori Bacheler, Kimley-Horn

A meeting was held with USFWS to discuss the proposed survey methodologies for the referenced project. A *USFWS Pre-coordination for Federally Listed Wildlife Species* dated October 2018 was provided to John Wrublik earlier in the week and was reviewed during the meeting. A copy of the report is attached to these minutes.

A brief overview of the history (e.g. previous studies), study area and alternatives were provided. Mr. Wrublik indicated a preference for Alternative 1 to avoid the wetlands and mitigation bank. He also acknowledged that the Service had provided comments on the project under previous phases, so he was familiar with the project.

We discussed the specific federal species presented in the report as follows:

- There is no habitat or known occurrences of red-cockaded woodpecker or Everglade snail kite; thus, no species-specific surveys are proposed.

- Florida panther – project is not in the dispersal zones and telemetry data in the area is 17-19 years old. Mr. Wrublik agreed that no further action or consultation is required regarding this species.

- Wood stork – This species will be addressed based on habitat impacts and the programmatic concurrence key.

- Eastern indigo snake – This species will be addressed based on habitat impacts and the programmatic concurrence key.

- Florida scrub-jay – There is suitable habitat. Surveys will be conducted in March per the USFWS survey guidelines.

- Sand and Bluetail Mole Skink – Skink tracts have been documented in some areas and habitat exists in the study area. The habitat areas that have skink soils and are above 82 feet NGVD are in areas that are developed or have proposed developments. Cover board surveys will not be done at this time, but it will be acknowledged that suitable habitat exists, and cover boards may be needed during the design phase. We discussed the schedule. The Alternatives Meeting is scheduled for Spring 2019 and the Public Hearing late summer 2019. Following the Public Hearing the CFX Board would vote on whether to move forward with the project (design and construction). Given the timeframe before design and construction could start, Mr. Wrublik agreed with this

approach, but concurrence on effects determinations would not be made for these species until surveys are done.

- Audubon's crested caracara – the habitat mapping was discussed, and Mr. Wrublik generally agreed with the location of the observation points as well as eliminating observation B2S1 (see Figure 4B in the methodology report) as this area has limited habitat and is partially developed. Mr. Wrublik indicated this survey could also be postponed until design. This will be discussed with CFX, who will make a final decision.

This summary serves to document this meeting. If anyone wishes to modify or append to this account, please contact Lynn Kiefer either by phone 772-794-4075 or by email at lynn.kiefer@kimley-horn.com

APPENDIX E

Wetland and Surface Water Photographs

Wetland 1

Wetland 2

Wetland 3

Wetland 4

Wetland 5

Wetland 9

Wetland 11

Wetland 14

Edge of Wetland 15 and Wetland 16

Wetland 16

Wetland 17

Wetland 23

Wetland 24

APPENDIX F

Uniform Mitigation Assessment Methodology (UMAM) Forms

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 1**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**3.17**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

This is a forested wetland with a canopy primarily composed of *Nyssa biflora* . Other canopy species include *Acer rubrum* , *Magnolia virginiana* and *Taxodium ascendens* . Midstory species include *Ilex cassine* and *Morella cerifera* . The understory is primarily composed of hydric fern species such as *Osmunda regalis* , *Osmundastrum cinnamomerum* and *Woodwardia areolata* .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetland, rural land uses and areas of development further south.	**This is a common wetland type in this area of the Reedy Creek Basin.**

Functions	Mitigation for previous permit/other historic use
Water storage, nutrient uptake and particulate settling. Habitat for wildlife. Limited habitat for fish (this area is seasonally inundated).	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), wood duck (*Aix sponsa*), water mocassin (*Agkistrodon piscivorus*), brown anole (*Anolis sagrei*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**July-17**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL- 1**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**3.17**	**James Modica**	

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	**6**	**0**	**Current:** Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Wetland will be filled.
.500(6)(b)Water Environment (n/a for uplands)	**7**	**0**	**Current:** Hydrology generally appears to be natural in this area, although ditching and culverts that connect this area with other wetlands and surface waters has had an impact on hydrology. **With:** Wetland will be filled.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	**7**	**0**	**Current:** Largely displays natural structure for this community type. Some impact from historic logging and lowered water levels.

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres	with
	0.67	**0.00**

Delta = [with-current]
-0.67

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-2.11

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 2, 6, 8, 9**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**21.69**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

These areas present with a canopy composed primarily of wetland hardwoods such as *Nyssa biflora, Acer rubrum*, *Magnolia virginiana* and *Gordonia lasianthus* Midstory species include *Ilex cassine* and *Morella cerifera*. The understory is primarily composed of species such as *Juncus effusus, Ludwigia peruviana, Salix caroliniana* and*Osmundastrum cinnamomerum* .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
These areas are located in a landscape fragmented by development and road construction.	**This is a common wetland type in this area of the Reedy Creek Basin.**

Functions	Mitigation for previous permit/other historic use
Water storage, nutrient uptake and particulate settling. Habitat for wildlife. Some habitat for fish in deeper areas and ditches. Most areas are only seasonally inundated.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), wood duck (*Aix sponsa*), water mocassin (*Agkistrodon piscivorus*), brown anole (*Anolis sagrei*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Armadillo burrows.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**July-17**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL-2, 6, 8, 9**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**23.59**	**James Modica**	

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **3**	**Current:** Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Wetland will be filled.
	with: **0**	
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **3**	**Current:** Hydrology has been altered by historical ditching and construction of roads and railroad through historical flow routes. Hydrology is also impaired by runoff from surrounding impervious surfaces. Large amounts of trash are visible within these areas. **With:** Wetland will be filled.
	with: **0**	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **4**	**Current:** These areas primarily exhibit native vegetation but some exotic species are present, especially along boundaries with development.
	with: **0**	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.33**	with: **0.00**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-7.86

Delta = [with-current]
-0.33

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 3, WL 7**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
643		**Impact**	**1.72**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

These areas are not native wet prairie habitat, but rather anthropomorphically-altered areas that have been historically converted from forested wetlands. Species are all herbaceous and include *Ludwigia peruviana*, *Centella erecta*, *Juncus effusus* and *Woodwardia virginica*.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands and undeveloped land and low-density development.	**This is a highly-altered wetland type.**

Functions	Mitigation for previous permit/other historic use
Limited nutrient uptake.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), wading birds, passerine birds	**Florida sandhill crane (*Grus canadensis pratensis*)(ST)**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 3, 7**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**1.72**	**James Modica**	**January-19**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **2**	with: **0**
Current: Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Wetland will be filled.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **2**	with: **0**
Current: Hydrology is impaired. These areas are seasonally inundated. Ditching is evident. **With:** Wetland will be filled.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **1**	with: **0**
Current: These areas were historically converted from wooded wetlands to construct power and petroleum-transmission easements.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres	with
	0.17	**0.00**

Delta = [with-current]
-0.17

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-0.29

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

Form 62-345.900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 4**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
630		**Impact**	**0.65**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

This area is similar to the regime described for Wetland 1, however, the canopy contains a significantly higher amount of *Taxodium ascendens*.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands and development including recently-constructed housing, associated infrastructure and associated stormwater control ponds.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, wildlife habitat.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 4**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**0.65**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: **2** with: **0**	**Current:** Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. Directly abuts active railroad with heavy passenger and freight traffic. **With:** Wetland will be filled.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: **3** with: **0**	**Current:** Hydrology is impaired. These areas are seasonally inundated. Ditching is evident and appears to have significantyl affected the hydrology. **With:** Wetland will be filled.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: **4** with: **0**	**Current:** These areas were historically converted from wooded wetlands to construct power and petroleum-transmission easements.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.30	**0.00**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-0.20

Delta = [with-current]
-0.30

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 5**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**15.24**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

The edge of this wetland exhibits a slash pine (*Pinus elliottii*) canopy with the understory composed of saw palmetto (*Serenoa repens*) and wild grapes (*Vitis rotundifolia*). This regime quickly transitions into a hardwood regime with a canopy primarily composed of *Nyssa biflora* canopy species include *Acer rubrum*, *Magnolia virginiana* and *Taxodium ascendens*. Midstory species include *Ilex cassine* and *Morella cerifera*. The understory is primarily composed of hydric fern species such as *Osmunda regalis*, *Osmundastrum*

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands and development including recently-constructed housing, associated infrastructure and associated stormwater control ponds. There is also a railroad track adjacent to this area.	**This is a common wetland type in this area of the Reedy Creek Basin.**

Functions	Mitigation for previous permit/other historic use
Water storage, nutrient uptake and particulate settling. Habitat for wildlife. Limited habitat for fish (this area is seasonally inundated).	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), wood duck (*Aix sponsa*), water mocassin (*Agkistrodon piscivorus*), brown anole (*Anolis sagrei*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL- 5**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**15.24**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **6**	with: **0**
Current: Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Wetland will be filled.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **7**	with: **0**
Current: Hydrology generally appears to be natural in this area, although ditching and culverts that connect this area with other wetlands and surface waters has had an impact on hydrology. **With:** Wetland will be filled.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **7**	with: **0**
Current: Largely displays natural structure for this community type. Some impact from historic logging and lowered water levels.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: **0.67**	with: **0.00**

Delta = [with-current]
-0.67

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-10.16

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 10, 11, 13, 14, 15, 26**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**21.36**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

These areas present with a canopy composed primarily of wetland hardwoods such as *Nyssa biflora, Acer rubrum*, *Magnolia virginiana* and *Gordonia lasianthus* Midstory species include *Ilex cassine* and *Morella cerifera*. The understory is primarily composed of species such as *Juncus effusus, Ludwigia peruviana, Salix caroliniana* and*Osmundastrum cinnamomerum* .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
These areas are located in a landscape fragmented by development and road construction.	**This is a common wetland type in this area of the Reedy Creek Basin.**

Functions	Mitigation for previous permit/other historic use
Water storage, nutrient uptake and particulate settling. Habitat for wildlife. Some habitat for fish in deeper areas and ditches. Most areas are only seasonally inundated.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), wood duck (*Aix sponsa*), water mocassin (*Agkistrodon piscivorus*), brown anole (*Anolis sagrei*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

WL-15 has an active eagle nest located along its southern edge.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**July-17**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 10, 11, 13, 14, 15, 26**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**21.36**	**James Modica**	

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **4**	with: **0**
Current: Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Wetland will be filled.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **4**	with: **0**
Current: Hydrology has been altered by historical ditching and construction of roads and railroad through historical flow routes. Hydrology is also impaired by runoff from surrounding impervious surfaces. Large amounts of trash are visible within these areas. **With:** Wetland will be filled.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **5**	with: **0**
Current: These areas primarily exhibit native vegetation but some exotic species are present, especially along boundaries with development.		

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.43**	with: **0.00**

Delta = [with-current]
-0.43

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-9.26

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 12**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
523		**Impact**	**1.53**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

This is part of a small lake, including its wetland fringe.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands and low density housing.	**Regionally common.**

Functions	Mitigation for previous permit/other historic use
Water storage, nutrient uptake and particulate settling. High quality habitat for fish and aquatic wildlife.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Largemouth bass (*Micropterus salmoides*), American alligator (*Alligator mississippiensis*), common gallinule (*Gallinula galeata*), peninsula cooter (*Pseudemys peninsularis*)	**Bald eagle (*Haliaeetus leucocephalus*)(BGEPA)(Foraging), Florida sandhill crane(*Grus canadensis pratensis*) (ST)(Foraging, nesting in edge of lake area), Little blue heron(*Egretta caerulea*)(ST)(Foraging)**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL- 12**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**1.53**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: **4** with: **0**	**Current:** This wetland is located in an area of low-density development occuring in a patchwork with natural areas. **With:** Wetland will be filled.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: **8** with: **0**	**Current:** Hydrology is generally natural, although water quality is likely somewhat impaired by surrounding development. **With:** Wetland will be filled.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: **5** with: **0**	**Current:** Largely natural benthic community (open water areas) and community structure (fringe marsh).

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.57	**0.00**

Delta = [with-current]
-0.57

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-0.87

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 16**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
643		**Impact**	**0.14**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

These areas are not native wet prairie habitat, but rather anthropomorphically-altered areas that have been historically converted from forested wetlands. Species are all herbaceous and include *Ludwigia peruviana* , *Centella erecta* , *Juncus effusus* and *Woodwardia virginica* .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands and development including recently-constructed housing, associated infrastructure and associated stormwater control ponds.	**This is a highly-altered wetland type that is routinely mowed because it is a powerline easement.**

Functions	Mitigation for previous permit/other historic use
Limited nutrient uptake.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), wading birds, passerine birds	**Florida sandhill crane (*Grus canadensis pratensis*)(ST)**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 16**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**0.14**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **3**	with: **0**
Current: This wetland consist of a mowed power line easement. The Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development,and roads **With:** Wetland will be filled.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **2**	with: **0**
Current: Hydrology is impaired. These areas are seasonally inundated. Ditching is evident. **With:** Wetland will be filled.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **1**	with: **0**
Current: These areas were historically converted from wooded wetlands to construct power and petroleum-transmission easements.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres	with
	0.20	**0.00**

Delta = [with-current]
-0.20

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-0.03

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

Form 62-345.900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 17, 27, 28**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
625		**Impact**	**12.27**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

These areas are hydric pine flatwoods. The canopy is primarily composed of *Pinus elliottii* and various bay trees. Midstory species include *Ilex cassine* and *Morella cerifera.* The understory is composed of *Serenoa repens*, *Andropogon virginicus*, *Woodwardia virginica* and *Ludwigia perviana*.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands and development including recently-constructed housing, associated infrastructure and associated stormwater control ponds. Additionally, Ponciana Parkway, a major traffic corridor, is located immediately to the north.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, water storage, wildlife habitat.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 17, 27**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**12.27**	**James Modica**	**January-19**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **3**	**Current:** Wetland is in an area of development and road construction. Some natural areas remain in this area. **With:** Wetland will be filled.
	with: **0**	
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **4**	**Current:** Hydrology is impaired. These areas are seasonally inundated. Ditching is evident. **With:** Wetland will be filled.
	with: **0**	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **4**	**Current:** Relatively natural structure. Heavy presence of invasive vegetative species on edges. This area has likely been logged several times historically.
	with: **0**	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.37	**0.00**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-4.50

Delta = [with-current]
-0.37

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 18, 21A, 22**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**13.46**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Discrete surface water connection.

Assessment area description

This area is located on the Reedy Creek Mitigation Bank. Modica and Associates was not able to access the area, but can make an analysis based on historical observations, aerial photography and public data. The canopy is closed and composed of a mix of wetland hardwoods such as *Nyssa biflora, Acer rubrum, Magnoliana virginiana* and *Gordonia lasianthus*. Midstory species include *Ilex cassine* and *Morella cerifera*. Understory species include *Osmunda regalis*, *Osmundastrum cinnamomeum* and *Sagittaria* sp.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of deeper wetlands and uplands that are in the process of being restored from cattle pasture to native habitat types.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, wildlife habitat.	**This area is part of a Reedy Creek Mitigation Bank.**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), black racer (*Coluber constrictor*), pileated woodpecker (*Dryocopus pileatus*), black bear (*Ursus americanus*), passerine birds.	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

N/A

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 18, 21A, 22**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**13.46**	**James Modica**	**January-19**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **7**	with: **0**

Current: These wetlands are located in Reedy Creek Mitigation Bank. Most of the surrounding areas are in a relatively natural state. The adjacent uplands were historically utilized as pasture. Modica and Associates believes that the uplands still exhibit a relatively high proportion of exotic species. **With:** Wetlands will be filled.

.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **7**	with: **0**

Current: Hydrology is relatively natural. Thiese areas are directly connected with the Reedy Creed swamp, so historical alterations to the overall Reedy Creek system have doubtlessly affected these areas to some degree. These areas are only seasonally inundated, which is normal for this vegetative regime. **With:** Wetlands will be filled.

.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **6**	with: **0**

Current: These areas exhibit a relatively natural structure for the vegetative regime type. These areas were likely logged historically and utilized for cattle-grazing in some capacity. These areas are currently actively-managed as part of Reedy Creek Mitigation Bank to control nuisance plant species (burning and herbicide control). Although Modica and Associates could not directly access these areas, historical information would indicate that there is some presence of nuisance exotic species in these areas.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.67**	with: **0.00**

Delta = [with-current]
-0.67

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-8.97

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 18, 21, 21A**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**15.19**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Discrete surface water connection.

Assessment area description

This area is located on the Reedy Creek Mitigation Bank. Modica and Associates was not able to access the area, but can make an analysis based on historical observations, aerial photography and public data. The canopy is closed and composed of a mix of wetland hardwoods such as *Nyssa biflora, Acer rubrum, Magnoliana virginiana* and *Gordonia lasianthus*. Midstory species include *Ilex cassine* and *Morella cerifera*. Understory species include *Osmunda regalis*, *Osmundastrum cinnamomeum* and *Sagittaria* sp.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of deeper wetlands and uplands that are in the process of being restored from cattle pasture to native habitat types.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, wildlife habitat.	**This area is part of a Reedy Creek Mitigation Bank.**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), black racer (*Coluber constrictor*), pileated woodpecker (*Dryocopus pileatus*), black bear (*Ursus americanus*), passerine birds.	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

N/A

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 18, 21, 21A**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**15.19**	**James Modica**	**January-19**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: **7** with: **0**	**Current:** These wetlands are located in Reedy Creek Mitigation Bank. Most of the surrounding areas are in a relatively natural state. The adjacent uplands were historically utilized as pasture. Modica and Associates believes that the uplands still exhibit a relatively high proportion of exotic species. **With:** Wetlands will be filled.	
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: **7** with: **0**	**Current:** Hydrology is relatively natural. Thiese areas are directly connected with the Reedy Creed swamp, so historical alterations to the overall Reedy Creek system have doubtlessly affected these areas to some degree. These areas are only seasonally inundated, which is normal for this vegetative regime. **With:** Wetlands will be filled.	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: **6** with: **0**	**Current:** These areas exhibit a relatively natural structure for the vegetative regime type. These areas were likely logged historically and utilized for cattle-grazing in some capacity. These areas are currently actively-managed as part of Reedy Creek Mitigation Bank to control nuisance plant species (burning and herbicide control). Although Modica and Associates could not directly access these areas, historical information would indicate that there is some presence of nuisance exotic species in these areas.	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.67	**0.00**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-10.13

Delta = [with-current]
-0.67

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 20**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**0.11**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Discrete surface water connection.

Assessment area description

This area is located on the Reedy Creek Mitigation Bank. Modica and Associates was not able to access the area, but can make an analysis based on historical observations, aerial photography and public data. The canopy is closed and composed of *Pinus elliottii* . Midstory species include *Ilex cassine* and *Morella cerifera* . Understory species include *Osmunda regalis* , *Osmundastrum cinnamomeum* and *Sagittaria* sp.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of deeper wetlands and uplands that are in the process of being restored from cattle pasture to native habitat types.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, wildlife habitat.	**This area is part of a Reedy Creek Mitigation Bank.**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), black racer (*Coluber constrictor*), pileated woodpecker (*Dryocopus pileatus*), black bear (*Ursus americanus*), passerine birds.	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

N/A

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 20**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**0.11**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: **7** with: **0**	**Current:** These wetlands are located in Reedy Creek Mitigation Bank. Most of the surrounding areas are in a relatively natural state. The adjacent uplands were historically utilized as pasture. Modica and Associates believes that the uplands still exhibit a relatively high proportion of exotic species. **With:** Wetlands will be filled.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: **7** with: **0**	**Current:** Hydrology is relatively natural. Thiese areas are directly connected with the Reedy Creed swamp, so historical alterations to the overall Reedy Creek system have doubtlessly affected these areas to some degree. These areas are only seasonally inundated, which is normal for this vegetative regime. **With:** Wetlands will be filled.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: **6** with: **0**	**Current:** These areas exhibit a relatively natural structure for the vegetative regime type. These areas were likely logged historically and utilized for cattle-grazing in some capacity. These areas are currently actively-managed as part of Reedy Creek Mitigation Bank to control nuisance plant species (burning and herbicide control). Although Modica and Associates could not directly access these areas, historical information would indicate that there is some presence of nuisance exotic species in these areas.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.67	**0.00**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-0.07

Delta = [with-current]
-0.67

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 23**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
630		**Impact**	**26.27**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete surface connection.

Assessment area description

This area is part of the Reedy Creek Swamp that exhibits standing water during normal conditions.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, water storage and transmission, wildlife habitat.	**A portion of this area is part of Reedy Creek Mitigation Bank. The remaining area is SFWMD conservation lands.**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), American black bear (*Ursus americanus*), feral hog (*Sus scrofa*), whitetail deer (*Odoceilus virginiana*), American alligator (*Alligator mississippiensis*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Could not access this area directly.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 23**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**26.27**	**James Modica**	**January-19**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: **9** with: **4**	**Current:** Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Bridge will be constructed through the wetland. This will have a significant (although not complete) impact on the relationship of fish and wildlife using the area and surrounding areas. Movement of fish and wildlife will not be completely restricted by bridging (versus filling).
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: **9** with: **6**	**Current:** Hydrology is generally natural, apart from larger, regional impacts to this system. **With:** Most hydrological functions will remain after this area is bridged. Some water quality impacts due to runoff and lack of vegetation will occur.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: **8** with: **0**	**Current:** These areas are primarily in a natural state. The canopy structure is somewhat impaired from its historical state due to cypress logging through this area. **With:** The vegetative structure will be destroyed and will not regenerate due to shading.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.87	**0.33**

Delta = [with-current]
-0.53

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-14.01

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	**0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 23**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
630		**Impact**	**24.88**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete surface connection.

Assessment area description

This area is part of the Reedy Creek Swamp that exhibits standing water during normal conditions.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetlands.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, water storage and transmission, wildlife habitat.	**A portion of this area are part of Reedy Creek Mitigation Bank. The remaining area is SFWMD conservation lands.**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), American black bear (*Ursus americanus*), feral hog (*Sus scrofa*), whitetail deer (*Odoceilus virginiana*), American alligator (*Alligator mississippiensis*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Could not access this area directly.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 23**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**24.88**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: **9** with: **4**	**Current:** Wetland is surrounded by a mix of rural and suburban land uses. Some fragmentation due to development, roads and power easement. **With:** Bridge will be constructed through the wetland. This will have a significant (although not complete) impact on the relationship of fish and wildlife using the area and surrounding areas. Movement of fish and wildlife will not be completely restricted by bridging (versus filling).
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: **9** with: **6**	**Current:** Hydrology is generally natural, apart from larger, regional impacts to this system. **With:** Most hydrological functions will remain after this area is bridged. Some water quality impacts due to runoff and lack of vegetation will occur.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: **8** with: **0**	**Current:** These areas are primarily in a natural state. The canopy structure is somewhat impaired from its historical state due to cypress logging through this area. **With:** The vegetative structure will be destroyed and will not regenerate due to shading.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.87**	with: **0.33**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-13.27

Delta = [with-current]
-0.53

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

Form 62-345.900(2), F.A.C. [effective date]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 24**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
611		**Impact**	**1.97**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Discrete surface water connection.

Assessment area description

This area is located on SFWMD owned and managed land. The canopy is patchy and composed of *Magnoliana virginiana* and *Gordonia lasianthus*. Midstory species include *Ilex cassine* and *Morella cerifera*. Understory species include *Serenoa repens*, *Ilex glabra*, *Osmundastrum cinnamomeum* and *Andropogon virginicus*.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of deeper wetlands and natural uplands.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, wildlife habitat, limited recreational use.	**This area is part of a SFWMD preserve.**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), black racer (*Coluber constrictor*), pileated woodpecker (*Dryocopus pileatus*), black bear (*Ursus americanus*), passerine birds.	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Armadillo burrows

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 24**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**1.97**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **8**	with: **0**
Current: This wetland is located in a SFWMD-owned preserve. Most of the surrounding areas are in a relatively natural state. **With:** Wetland will be filled.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **8**	with: **0**
Current: Hydrology is relatively natural. This area is directly connected with the Reedy Creed swamp, so historical alterations to the overall Reedy Creek system have doubtlessly affected this area to some degree. This area is only seasonally inundated, which is normal for this vegetative regime. **With:** Wetland will be filled.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **8**	with: **0**
Current: This area exhibits a relatively natural structure for the vegetative regime type. This area was likely logged historically and utilized for cattle-grazing in some capacity. This area is currently actively-managed by the SFWMD to control nuisance plant species (burning and herbicide control).		

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.80**	with: **0.00**

Delta = [with-current]
-0.80

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-1.58

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 26**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
610		**Impact**	**0.32**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Surface water connection via discrete connections as well as natural streams, man-made ditches and culverts.

Assessment area description

This is a forested wetland with a canopy species including *Acer rubrum*, *Magnolia virginiana* and *Taxodium ascendens*. Midstory species include *Ilex cassine* and *Morella cerifera*. The understory is primarily composed of hydric fern species such as *Osmunda regalis*, *Osmundastrum cinnamomerum* and *Woodwardia areolata*.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Surrounding areas consist of additional wetland, development and roads.	**This is a common wetland type in this area of the Reedy Creek Basin.**

Functions	Mitigation for previous permit/other historic use
Water storage, nutrient uptake and particulate settling. Habitat for wildlife. Limited habitat for fish (this area is seasonally inundated).	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), pileated woodpecker (*Dryocopus pileatus*), brown anole (*Anolis sagrei*), whitetail deer (*Odoceilus virginiana*), passerine birds	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 26**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**0.32**	**James Modica**	**January-19**

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **3**	with: **0**

Current: These wetlands are located in Reedy Creek Mitigation Bank. Most of the surrounding areas are in a relatively natural state. The adjacent uplands were historically utilized as pasture. Modica and Associates believes that the uplands still exhibit a relatively high proportion of exotic species. **With:** Wetlands will be filled.

.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **4**	with: **0**

Current: Hydrology is relatively natural. Thiese areas are directly connected with the Reedy Creed swamp, so historical alterations to the overall Reedy Creek system have doubtlessly affected these areas to some degree. These areas are only seasonally inundated, which is normal for this vegetative regime. **With:** Wetlands will be filled.

.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **4**	with: **0**

Current: These areas exhibit a relatively natural structure for the vegetative regime type. These areas were likely logged historically and utilized for cattle-grazing in some capacity. These areas are currently actively-managed as part of Reedy Creek Mitigation Bank to control nuisance plant species (burning and herbicide control). Although Modica and Associates could not directly access these areas, historical information would indicate that there is some presence of nuisance exotic species in these areas.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.37**	with: **0.00**

Delta = [with-current]
-0.37

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =
-0.12

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector	**TBD**	**WL 24**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
621		**Impact**	**1.3**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Reedy Creek		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Discrete surface water connection.

Assessment area description

This area exhibits a closed canopy of pondcypress (*Taxodium distichum*). Understory species are sparse but include pickerel weed (*Pontederia cordata*), duck potato (*Sagittaria lancifolia*) and maidencane (*Panicum hemitomon*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Developed areas, additional wetlands and undeveloped uplands.	**This is a common wetland type in this area.**

Functions	Mitigation for previous permit/other historic use
Nutrient uptake, wildlife habitat, water storage.	**N/A**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), whitetail deer (*Odoceilus virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), black racer (*Coluber constrictor*), pileated woodpecker (*Dryocopus pileatus*), black bear (*Ursus americanus*), passerine birds.	**None**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
James Modica	**January-19**

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name		Application Number	Assessment Area Name or Number
CFX Poinciana-I4 Connector		**TBD**	**WL 24**
Impact or Mitigation	Acreage	Assessment conducted by:	Assessment date:
Impact	**1.3**	**James Modica**	**January-19**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: **5**	**Current:** This wetland is in relatively close proximity to much larger wetlands in the Reedy Creek Basin. There is substantial development around this wetland, however.. **With:** Wetland will be filled.
	with: **0**	
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: **7**	**Current:** Hydrology has likely been impacted by historic modifications to flow from this location to downstream areas. Hydrology remains relatively natural for this area, however. This area appears to be inundated under normal conditions. **With:** Wetland will be filled.
	with: **0**	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: **7**	**Current:** This area exhibits a relatively natural structure for the vegetative regime type. This area was likely logged historically.
	with: **0**	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: **0.63**	with: **0.00**

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =
-0.82

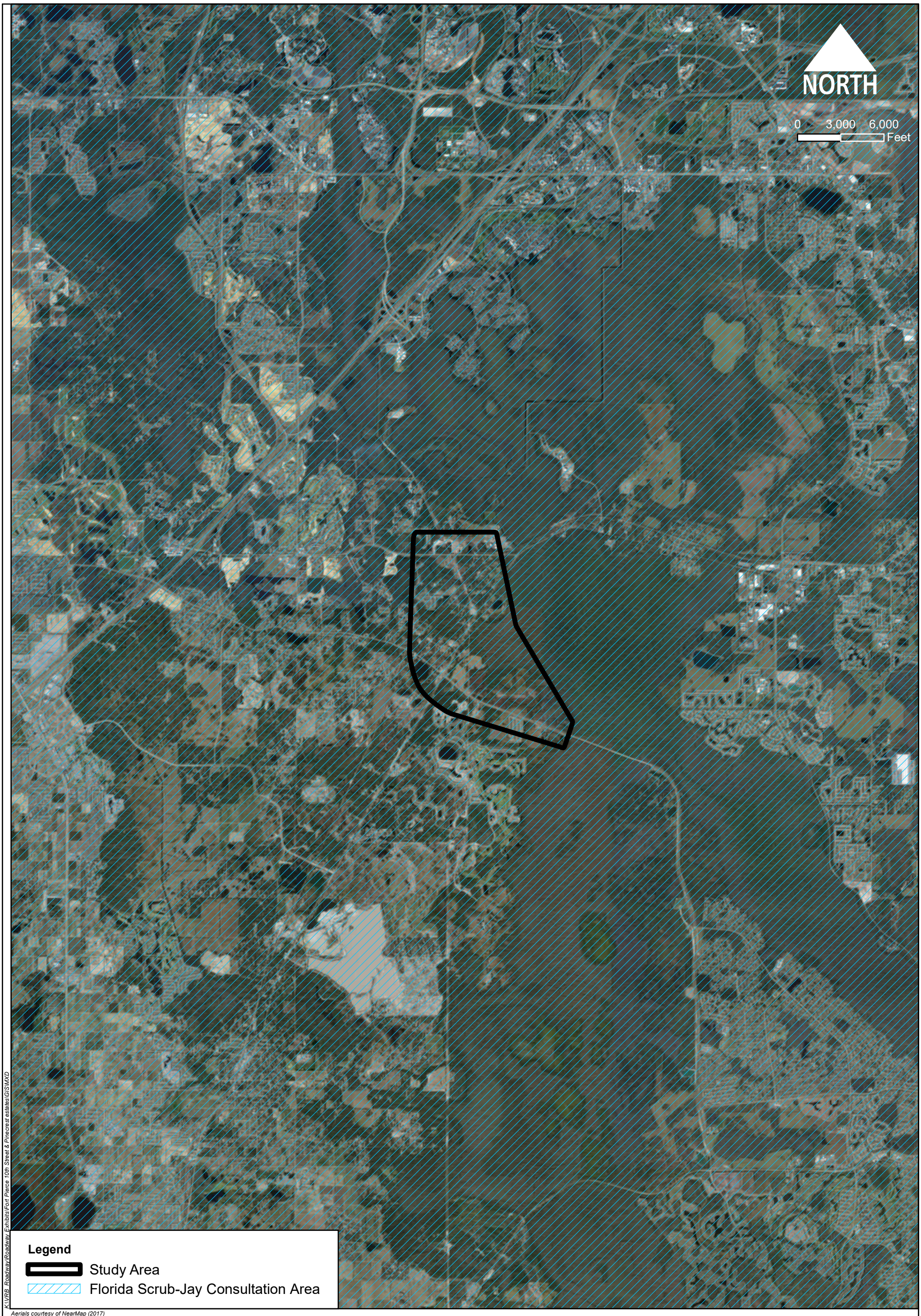
Delta = [with-current]
-0.63

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = **0.00**

APPENDIX G

USFWS Consultation Areas and Designated Critical Habitat Maps



K:\VRB_Roadway\Roadway Exhibits\Fort Pierce 10th Street & Pinecrest estates\GIS\MXD

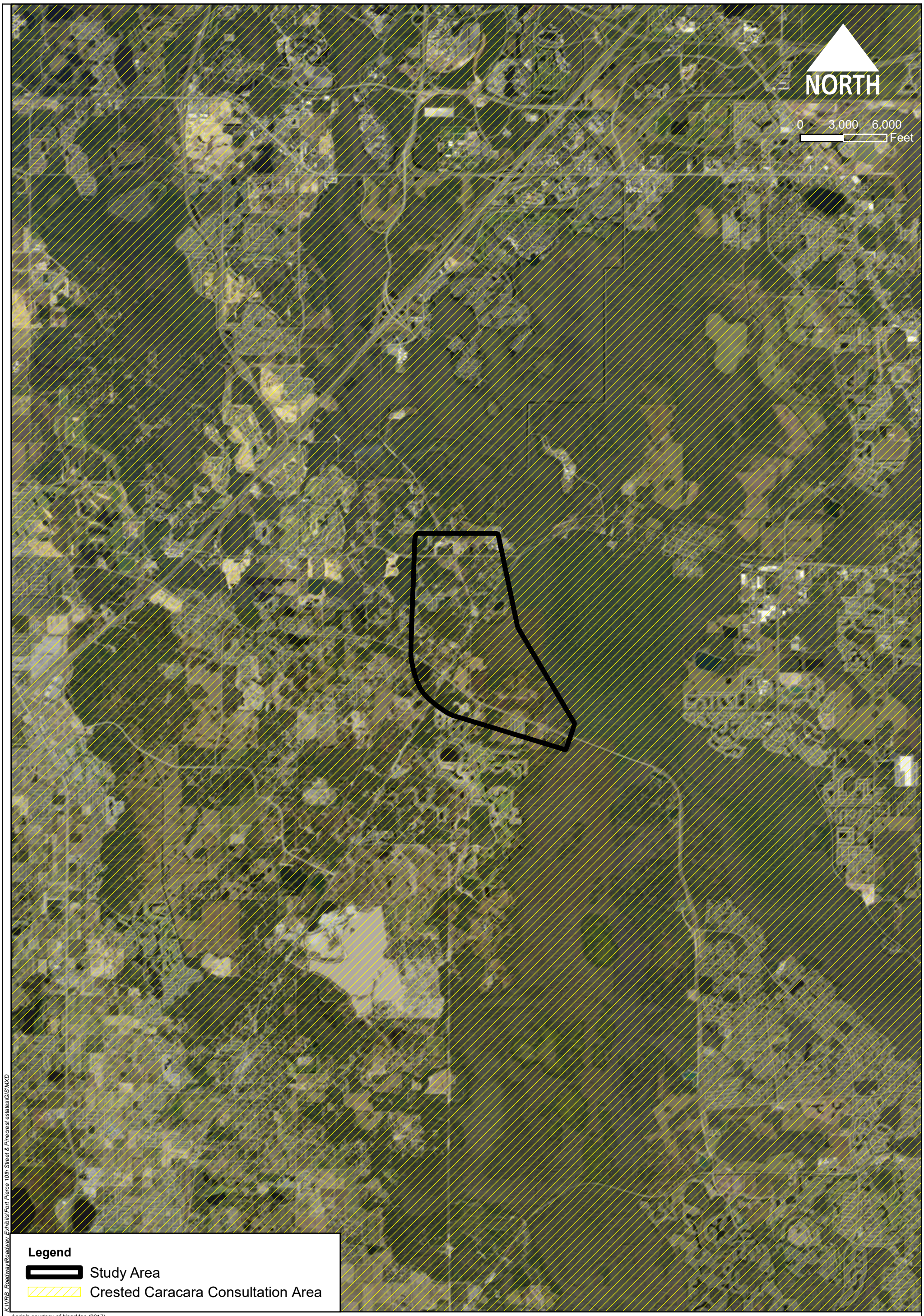
Aerials courtesy of NearMap (2017)

USFWS Consultation Area Map

Poinciana Parkway Extension
Project Development and Environment Study
Polk and Osceola Counties, Florida

APPENDIX G	***PROJECT NUMBER: 149800001***	***DATE:*** ***MARCH 2019***	***SCALE:*** 1 inch = 6,000 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



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Aerials courtesy of NearMap (2017)

USFWS Consultation Area Map

Poinciana Parkway Extension
Project Development and Environment Study
Polk and Osceola Counties, Florida

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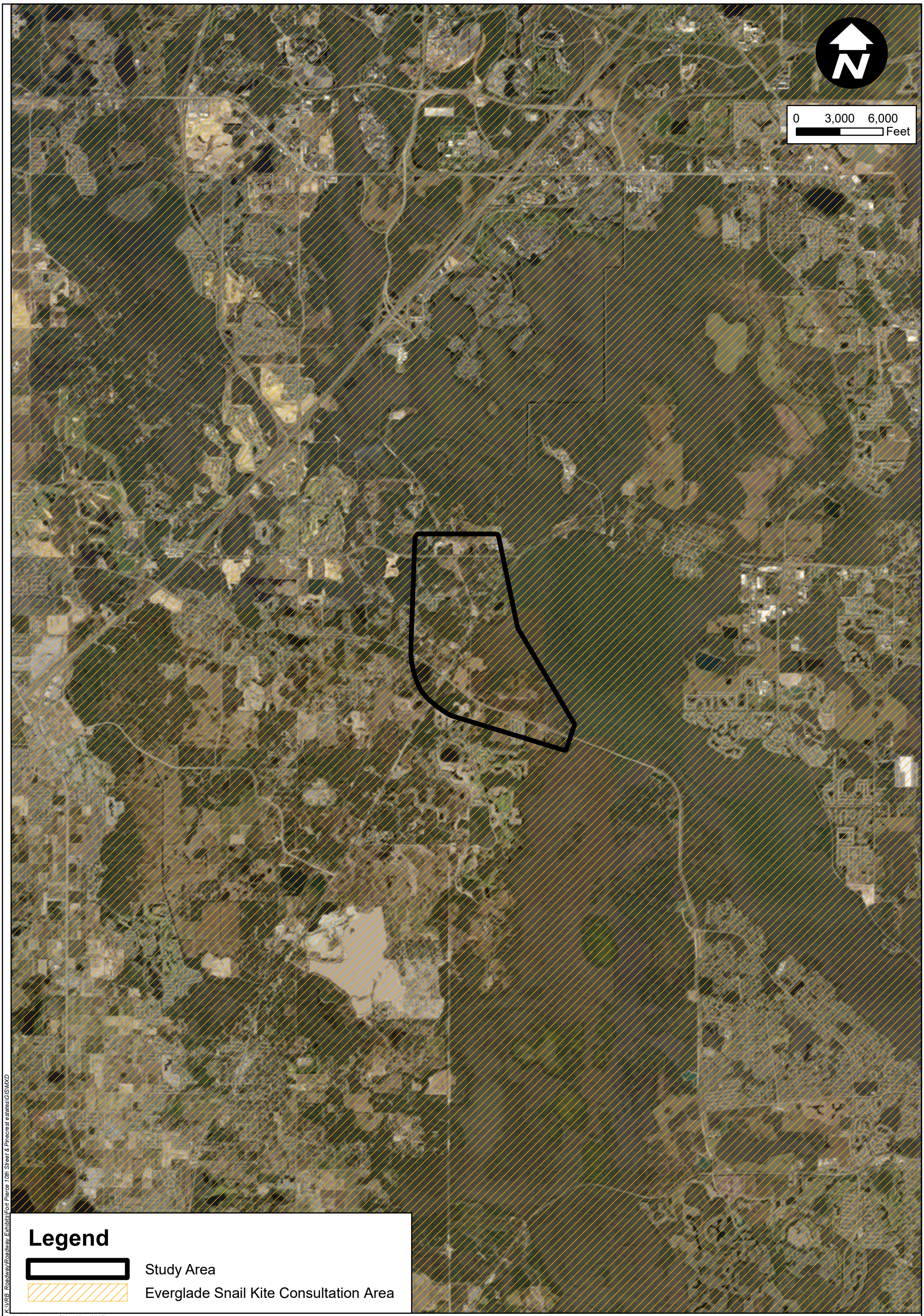
CENTRAL FLORIDA EXPRESSWAY AUTHORITY



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Aerials courtesy of NearMap (2017)

USFWS Consultation Area Map

Poinciana Parkway Extension
Project Developmen and Environment Study
Polk and Osceola Counties, Florida

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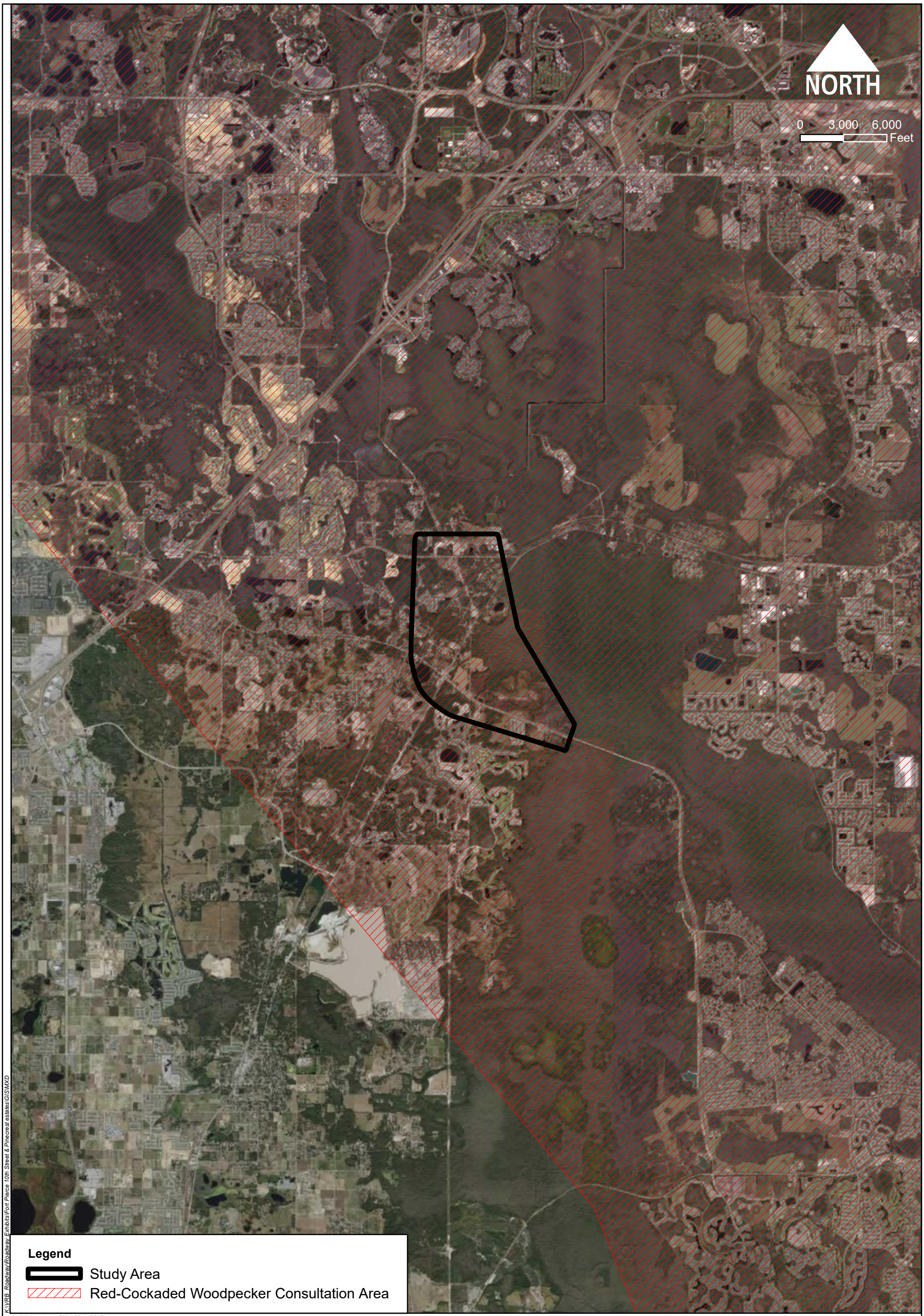
CENTRAL FLORIDA EXPRESSWAY AUTHORITY



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Aerials courtesy of NearMap (2017)

USFWS Consultation Area Map

Poinciana Parkway Extension
Project Development and Environment Study
Polk and Osceola Counties, Florida

APPENDIX G	***PROJECT NUMBER: 149800001***	***DATE:*** ***MARCH 2019***	***SCALE:*** 1 inch = 6,000 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

N

0 3,000 6,000
Feet

Legend

Study Area

Sand and Blue-tailed Mole Skink Consultation Area

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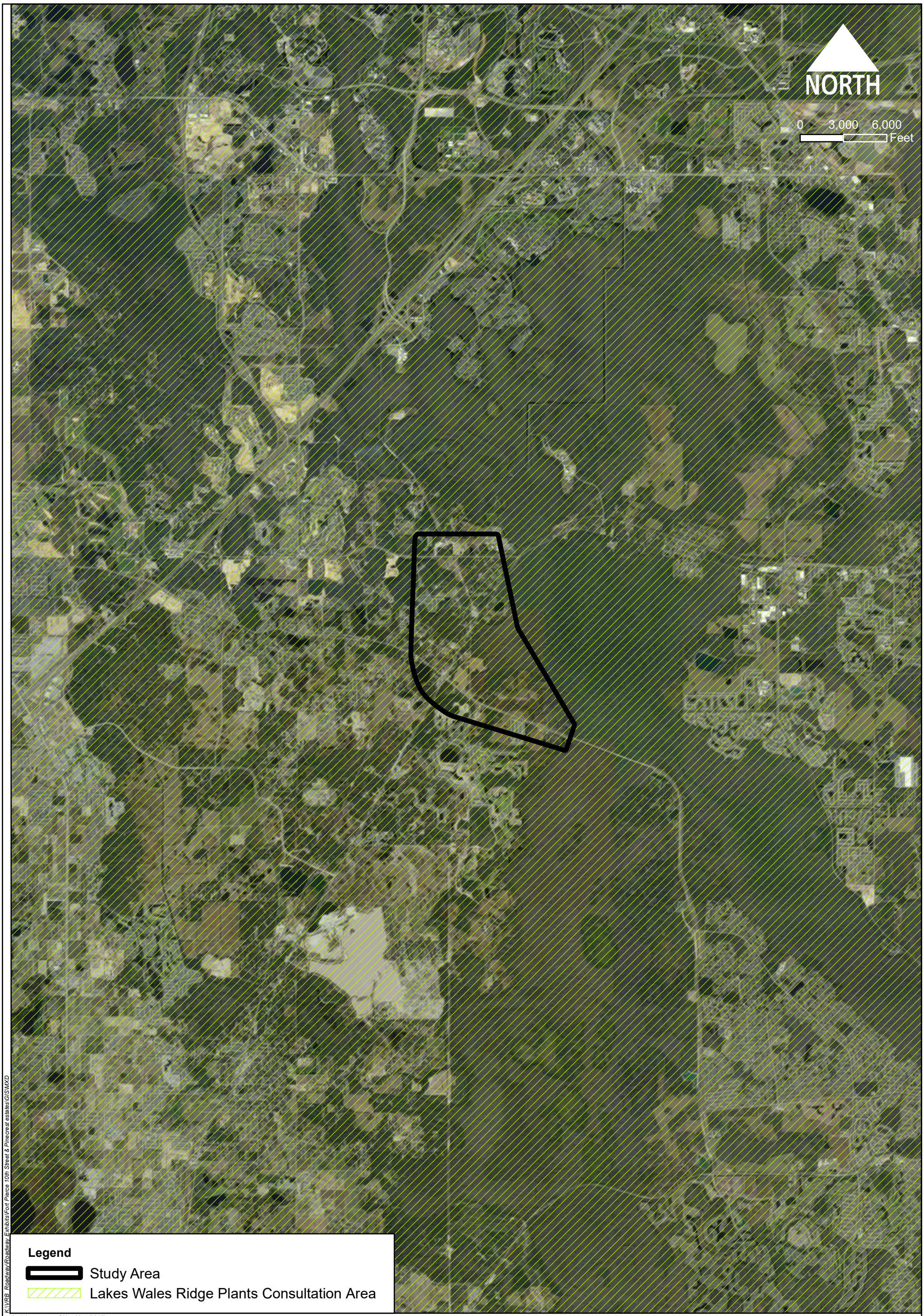
Aerials courtesy of NearMap (2017)

USFWS Consultation Area Map

Poinciana Parkway Extension
Project Development and Environment Study
Polk and Osceola Counties, Florida

APPENDIX G	***PROJECT NUMBER: 149800001***	***DATE:*** ***MARCH 2019***	***SCALE:*** 1 inch = 6,000 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



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Aerials courtesy of NearMap (2017)

USFWS Consultation Area Map

Poinciana Parkway Extension
Project Development and Environment Study
Polk and Osceola Counties, Florida

APPENDIX G	**PROJECT NUMBER: 149800001**	**DATE:** **MARCH 2019**	**SCALE:** 1 inch = 6,000 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

APPENDIX H

Audubon's Crested Caracara Report (April 2019)

Natural Resource Evaluation
Appendix H –
Audobon's Crested Caracara
(Polyborus plancus audubonii) Survey Report

Poinciana Parkway Extension (SR 538)
Project Development and Environment Study
From Poinciana Parkway to CR 532
Osceola and Polk Counties, Florida

CFX Project Number: 599-224

Prepared for:

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

JUNE 2019

Prepared by:

Kimley-Horn and Associates, Inc.

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TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

As part of the Natural Resources Evaluation Report (NRE) prepared for the Central Florida Expressway Authority (CFX) Project Development and Environment (PD&E) Study for the proposed extension of the Poinciana Parkway a survey for the Audubon's crested caracara (caracara) (*Polyborus plancus audubonii*) was conducted.

Kimley-Horn and Associates, Inc. (Kimley-Horn) staff conducted a caracara survey January 7, 2019 through April 26, 2019 within the project study area. The survey was conducted utilizing the methods outlined in the guidelines listed in the *USFWS's Crested Caracara Survey Protocol – Additional Guidance* (December 2016). Caracara were not observed nesting in the study area.

This report is intended to provide the Central Florida Expressway Authority (CFX) with the methodology, results and conclusions of the caracara survey for the Poinciana Parkway Extension PD&E Study.

2.0 EXISTING ENVIRONMENTAL CHARACTERISTICS

2.1 PRELIMINARY DATA COLLECTTION

Prior to field reconnaissance, a desktop review was performed to identify previously documented caracara nests or suitable habitat within the project corridor. Resources that were utilized include aerial photography of the corridor (Florida Department of Transportation (FDOT) APLUS), Florida Land Use Cover, Forms, and Cover Classification System (FLUCFCS) GIS layer (SFWMD), US Fish and Wildlife Service (USFWS) Caracara Consultation Area GIS Layer, USFWS Conservation Guidelines, US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Osceola County, and the Florida Natural Areas Inventory (FNAI) Online Biodiversity Matrix. Following the desktop review, field reconnaissance was conducted to verify existing conditions and identify areas of potential habitat. A general site review was conducted on September 13, 2018 and October 2, 2018 to verify existing land use. Land cover was classified according to the FLUCFCS.

2.2 EXISTING VEGETATIVE COMMUNITIES, LAND USES, AND VEGETATIVE DESCRIPTIONS

Land cover within the areas surveyed for caracara consists of a mixture of urban areas (residential, commercial, community facilities), wetlands, agriculture (pastures), and native uplands. **Table 1** provides the FLUCFCS data and acreage within the study area and **Figures 1A, 1B, and 1C** depict the FLUCFCS maps.

Table 1: Summary of Land/Cover/Land Use within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
112	Mobile Home Units	This category represents the mobile home neighborhoods located at the northeast part of the study area surrounding Old Kissimmee Road.	91.91
118	Rural Residential	The category represents the low density residential community of Loughman.	187.27
129	Medium Density Under Construction	This category represents the Providence DRI and other residential communities under construction near Poinciana Parkway.	142.24
131	Fixed Single Family Units (6+ units per acre)	This category represents the communities of Sereno and Sandy Ridge.	85.61
132	Mobile Home Units (6+ units per acre)	This category includes the 21 Palms RV Resort which contains both RV pads and mobile homes.	9.79
139	High Density Under Construction	This category includes the community of Tivoli Reserve which is under construction.	31.60
140	Commercial and Services	This land cover includes gas stations, future Publix site and other various commercial parcels throughout the study area.	4.44
172	Religious	This category includes Casa De Israel Yarah along US 17/92. There are two other religious facilities (G5 Church and New Antioch Missionary Baptist Church) within the study area,	1.47

Table 1: Summary of Land/Cover/Land Use within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
		however these land uses were also classified as woodland pastures and rural residential, respectively.	
185	Parks and Zoos	This category includes Loughman Park.	12.47
190	Open Land	This category includes open land within the study area where the intended land use is not obvious.	10.79
211	Improved Pastures	These pastures are located in the northwest portion of the study area, adjacent to and south of Osceola Polk Pine Road. This category includes pastures planted with bahia grass (*Paspalum notatum*). Some of the pastures within the study area are currently being used as horse pastures.	62.00
213	Woodland Pastures	These pastures are located in the more northern portions of the study area, specifically north of Osceola Polk Line Road and also east of US 17/92. This category includes pastures planted with bahia grass but also have hardwood species throughout, including live oak (*Quercus virginiana*).	79.73
310	Herbaceous (dry prairies)	This habitat type is found in the western portion of the study area, west of US 17/92 and both north and south of Ronald Reagan Parkway. The dominant vegetation is bahia grass. Other vegetative species include dogfennel (*Eupatorium capillifolium*), bluestem (*Andropogon virginicus*), wiregrass (*Aristida stricta*), and gallberry (*Ilex glabra*).	45.45
320	Shrub and Brushland	This habitat type is found in the northern portions of the study area, specifically north and south of Osceola Polk Line Road and east of US 17/92. Vegetation consists of myrtle oak (*Q. myrtifolia*), winged sumac (*Rhus copallinum*), slash pine (*Pinus elliotii*), greenbrier (*Smilax* spp.), muscadine (*Vitis rotundifolia*), prickly pear cactus (*Opuntia* spp.), rusty staggerbush (*Lyonia ferruginea*), sand pine (*P. clausa*), rustweed (*Polypremum procumbens*), saw palmetto (*Serenoa repens*), and gallberry.	21.34
410	Upland Coniferous Forests	This habitat type is found adjacent to and just south of Osceola Polk Line Road. The canopy is composed of slash pine, cabbage palm (*Sabal palmetto*), wax myrtle (*Morella cerifera*), saw palmetto, gallberry, staggerbush (*Lyonia lucida*), Caesar weed (*Urena lobata*), dogfennel, and muscadine. Scattered sand live oaks (Q. geminata) were also observed in these areas.	49.86
420	Upland Hardwood Forests	This habitat type is found south of Ronald Reagan Parkway and west of US 17/92. The most common tree species for this habitat include live oak, water oak (*Q. nigra*), and southern magnolia (*Magnolia grandiflora*). Understory species included muscadine, greenbrier, cabbage palm, and scattered saw palmetto.	4.69

Table 1: Summary of Land/Cover/Land Use within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
421	Xeric Oak	This habitat type is found around Old Kissimmee Road and south of the Poinciana Parkway. The vegetation is dominated by mid-canopy species that include sand live oak, myrtle oak, and Chapman's oak (*Q. chapmanii*), with occasional sand pine. Subcanopy and groundcover species include immature oaks, saw palmetto, rusty staggerbush, wiregrass, gallberry, prickly pear cactus, netted pawpaw (*Asimina reticulata*), stinging nettle (*Urtica spp*.), and shiny blueberry (*Vaccinium myrsinites*).	38.87
427	Live Oak	This habitat type is found just west of US 17/92 and just north of Ronald Reagan Parkway. The vegetation is predominantly live oak, with occasional slash pine and laurel oak. The understory is relatively open with species that include sapling oaks and saw palmetto. Groundcover species are scarce and include suppressed wiregrass and bracken fern (*Pteridium aquilinum*).	5.70
434	Hardwood-Conifer Mixed	This habitat type is found around Old Kissimmee Road in the central portion of the study area. The predominant canopy species included slash pine and live oak, but neither species displayed 66 percent dominance in the canopy. The sub-canopy/shrub layer included saw palmetto, gallberry, rusty staggerbush, and scattered sand live oaks. The ground-layer included wiregrass, bluestem, and greenbrier.	12.16
441	Pine Plantations	These areas are within the Reedy Creek Mitigation Bank and included planted slash pine for the canopy. The understory consists of bluestem and ruderal grasses.	306.01
523	Lakes Larger Than 10 Acres but Less Than 100 Acres	This surface water includes part of a small lake, including its wetland fringe. This lake is located south of Ronald Reagan Parkway and west of US 17/92.	36.06
534	Reservoirs Less than 10 Acres	This surface water classification includes open water, man-made ponds, which are scattered throughout the study area	23.34
610	Wetland Hardwood Forests	This habitat type is found scattered throughout the study area. The canopy is primarily composed of wetland hardwoods such as blackgum (*Nyssa biflora*), red maple (*Acer rubrum*), sweetbay (*Magnolia virginiana*) and loblolly bay (*Gordonia lasianthus*). Midstory species include dahoon holly (*Ilex cassine*) and wax myrtle. The understory is primarily composed of species such as soft rush (*Juncus effusus*), primrose willow (*Ludwigia peruviana*), Carolina willow (*Salix caroliniana*), and cinnamon fern (*Osmundastrum cinnamomerum*).	478.98

Table 1: Summary of Land/Cover/Land Use within the Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
611	Bay Swamps	This habitat type is found in the central portion of the study area, east of US 17/92 and south of Poinciana Parkway. The canopy of this community type is patchy and composed of sweet bay and loblolly bay. Mid-story species include dahoon holly and wax myrtle. Understory species include saw palmetto, gallberry, cinnamon fern and bluestem.	3.49
621	Cypress	This habitat type is found both north and south of Osceola Polk Line Road. This area exhibits a closed canopy of cypress (*Taxodium* spp.). Understory species are sparse but include pickerel weed (*Pontederia cordata*), duck potato (*Sagittaria lancifolia*) and maidencane (*Panicum hemitomon*).	12.73
625	Hydric Pine Flatwoods	This habitat type is scattered throughout the study area.The canopy is primarily composed of slash pine and various bay trees. Mid-story species include dahoon holly and wax myrtle. The understory is composed of saw palmetto, bluestem, Virginia chain fern (*Woodwardia virginica*) and primrose willow.	60.62
630	Wetland Forested Mixed	This habitat type is scattered throughout the landscape. The canopy is closed and composed of a mix of wetland hardwoods such as blackgum, cypress, red maple, sweet bay and loblolly bay. Mid-story species include dahoon holly and wax myrtle. Understory species include royal fern (*Osmunda regalis*), cinnamon fern and duck potato.	356.28
641	Freshwater Marshes	This habitat type is found north of Osceola Polk Line Road and south of Ronald Reagan Parkway. Vegetation included cattail (*Typha* sp.), pickerelweed, and duck potato.	6.26
643	Wet prairies	This habitat type is found within the central portion of the study area, specifically north of Old Kissimmee Road. These areas are not native wet prairie habitat, but rather anthropogenically-altered areas that have been historically converted from forested wetlands. Species are all herbaceous and include primrose willow, coinwort (*Centella erecta*), soft rush and Virginia chain fern.	1.85
814	Roads and Highways	This includes CR 532, Ronald Reagan Parkway. Poinciana Parkway, US 17/92 and other smaller residential roads.	148.90
830	Utilities	This category includes the Sabal Trail Transmission facility, the Duke Energy Intercession Plant and other various utility plants within the study area.	85.13
		Grand Total	2,417.04

Figure 1A: Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map

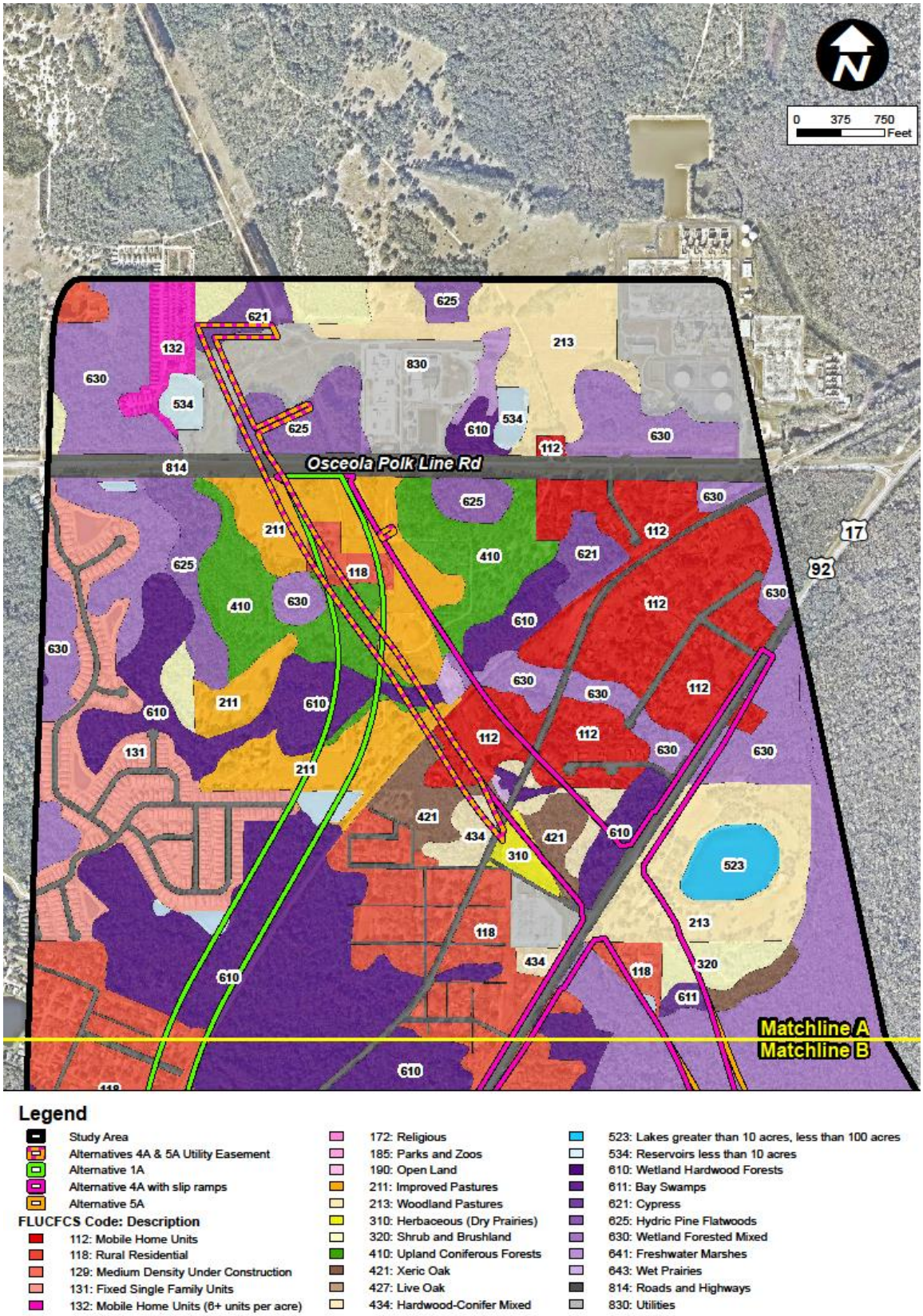


Figure 1B: Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map

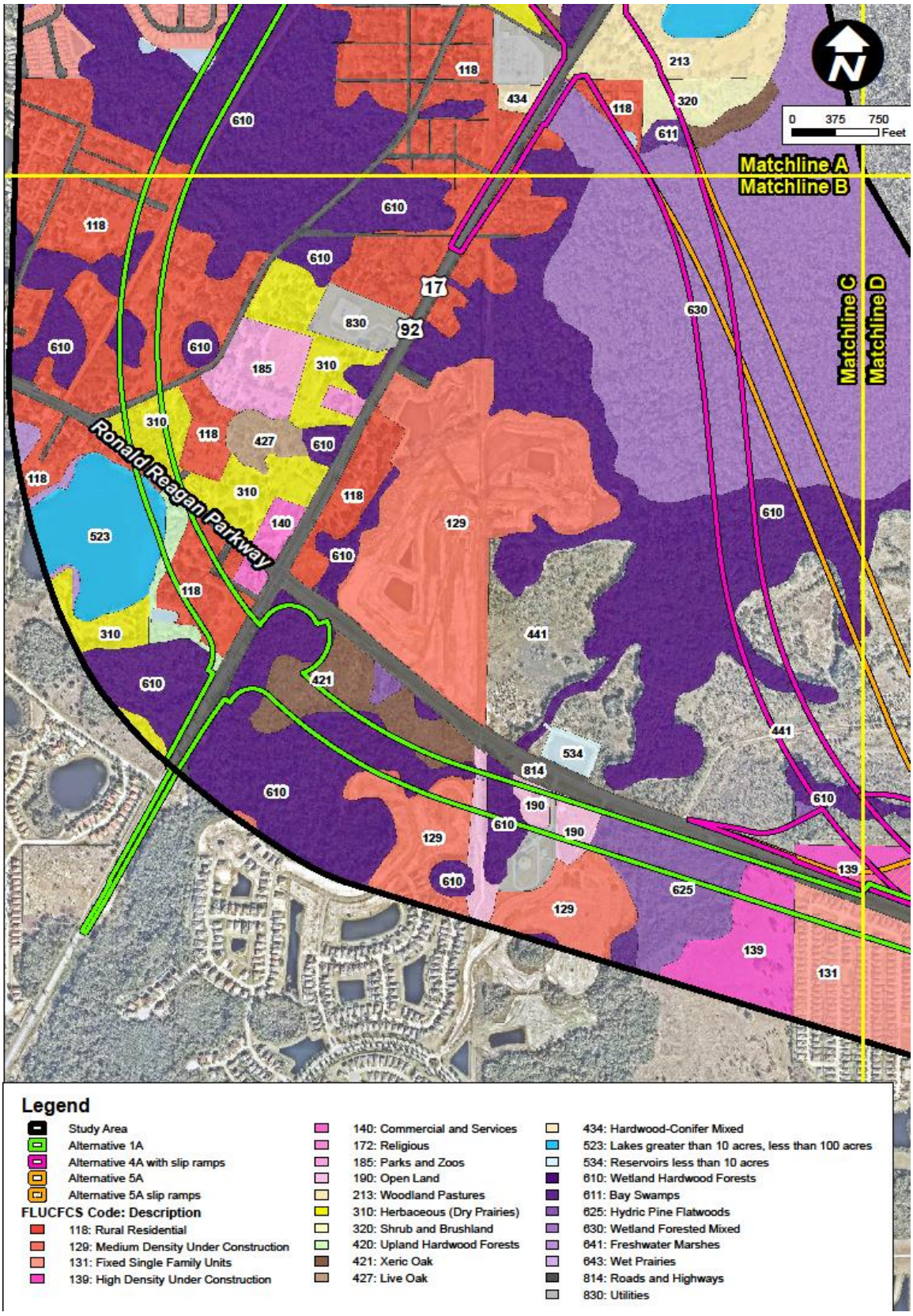
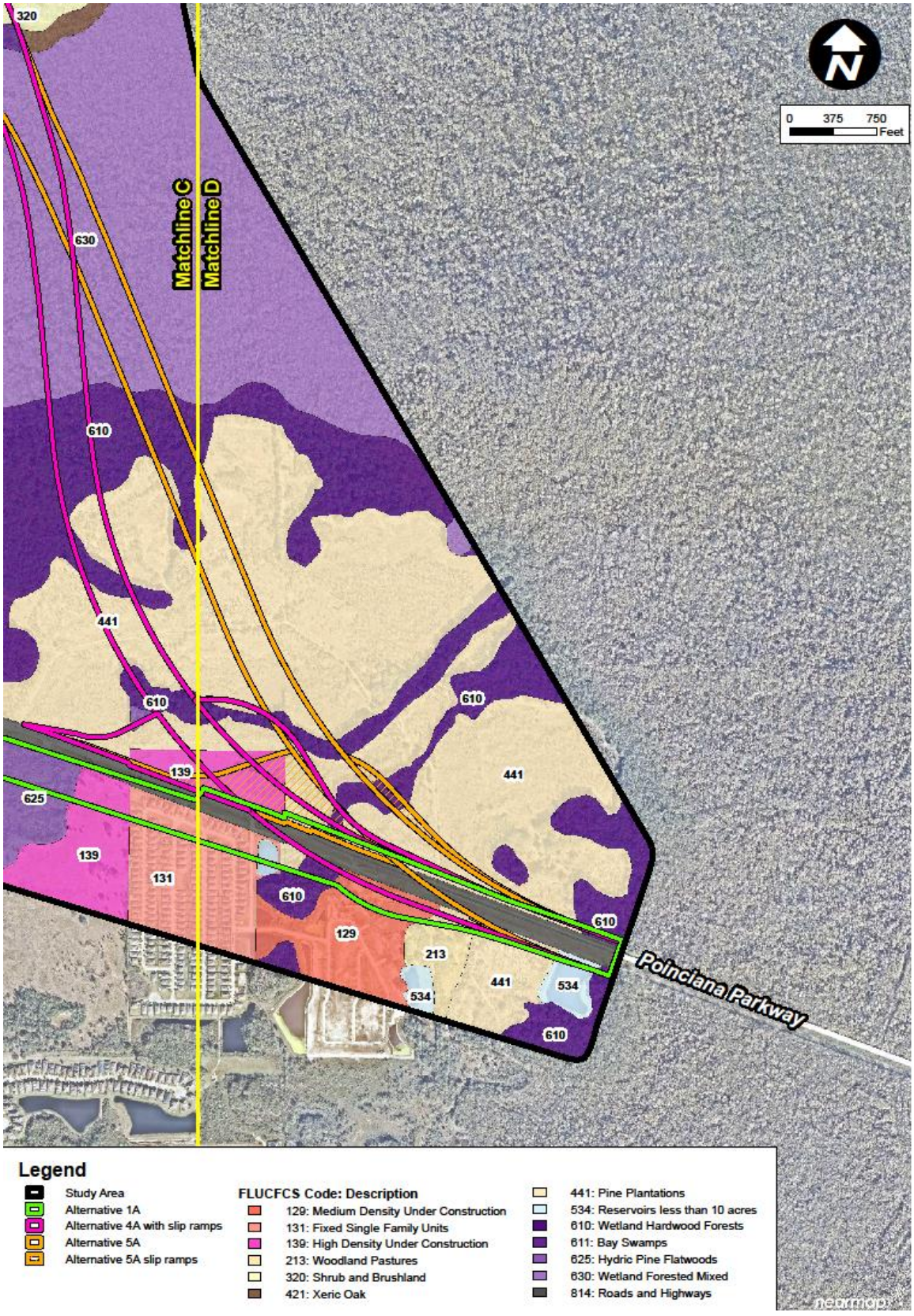


Figure 1C: Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map



3.0 AUDOBON'S CRESTED CARACARA SURVEY

3.1 SURVEY DESIGN AND PLANNING

Prior to conducting field reconnaissance, crested caracara monitoring stations were mapped within appropriate habitats, such as pastureland or lightly wooded areas. Stations were not placed in unsuitable habitat that would not be utilized for caracaras, such as cypress domes and forested wetlands. The monitoring stations were established using GIS data and following the guidelines listed in the *USFWS's Crested Caracara Survey Protocol – Additional Guidance* (December 2016). During the PD&E Study field reconnaissance conducted September 13, 2018 and October 2, 2018, three observation station locations were selected based on suitable caracara nesting and foraging habitat available, as well as the best viewpoint to observe potential nest trees. Each of these station locations provided for unobstructed views of the survey area and could be accessed via existing public roads. Thus, no private property access requests were needed. A meeting was held with USFWS on December 13, 2018, which confirmed the selected survey stations. Caracara station locations are shown on **Figure 2** and photographs of the survey stations are shown in **Appendix A**.

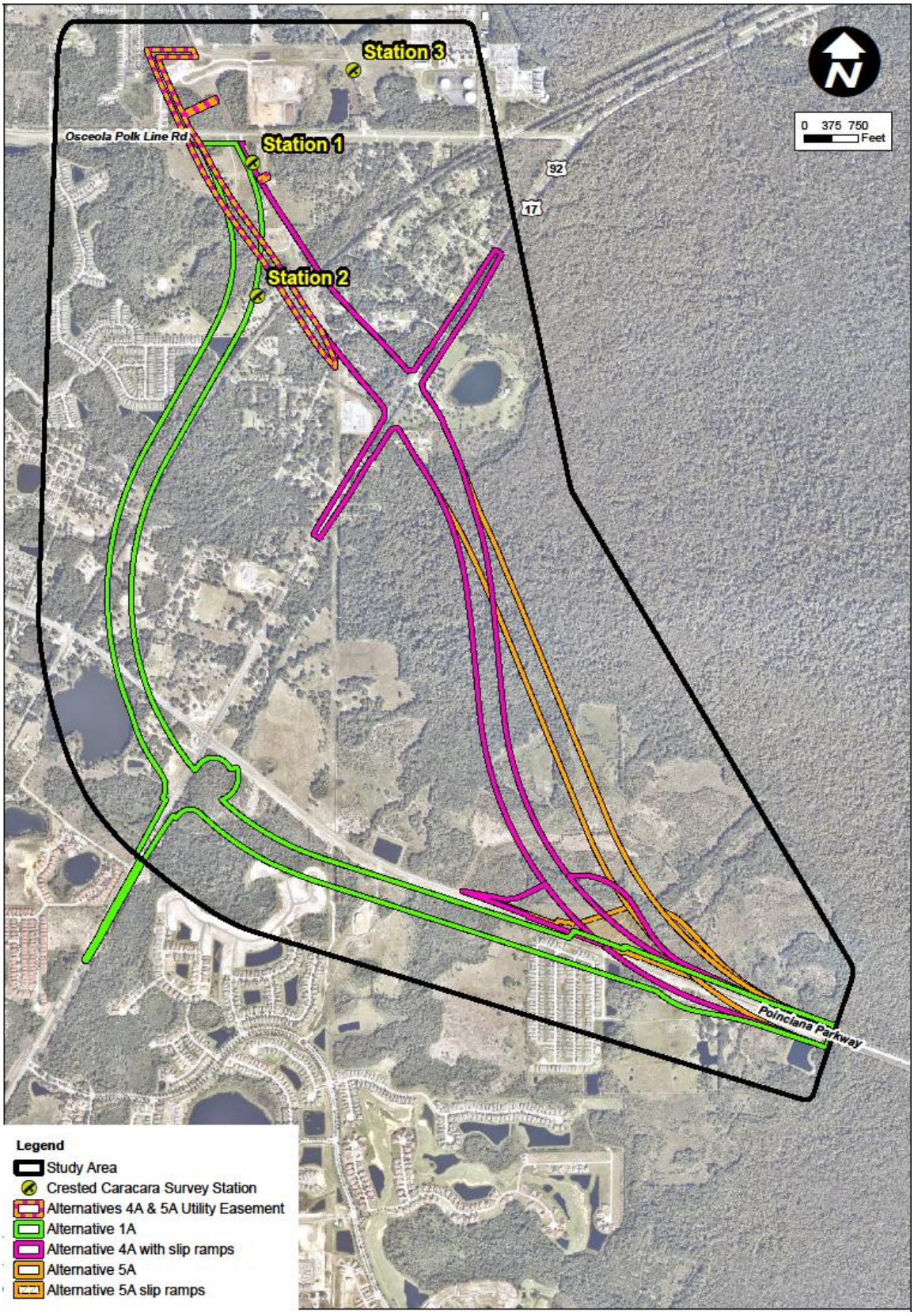
Table 2 provides the site location information for each station.

Table 2: Caracara Station Location Data

Station No.	Latitude	Longitude	Section/Township/Range	County
Station 1	28.25889	-81.55694	Sec. 6, Township 26 S, Range 28 E	Osceola
Station 2	28.25389	-81.55694	Sec. 6, Township 26 S, Range 28 E	
Station 3	28.26194	-81.55278	Sec. 31, Township 25 S, Range 28 E	

Surveys were conducted from January 7, 2019 through April 26, 2019 in general accordance with the USFWS 2016 survey protocol. Each station was monitored two weeks apart beginning 15 minutes before sunrise and concluding late morning (approximately 3 hours after sunrise). No evening surveys were conducted. From a stationary position, the surveyors would search for caracara activity and presence of other birds that might elicit a response from caracara or indicate the presence of carrion that may attract caracaras. All surveys were conducted from inside the field vehicle, and, if applicable, surveyors would move to the truck bed to obtain a clearer view of the area. Surveys were conducted using high-power binoculars. Standard data forms were used to record weather conditions, general bird activity, caracara observations, and flight patterns. If a caracara was observed, the time, number of individuals, approximate age, and behavior was recorded on the data sheets (**Appendix B**). Other wildlife observations were also recorded.

Figure 2: Crested Caracara Survey Stations Map



3.2 SURVEY RESULTS

One adult caracara was observed at Station 2 on March 14, 2019 flying in a southwesterly direction and is represented on **Figure 3**. The corresponding field data sheets are provided in **Appendix B**. The caracara observed at Station 2 was not carrying any nest material or displaying any behaviors indicative of nesting. No other caracaras were observed at Stations 1 or 3. No active caracara nests were observed within the project area.

Other bird species documented either foraging in the pastures or flying over the site are shown in **Table 3**.

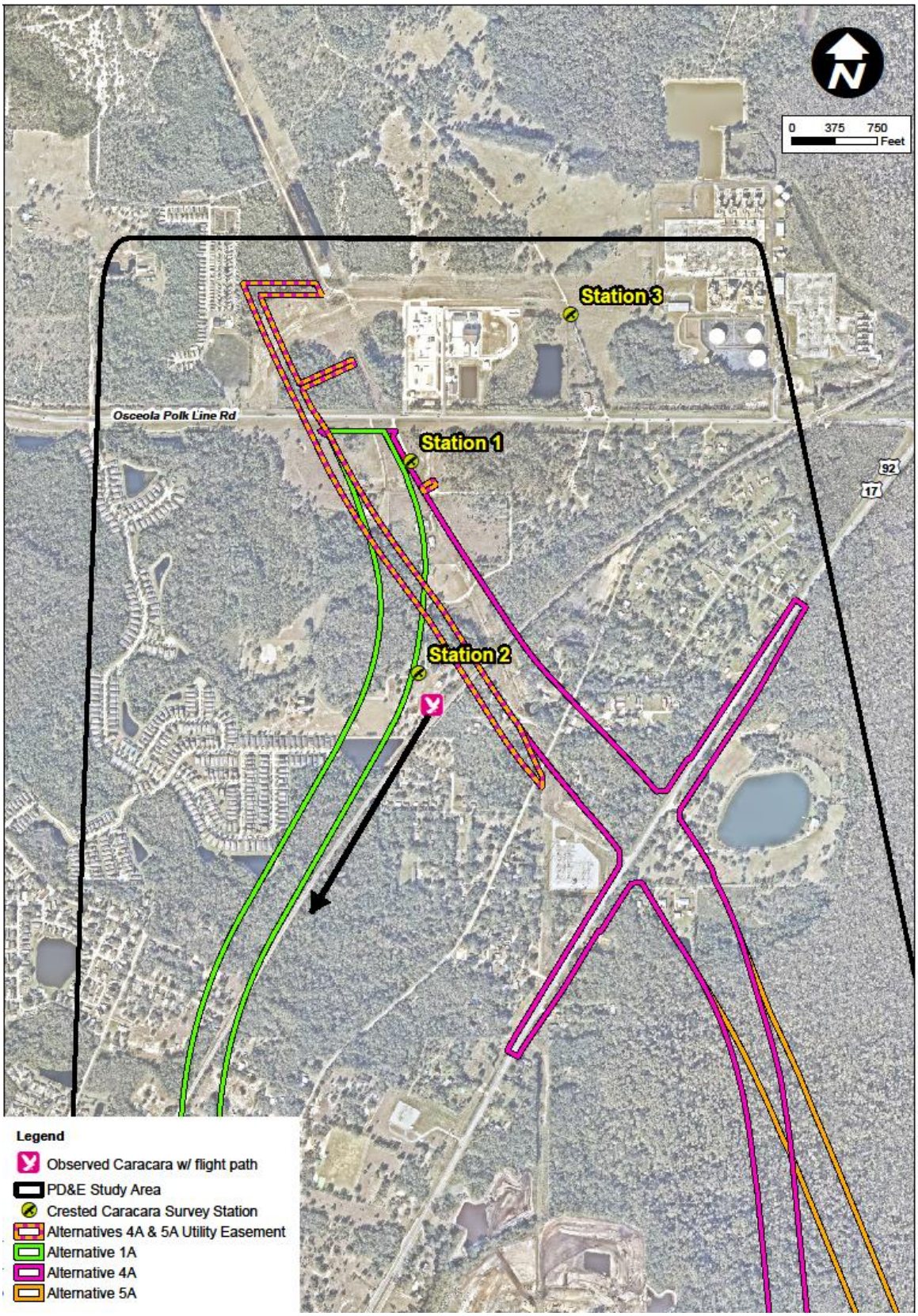
Table 3: Bird Species Documented During Caracara Surveys

Scientific Name	Common Name
Spinus tristis	American goldfinch
Cyanocitta cristata	blue jay
Setophaga discolor	prairie warbler
Corvus ossifragus	fish crow
Quiscalus quiscula	common grackle
Setophaga coronata	yellow-rumped warbler
Ardea herodias	great blue heron
Setophaga palmarum	palm warbler
Falco sparverius	American kestrel
Cardinalis cardinalis	northern cardinal
Buteo lineatus	red-shouldered hawk
Troglodytes aedon	house wren
Phalacrocorax auratus	double-crested cormorant
Vireo griseus	white-eyed vireo
Setophaga pinus	pine warbler
Cryocopus pileatus	pileated woodpecker
Melanerpes carolinus	red-bellied woodpecker
Strix varia	barred owl
Mniotilta varia	black-and-white warbler
Eudocimus albus	white ibis
Polioptila caerulea	blue-gray gnatcatcher
Baeolophus bicolor	tufted titmouse
Dryobates pubescens	downy woodpecker
Grus canadensis	sandhill crane
Zenaida macroura	mourning dove
Sayornis phoebe	eastern phoebe

Table 3: Bird Species Documented During Caracara Surveys

Scientific Name	Common Name
Cathartes aura	turkey vulture
Coragyps atratus	black vulture
Poecile carolinensis	carolina chickadee
Vireo solitarius	blue-headed vireo
Quiscalus major	boat-tailed grackle
Mimus polyglottus	northern mockingbird
Corvus brachyrhyncos	American crow
Sialia sialis	eastern bluebird
Dumetella carolinensis	gray catbird
Vireo flavifrons	yellow-throated vireo
Setophaga americana	northern parula
Colaptes auratus	northern flicker
Meleagris gallopavo	wild turkey
Megaceryle alcyon	belted kingfisher
Haliaetus leucocephalus	bald eagle
Anas platyrhynchos	mallard
Columbina passerina	common ground-dove
Vireo olivaceus	red-eyed vireo
Agelaius phoeniceus	red-winged blackbird
Accipiter cooperii	Cooper's hawk
Colinus virginianus	northern bobwhite
Turdus migratorius	American robin
Pandion haliaetus	osprey
Bubulcus ibis	cattle egret
Myiarchus crinitus	great-crested flycatcher
Odocoileus virginianus	white-tailed deer

Figure 3: Caracara Observation Map



4.0 CONCLUSIONS

Minimal suitable nesting habitat is present within the station areas of the study area and one adult caracara was observed. Based on the lack of caracara observations at Station 1 and 3 and the single observation at Station 2, it is unlikely that the species is nesting within the study area for the project. Kimley-Horn biologists observed no evidence of nesting or nesting behavior at any of the observation stations. Based on the survey results and the minimal suitable nesting habitat within project study area, CFX has determined that the project will have ***no effect*** on the Audubon's crested caracara.

5.0 REFERENCES

Florida Fish and Wildlife Conservation Commission. Selected GIS Layers. Office of Environmental Services Habitat Protection Planning Section. 2002.

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Morrison, J.L. 2001. Recommended management practices and survey protocols for Audubon's crested caracaras (*Caracara cheriway audubonii*) in Florida. Technical Report No. 18. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida.

U.S. Department of Agriculture, Soil Conservation Service. *Soil Survey of Osceola County*, Florida. 1976.

APPENDIX A

Photographic Log of Crested Caracara Survey Stations

Station 1

Station 2

Station 3

APPENDIX B

Caracara Survey Data Sheets

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX / Poinciana Pkwy Ext
Location/Observation Block/Lat-Long: Site 1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/7/19	7:03 am	10:03 am	S. Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:03 am	53°F	2 mph NNW	30%	stratocumulus	none
Finish: 10:03 am	67°F	6 mph NE	5%	strats	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
• open field / pasture bordered by pine forest, residential houses, and roadway. - considerable noise from roadway

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:

Am. goldfinch
blue jay
prairie warbler
fish crow
common grackle
yellow-rumped warbler
great blue heron
palm warbler
Am. kestrel
N. cardinal
red-shouldered hawk
house wren
double-crested cormorant
white-eyed vireo
pine warbler
pileated wdpk
red-billied wdpk
black vulture

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX / Poinciana Pkwy Ext
Location/Observation Block/Lat-Long: Site 3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/8/19	7:06 am	10:06 am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	56°F	1 mph WNW	30%	stratus	none
Finish:	69°F	1 mph SW	90%	stratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
- open, grassy field w/power station to NE, borderd by upland forest and roadway

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

other species

barred owl
red-shouldered hawk
palm warbler
black-and-white warbler
N. cardinal
Am. goldfinch
W. Ibis
B-G gnatcatcher
fish crow
house wren
common grackle
Red-bellied wdpk
tufted titmouse
pileated wdpk
downy wdpk
blue jay

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX PD+E

Location/Observation Block/Lat-Long: Station 2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/15/19	7:00	10:00	Tori Bacheler + Shelby Oenbrink

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 7:00	52°	0 mph	100		/
Finish: 10:00	53°	0 mph	100		/

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
northern cardinal, turkey vulture, glossy ibis, fish crow, red-shouldered hawk, red-bellied woodpecker, mourning dove, white ibis, northern mockingbird

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana, PD&E
Location/Observation Block/Lat-Long: Site 1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/21/19	7:02 am	10:02 am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	39°F	NW 6 mph	0%.	—	none
Finish:	46°F	N 9 mph	0%.	—	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
- local vehicle traffic along roadway

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:
Prairie warbler, common grackle, Palm warbler, Kestrel, F. sandhill crane, mourning dove, E. phoebe, Fish crow, Red shouldered hawk, Am. goldfinch, T. vulture, B. vulture

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana PD&E

Location/Observation Block/Lat-Long: Sctc 3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/22/19	7:01 ~~am~~	10:01 ~~am~~	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	49°F	ENE 7mph	0%	none	none
Finish:	65°F	ENE 8 mph	0%	none	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
considerable noise from traffic along roadway

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:

N. cardinal
red shouldered hawk
house wren
tufted titmouse
Fl. sandhill crane
Am. goldfinch
Carolina chickadee
E. phoebe
B-Gnatcatcher
Am. crow
blue-headed vireo
Pileated woodpk
Fish crow
blue-headed vireo

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX

Location/Observation Block/Lat-Long: Station 2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
1/31/19	6:55	10:00	Tori Bacheler + Shelby Oenbrink

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start: 6:55	48°	N@3mph	100%		—
Finish: 10:00	52°	N@3mph	90%		—

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
black vulture, american crow, mourning dove, northern cardinal

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana PD&E

Location/Observation Block/Lat-Long: Site #1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/5/19	6:56 am	9:56 am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	53°F	0 mph	5%	stratus	fog - minor @ ground
Finish:	64°F	3 mph N	0%	—	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
fog burned off @ 7:30 am

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. cardinal
Am. crow
Am. kestrel
Fish crow
C. grackle
~~C. grackle~~ Boat-tailed Grackle
E. phoebe
red-shouldered hawk
Pileated woodpe

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Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana PD&E
Location/Observation Block/Lat-Long: Site 3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/6/19	6:55am	9:55am	Sarah Johnson – expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	53°F	0mph	0%	–	none
Finish:	68°F	2mph E	5%	altostratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. cardinal
Red-shouldered hawk
Palm warbler
B-G gnatcatcher
Am. crow
Blue-headed vireo
Fish crow
house wren
pileated wdpk
pine warbler
white ibis
Am. goldfinch
~~Fl~~. sandhill crane
E. phoebe
Am. kestrel

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Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana PD&E
Location/Observation Block/Lat-Long: Site 2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/11/19	6:51 am	9:51 am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	60°F	1mph ENE	0%	—	mild fog
Finish:	71°F	7mph SE	50%	altocumulus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
• open forested pasture; piles of dirt along edge of pasture (single family residence) • fog completely cleared by 8:21 am

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. cardinal, T. titmouse, Pileated wdpk, red-shouldered hawk, blue jay, yellow-rumped warbler, E. bluebird, Am. goldfinch, N. mockingbird, Am. crow, Turkey vulture, house wren, fish crow, E. phoebe, Great Blue heron, W. ibis, Palm warbler

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Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana Pkwy
Location/Observation Block/Lat-Long: 3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/19/19	6:45am	9:45am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	68°F	NE 7mph	100%	cumulus	none
Finish:	70°F	NE 6mph	100%	cumulus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:

house wren, B. vulture, Pileated Wdpk, Am. crow, N. cardinal, BG gnatcatcher, Red-shouldered hawk, Fish crow, Am. kestrel

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Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana Pkw
Location/Observation Block/Lat-Long: Site #1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
2/20/19	6:40 am	9:40 am	Sarah Johnson - expert Rick Browne - beginner

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	70°F	ESE 6mph	100%	cumulus	none
Finish:	74°F	SE 12mph	80%	stratocumulus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:
N. cardinal
Boat tailed grackle
Mourning Dove
Red-bellied wdpk
Pileated Wdpk
Am. kestrel
Am. crow
Fish crow
house wren
B. vulture
red-shouldered hawk

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: CFX Poinciana Pkwy
Location/Observation Block/Lat-Long: site 2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/1/19	6:35am	9:35am	Sarah Johnson - expert Rick Browne - novice

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	64°F	NW 6mph	100%	altostratus	none
Finish:	68°F	SSE 4mph	80%	alto stratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. cardinal
Red-shouldered hawk
Tufted titmouse
Mourning dove
House wren
Catbird
E. phoebe
Am. crow
Yellow-throated Vireo
Pileated wdpk
Red-bellied wdpk
Fish crow
Blue-gray gnatcatcher
Downy wdpk
white ibis
Am. goldfinch
n. parula
n. flicker
wild turkey
great blue heron
Am. kestrel
belted kingfisher

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Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E
Location/Observation Block/Lat-Long: site #1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/6/19	6:28am	9:30am	Sarah Johnson - expert; Rick Brown - novice

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	44°F	NNW 12mph	10%.	stratus	none
Finish:	47°F	N 14 mph	0%.	none	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species
N. cardinal
BT grackle
Am. crow
T. vulture
Am. Kestrel
Am. goldfinch
Mallard
bald eagle
B. vulture

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana PKWY PD&E
Location/Observation Block/Lat-Long: site 3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/7/19	6:25 am	9:25 am	Sarah Johnson – expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	47°F	N 7 mph	0%	—	none
Finish:	58°F	NNE 10 mph	10%	strats	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. cardinal
Red-shouldred hawk
white-tailed deer
Palm Warbler
Am. goldfinch
C. chickadee
BG gnatcatcher
house wren
Fl. sandhill crane
Fish crow
Am. crow
E. phoebe
T. vulture
Red-bellied Wdpk
G. catbird
Pileated wdpk

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy CFX
Location/Observation Block/Lat-Long: Site #2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/14/19	7:23am	10:23am	Sarah Johnson - expert; Rick Browne - novice

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	64°F	E 6 mph	5%	altostratus	none
Finish:	72°F	ESE 12 mph	0%	—	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc
Site #2 truck	A	8:12 am	flew SE to SW direction; flew continuous straight line

Other species

N. cardinal
red-shouldered hawk
carolina chickadee
common ground dove
house wren
blue-headed vireo
N. parula
turkey
N. mockingbird
belted kingfisher
pileated wdpk
Am. goldfinch
E. phoebe
B. vulture
red-bellied wdpk
carolina wren
blue jay
white-eyed vireo
Ft. sandhill crane

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E
Location/Observation Block/Lat-Long: site #1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/20/19	7:21 am	10:21 am	Sarah Johnson - expert Rick Browne - novice

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	58°F	N 13 mph	100%	cumulus	none
Finish:	63°F	N 14 mph	40%.	altostratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:
N. mockingbird
Am. crow
Red-shouldered hawk
N. parula
bl. vulture
Am. Kestrel
boat-tailed grackle
red-bellied woodpk
palm warbler
Fish. crow
sandhill crane

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E
Location/Observation Block/Lat-Long: site #3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/21/19	7:20 am	10:20 am	Sarah Johnson - expert Rick Browne - novice

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	56°F	NW 5mph	50%	altocumulus	none
Finish:	65°F	NW 10 mph	40%	altocumulus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. Cardinal
Blue-gray gnatcatcher
Red-shouldered hawk
N. Parula
Red-wing blackbird
T. titmouse
House wren
G. catbird
Red-eyed vireo
Mourning dove
downy woodpk
Red-bellied Wdpk

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E
Location/Observation Block/Lat-Long: Site #2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
3/29/19	7:05am	10:05am	Sarah Johnson – expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	58°F	N 6mph	30%.	altostratus	none
Finish:	70°F	NE 10mph	15%.	altostratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
land owner spread dirt around pasture – no grass available

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

Am. goldfinch, N. cardinal, Fish crow, blue-gray gnatcatcher, Carolina wren, blue jay, cooper's hawk, E. phoebe, bobwhite, Am. robin, wild turkey, red-bellied woodpk, N. Parula, Mourning dove, belted kingfisher

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E

Location/Observation Block/Lat-Long: site 1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/1/19	7:01 am	10:01 am	Sarah Johnson – expert Rick Browne – novice

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	65°F	NE 7mph	100%	stratocumulus	none
Finish:	67°F	NNE 11mph	100%	stratocumulus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area
• background machinery noise high

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species:

Palm Warbler, N. mockingbird, osprey, fish. crow
Pileated Wdpk, Am. kestrel, 8 Black vulture
B-T grackle, N. cardinal, Am. goldfinch

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E
Location/Observation Block/Lat-Long: site #23

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/4/19	7:00am	10:00 am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	60°F	NE 7mph	50%	altostratus	none
Finish:	69°F	E 11mph	25%	altostratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species
N. parula
blue-headed vireo
N. cardinal
Fish crow
Red-shouldered hawk
Fl. sandhill crane
Pileated woodpk
house wren
cattle egret
osprey

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy PD&E

Location/Observation Block/Lat-Long: site 2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/11/19	6:52 am	9:52 am	Sarah Johnson - expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	69°F	N 3mph	0%	—	none
Finish:	74°F	ENE 6mph	0%	—	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other Species
great crested flycatcher
N. cardinal
red-shouldered hawk
Am. crow
Blue-gray gnatcatcher
tufted titmouse
common ground dove
Blue-headed vireo

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy
Location/Observation Block/Lat-Long: site #3

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/17/19	6:52 am	9:52 am	Sarah Johnson – expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	61°F	N 2mph	10%	altostratus	none
Finish:	73°F	E 4mph	30%	altostratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species: white-tailed deer, Pileated wdpk, Carolina wren, red-bellied wdpk, N. cardinal, GCFlycatcher, T. titmouse, N. parula

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Poinciana Pkwy
Location/Observation Block/Lat-Long: site # 1

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/19/19	6:47am	9:47am	Sarah Johnson – expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	74°F	SSE 13mph	70%	Stratus	none
Finish:	80°F	S 18mph	90%	Stratus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

Turkey vulture
Red-shouldered hawk
N. cardinal
Palm warbler
Fish crow
N. mockingbird
Am. kestrel
osprey
Bl. vulture

USFWS Crested Caracara Draft Survey Protocol –
Additional Guidance (2016-2017 Breeding Season)

Caracara Survey Form (updated 12/9/2016)

Project Name: Binciana Pkwy PD&E
Location/Observation Block/Lat-Long: site 2

Date	Start Time	Stop Time	Observer Name(s) and Experience Level(s)
4/26/19	6:35am	9:35am	Sarah Johnson – expert

Weather

Time	Air Temp	Wind Speed and Direction	% Cloud Cover	Cloud Type	Rain/Fog
Start:	68°F	S 6 mph	100%	altocumulus	none
Finish:	72°F	S 9 mph	100%	altocumulus	none

Observation Point Information

General Site and Habitat Conditions; Other Activities in the Area

Observations

(flight data, perching, preening, courtship, feeding, nest building, incubation, head throwback, diving, reaction to passing planes/traffic/pedestrians, other bird species, etc)

Observer Location	Age A/Im	Time	Description of behavior, flight path, etc

Other species

N. cardinal
Blue-gray gnatcher
Fish crow
great crested flycatcher
N. mockingbird
downy woodpecker
blue-headed vireo
pileated woodpecker
E. phoebe

APPENDIX I

Florida Scrub-Jay Survey Report (April 2019)

Natural Resource Evaluation
Appendix I - Florida Scrub-Jay (*Aphelocoma coerulescens*) Survey Report

Poinciana Parkway Extension (SR 538)
Project Development and Environment Study
From Poinciana Parkway to CR 532
Osceola and Polk Counties, Florida

CFX Project Number: 599-224

Prepared for:

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

JUNE 2019

Prepared by:

Kimley-Horn and Associates, Inc.

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1.0 INTRODUCTION

This project falls within the US Fish and Wildlife Service (USFWS) consultation area for the Florida scrub-jay (*Aphelocoma coerulescens*) and xeric oak scrub, the preferred habitat of the scrub-jay, occurs within the study area. According to historic Florida Natural Areas Inventory (FNAI) data (**Appendix A**), scrub-jays were observed within one mile of the study area in 1987 and 1992.

Kimley-Horn and Associates, Inc. (Kimley-Horn) staff conducted a scrub-jay survey in March 11-15, 2019 within the project study area. The survey was conducted utilizing the methods outlined in the *Florida Scrub-Jay General Survey Guidelines and Protocols* (2007) developed by the USFWS South Florida Ecological Services Office to determine the presence of scrub-jays. Scrub-jays were not observed and did not respond to taped calls during the survey.

This report is intended to provide the Central Florida Expressway Authority (CFX) with the methodology, results and conclusions of the scrub-jay survey for the Poinciana Parkway Extension PD&E Study.

2.0 EXISTING ENVIRONMENTAL CHARACTERISTICS

2.1 PRELIMINARY DATA COLLECTTION

Prior to the initial field assessments, a variety of site-specific data and mapping resources were consulted. Data obtained for review included:

- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), *Soil Survey of Osceola County, Florida* and *Soil Survey of Polk County, Florida*
- Historical aerial photography from the FDOT Aerial Photo Look-up System (APLUS) and Publication of Archival Library and Museum Materials (PALMM)
- Habitat and species-specific information obtained from the USFWS, the Florida Fish and Wildlife Conservation Commission (FWC), Florida Fish and Wildlife Research Institute (FWRI), Florida Geographic Data Library (FGDL), the FNAI, and Osceola and Polk counties.
- Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT, 1999)
- Data available from the FWC's 1992-1993 Florida scrub-jay statewide survey.

2.2 PRELIMINARY FLORIDA SCRUB-JAY HABITAT ANALYSIS

Potential scrub-jay habitat was any area containing greater than 15 percent coverage of one or more scrub oak species (*Quercus geminata*, *Q. chapmanni, Q. inopina, Q. minima, Q. myrtifolia*). Additional potential habitats considered were herbaceous prairies, pine flatwoods, and longleaf pine – xeric oak forests. Optimal Florida scrub-jay habitat was any area dominated (>60% coverage) by one or more scrub oak species, averaging less than 3.5 meters (10.5 feet) in height and having internal or adjacent open sandy areas. Sub-optimal habitats were defined as any scrub areas denser and/or taller than optimal habitats, and herbaceous prairies. Edges of mature scrub areas which are adjacent to open, sandy or grassy areas were also considered to be sub-optimal habitat with potential for scrub-jay nesting or foraging activities.

Fitzpatrick, et al. (1991) defines three habitat types utilized by scrub-jays:

TYPE I HABITAT:	Any upland plant community in which percent cover of the substrate by scrub oak species is 15% or more.
TYPE II HABITAT:	Any upland plant community, not meeting the definition of TYPE I habitat, in which one or more scrub oak species is represented.
TYPE III HABITAT:	Any upland or seasonally dry wetland within one quarter mile of any designated TYPE I or TYPE II habitat.

Based on the above scrub habitat definitions, the study area was evaluated and considered by staff to be either TYPE I, TYPE II or TYPE III scrub habitat.

Type 1 Habitat (Xeric oak) occurs within the study area. Each of the proposed alternatives would impact Type 1 Habitat. According to FNAI and USFWS, no scrub-jays have been historically documented within the study area. However, FNAI has reported scrub-jay sightings on two separate occasions (1987 and 1992) within 1 mile of the study area. Due to the existence of suitable scrub-jay habitat within the study area and documented sightings near the study area, a call survey was conducted to determine the presence of scrub-jays within the study area.

2.3 EXISTING VEGETATIVE COMMUNITIES AND LAND USES

Land covers within the study area have been assigned habitat classifications according to the FLUCFCS and are depicted on **Figures 1A, 1B, and 1C**. Soil types within the project area, as defined by the USDA Soil Surveys of Osceola County (1979) and Polk County (1990), Florida, are depicted on **Figure 2**. The study area consists of the following FLUCFCS categories:

FLUCFCS 112 – Mobile Home Units
FLUCFCS 118 – Rural Residential
FLUCFCS 129 – Medium Density Under Construction
FLUCFCS 131 – Fixed Single-Family Units
FLUCFCS 132 – Mobile Home Units (6+ units per acre)
FLUCFCS 139 – High Density Under Construction
FLUCFCS 140 – Commercial and Services
FLUCFCS 172 – Religious
FLUCFCS 185 – Parks and Zoos
FLUCFCS 190 – Open Land
FLUCFCS 211 – Improved Pastures
FLUCFCS 213 – Woodland Pastures
FLUCFCS 310 – Herbaceous (Dry Prairie)
FLUCFCS 320 – Shrub and Brushland
FLUCFCS 410 – Upland Coniferous Forests
FLUCFCS 414 – Pine Plantations
FLUCFCS 420 – Upland Hardwood Forests
FLUCFCS 421 – Xeric Oak
FLUCFCS 427 – Live Oak
FLUCFCS 434 – Hardwood-Conifer Mixed
FLUCFCS 523 – Lakes greater than 10 acres, less than 100 acres
FLUCFCS 610 – Wetland Hardwood Forests
FLUCFCS 611 – Bay Swamps
FLUCFCS 621 – Cypress
FLUCFCS 625 – Hydric Pine Flatwoods
FLUCFCS 630 – Wetland Forested Mixed
FLUCFCS 641 – Freshwater Marshes
FLUCFCS 643 – Wet Prairies
FLUCFCS 814 – Roads and Highways
FLUCFCS 830 – Utilities

Descriptions of each vegetative community that was surveyed for scrub-jays is included in Section 2.4 below.

Figure 1A: Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map

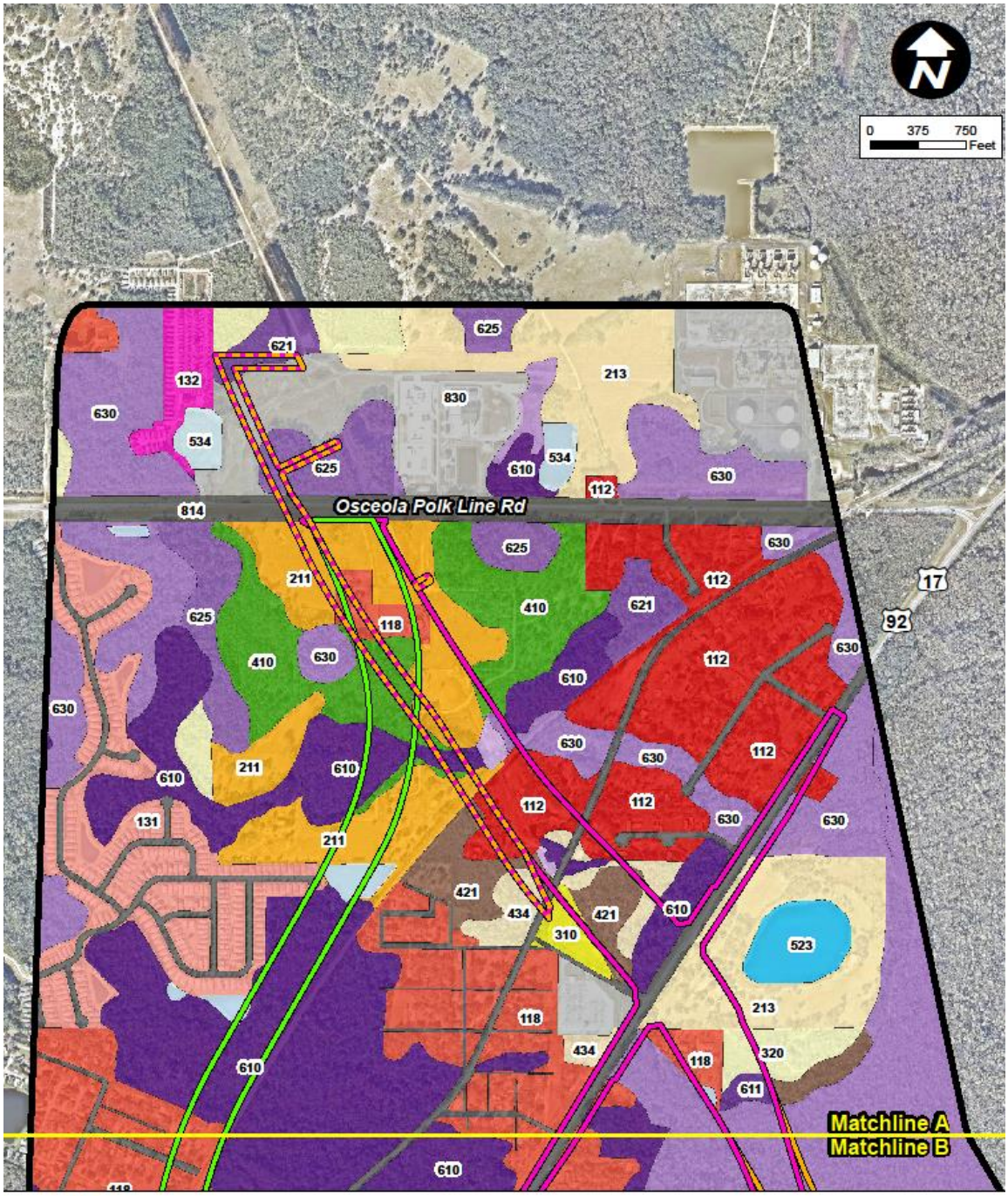


Figure 1B: Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map

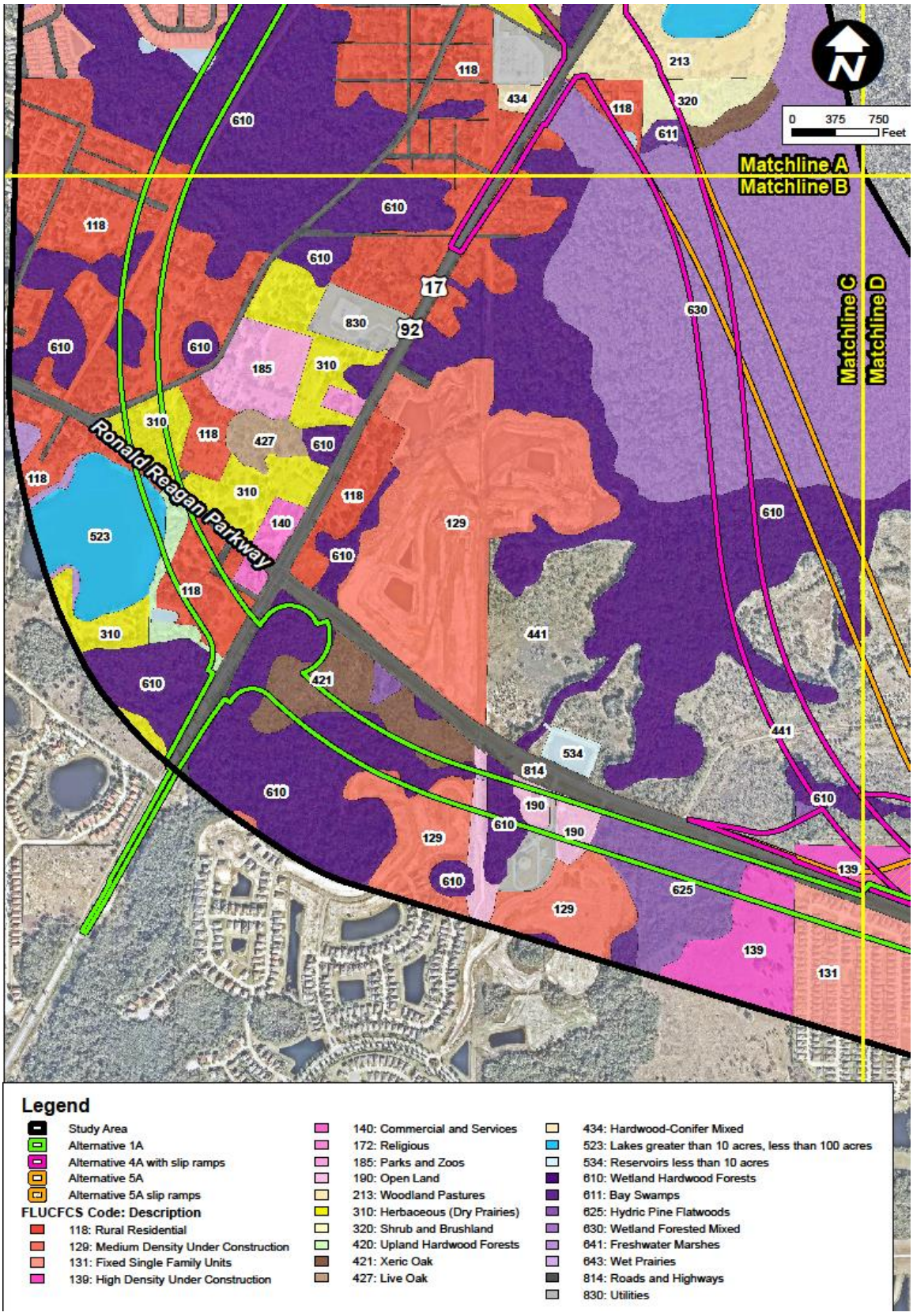


Figure 1C: Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map

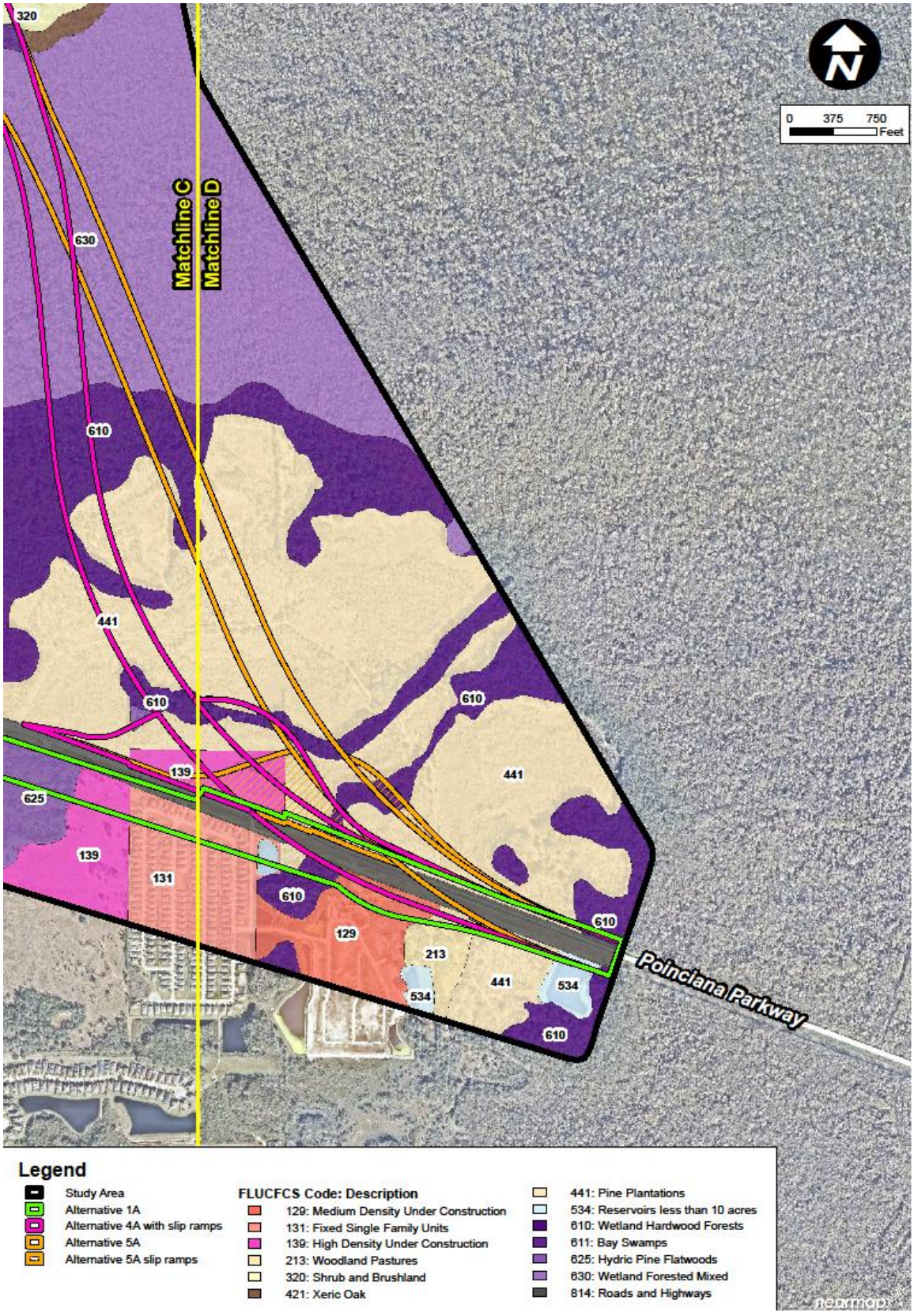
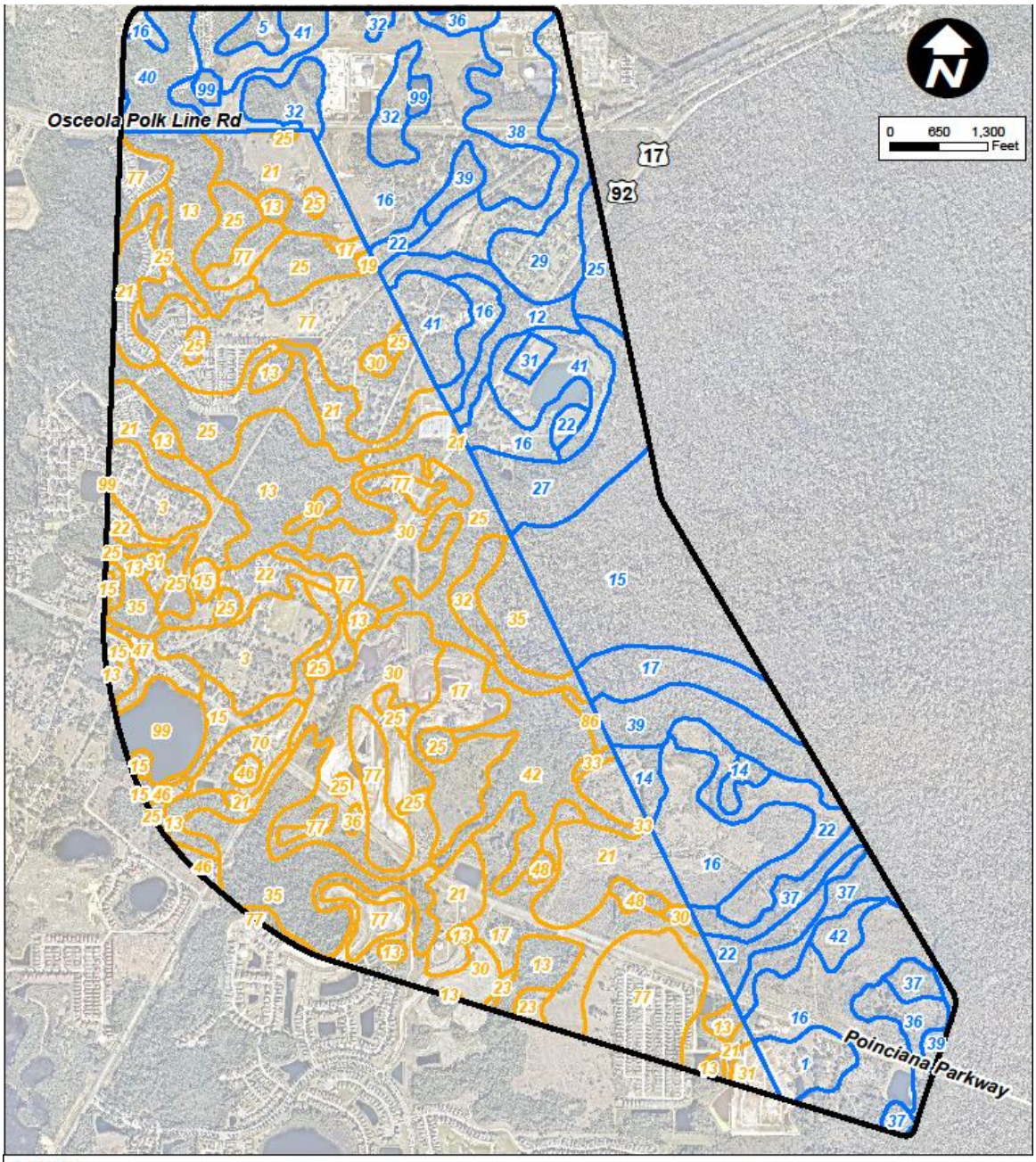


Figure 2: Natural Resources Conservation Service (NRCS) Soils Map



2.4 VEGETATIVE DESCRIPTIONS

The land use categories that were determined to represent potentially occupied Florida scrub-jay habitat were surveyed in accordance with the *Florida Scrub-Jay General Survey Guidelines and Protocols* (USFWS, 2007). The following section provides a description of the vegetative communities that were included in the survey area. Photographs of the suitable habitat types within the corridor are provided in **Appendix B**.

421 – Xeric Oak (Type 1 Habitat)

This upland habitat type includes scrub found in the center and southern portions of the study area. This scrub is dominated by mid-canopy species that include sand live oak, myrtle oak, and Chapman's oak, with scattered sand pine (*Pinus clausa*). Subcanopy and groundcover species include immature oaks, saw palmetto (*Serenoa repens*), rusty staggerbush (*Lyonia ferruginea*), wiregrass (*Aristida stricta*), staggerbush (*L. lucida*), gallberry (*Ilex glabra*), prickly pear cactus (*Opuntia spp.),* netted pawpaw (*Asimina reticulata*), stinging nettle (*Urtica spp.), and* shiny blueberry (*Vaccinium myrsinites*).

434 – Hardwood-Conifer Mixed (Type 2 Habitat)

This upland habitat type includes areas of mixed hardwood-coniferous forest toward the center of the study area, which directly abuts xeric oak habitat. The predominant canopy species included slash pine and live oak (*Q. virginiana*), but neither species displayed 66 percent dominance in the canopy. The sub-canopy/shrub layer included saw palmetto, gallberry, rusty staggerbush, and scattered sand live oaks. The ground-layer included wiregrass, bluestem (*Andropogon virginicus*), and greenbrier (*Smilax spp*.).

3.0 FLORIDA SCRUB-JAY SURVEY

3.1 SURVEY METHODS

The call survey was designed and conducted using methods outlined in the USFWS *Florida Scrub-Jay General Survey Guidelines and Protocols* (2007). Call stations were established along eight transects in suitable vegetative communities within the project study area. Transect T1, which included two call stations, was located directly north of an unnamed cemetery within the Loughman community, adjacent to the CSX railroad. Transect T2, which included two call stations, was located directly north of the unnamed cemetery, approximately 300 feet to the southeast of Transect T1. Transect T3, which included one call station, was located on the northwest corner of the intersection at Church Road and Old Kissimmee Road. Transect T4, which included three call stations, was located north of Labor Camp Road, adjacent to a large power line easement. Transect T5, which included three call stations, was located north of Labor Camp Road, approximately 300 feet east of Transect T4. Transect T6, which included two call stations, was located south of the intersection of US 17/92 and Poinciana Parkway. Transect T7, which included two call stations, was located south of the intersection of US 17/92 and Poinciana Parkway, approximately 300 feet south of Transect T6. Transect T8, which included three call stations, was located south of Poinciana Parkway, north of the Providence DRI.

The locations of all transects and call stations are depicted within **Appendix C**. In addition, **Table 1** provides the geographic coordinates of the call stations, as well as their corresponding FLUCFCS cover type and scrub-jay habitat class.

Table 1: Call Station Locations and Habitat Type

Transect	Call Station	Latitude	Longitude	FLUCFCS	Habitat Type	Florida Scrub-jay Status
T1	1	28.252331	-81.556708	421	Type I	None
	2	28.253050	-81.555951			None
T2	1	28.252054	-81.556120			None
	2	28.252483	-81.555504			None
T3	1	28.250707	-81.554274			None
T4	1	28.250999	-81.552913	434	Type II	None
	2	28.251602	-81.552476			None
	3	28.252172	-81.552063			None
T5	1	28.250716	-81.552001			None
	2	28.251343	-81.551600			None
	3	28.251915	-81.551221			None
T6	1	28.234247	-81.559275	421	Type I	None
	2	28.234352	-81.558165			None
T7	1	28.233544	-81.558885	421	Type I	None
	2	28.233719	-81.557434			None
T8	1	28.233585	-81.555953			None
	2	28.233052	-81.554851			None
	3	28.232597	-81.553910			None

Call surveys were performed on March 11-15, 2019. Florida scrub-jay vocalizations that included territorial scolds and the female "hiccup" were obtained from the Macaulay Library at the Cornell Lab of Ornithology. These vocalizations were broadcast at every station for at least one minute in each cardinal direction, for a total of four or more minutes per station. Calls were started approximately one hour after sunrise and were concluded before mid-day. The average survey started around 8:40 a.m., and typically concluded by 11:00 a.m. – 11:30 a.m. The surveys were conducted on days that were partly cloudy or sunny, with a light breeze (1-8 miles per hour). Each call station was surveyed on five separate dates.

Data recorded during the survey included the date, scientist name, transect and call station number, start time, wind speed and direction, temperature, precipitation and visibility, number of adult and juveniles observed, direction of flight and location, as well as any other notes of importance (i.e., other species observed). Please refer to **Appendix D** for copies of all field survey datasheets. If scrub-jay territorial behavior was observed, the calls were stopped, and the location(s) of observed jays, and territorial behaviors were recorded. If any accipiter or other Florida scrub-jay predators were observed in the survey area, the calls would be stopped and resumed when the predator was gone.

3.2 SURVEY RESULTS

Scrub-jay call surveys resulted in the determination that scrub-jays were not present within the survey area. The following **Table 2** provides a list of all bird species observed during the five days in which the survey was conducted. No scrub-jays were encountered during the 5-day survey period.

Table 2: Bird Species Observed During Survey

Scientific Name	Common Name
Cardinalis cardinalis	Northern cardinal
Corvus brachyrhynchos	American crow
Coragyps atratus	Black vulture
Vireo griseus	White-eyed vireo
Cyanocitta cristata	Blue jay
Dumetella carolinensis	Gray catbird
Haliaetus leucocephalus	Bald eagle
Mimus polyglottos	Northern mockingbird
Grus canadensis pratensis	Florida sandhill crane
Polioptila caerulea	Blue-gray gnatcatcher

4.0 CONCLUSIONS

Suitable habitats for the scrub-jay within the project area were surveyed in March 2019 in accordance with the *Florida Scrub-Jay General Survey Guidelines and Protocols* (USFWS, 2007). No Florida scrub-jays were observed during the survey. Based on the absence of scrub-jay observations during the survey, it has been determined that active scrub-jay territory is not likely to exist within the survey area. Therefore, the proposed Poinciana Parkway Extension is anticipated to have no adverse effect on the Florida scrub-jay.

5.0 REFERENCES

Fitzpatrick, J.W., B. Pranty, and B. Stith. 1994. Florida Scrub Jay Statewide Map, 1992-1993. Archbold Biological Station. Lake Placid, Florida.

Fitzpatrick, J.W., G.E. Woolfenden and M.T. Kopeny. 1991. Ecology and Development-Related Habitat Requirements of the Florida Scrub Jay (*Aphelocoma coerulescens*). Florida Game and Fresh Water Fish Commission, Non-game Wildlife Program Technical Report No. 8, Tallahassee, Florida.

Florida Department of Transportation. 1999. Florida Land Use, Cover and Forms Classification System. Third Edition.

United States Department of Agriculture, Soil Conservation Service. 1990. Soil Survey of Polk County, Florida.

United States Department of Agriculture, Soil Conservation Service. 1979. Soil Survey of Osceola County, Florida.

United States Fish and Wildlife Service. 2007. Florida Scrub-Jay General Survey Guidelines and Protocols.

APPENDIX A

Florida Natural Areas Inventory Report

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

February 19, 2019

Tori Bacheler
Kimley-Horn & Associates, Inc.
445 24th Street, Suite 200
Vero Beach, FL 32960

Dear Ms. Bacheler,

Thank you for requesting information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: Poinciana Parkway Extension PD&E Study

Date Received: 02/14/19

Location: Polk County

Based on the information available, this site appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area. Additional consideration should be given to avoid and/or mitigate impacts to these natural resources, and to design land uses that are compatible with these resources.

Element Occurrences

A search of our maps and database indicates that we currently have several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

Federally Listed Species

Our data indicate federally listed species are present on or very near this site, specifically *Plestiodon egregius lividus*, *Polygala lewtonii*, *Aphelocoma coerulescens* and *Plestiodon reynoldsi* (see enclosed map and tables for details). This statement should not be interpreted as a legal determination of presence or absence of federally listed species on a property.

The element occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, element occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Florida Scrub-jay Survey – U.S. Fish and Wildlife Service

This survey was conducted by staff and associates of the Archbold Biological Station from 1992 to 1996. An attempt was made to record all scrub-jay (*Aphelocoma coerulescens*) groups, although most federal lands were not officially surveyed. Each map point represents one or more groups.

This data layer indicates that there are potential scrub-jay populations on or very near your site. For additional information:

Fitzpatrick, J.W., B. Pranty, and B. Stith, 1994, Florida scrub jay statewide map, 1992-1993. U. S. Fish and Wildlife Service Report, Cooperative Agreement no. 14-16-004-91-950.

Managed Areas

Portions of the site appear to be located within the Upper Lakes Basin Watershed, managed by the South Florida Water Management District, and located within the Reedy Creek Mitigation Bank, managed by the Mitigation Resources, LLC.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

The Inventory always recommends that professionals familiar with Florida's flora and fauna conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

Thank you for your use of FNAI services. An invoice will be mailed separately. If I can be of further assistance, please contact me at (850) 224-8207 or at kbrinegar@fnai.fsu.edu.

Sincerely,

Kerri Brinegar

Kerri Brinegar
GIS / Data Services

Encl

1018 Thomasville Road
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(850) 681-9364 Fax
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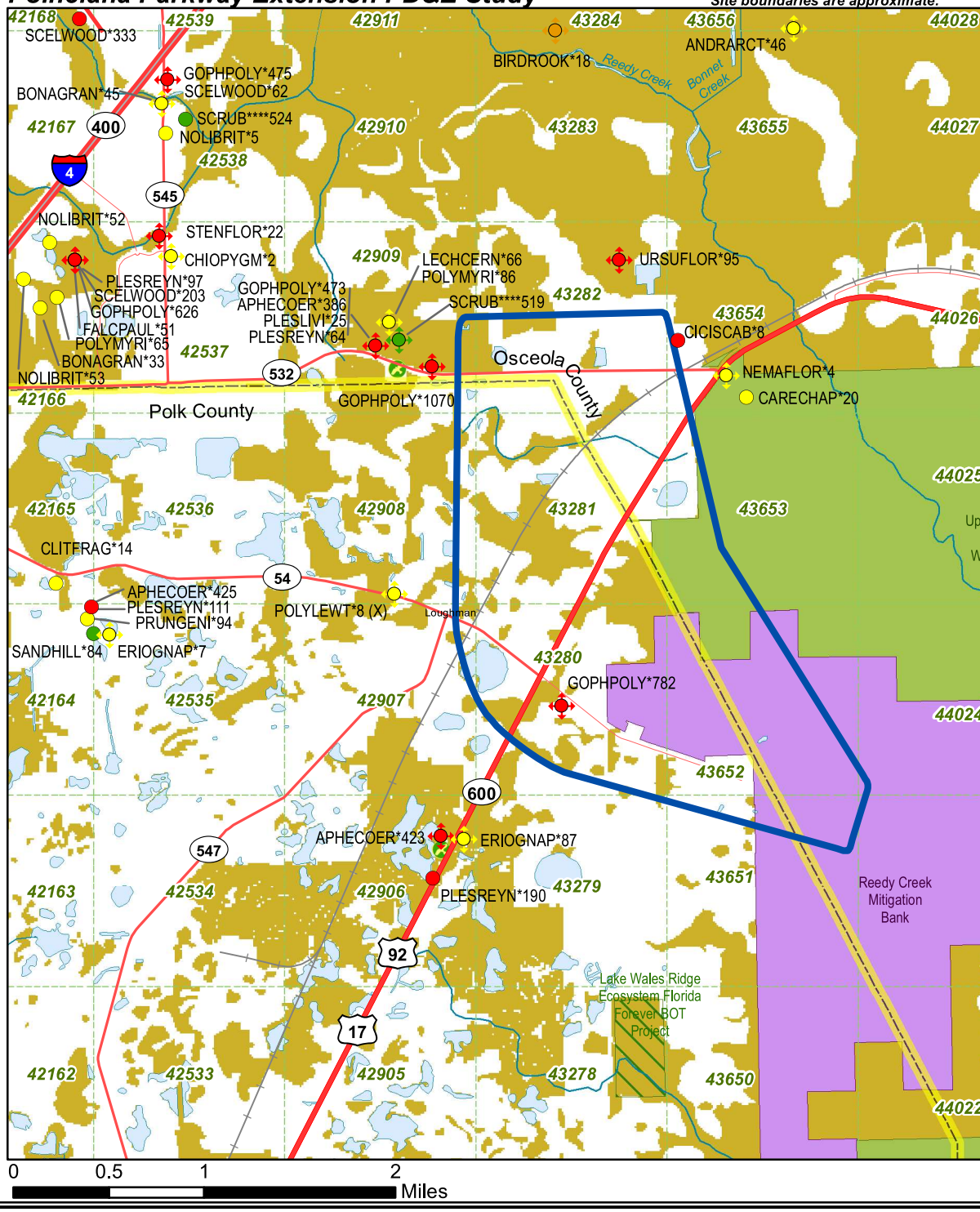
FLORIDA Natural Areas INVENTORY

Poinciana Parkway Extension PD&E Study

Site boundaries are approximate.



Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive

Point Indicates General Vicinity of Element

U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private
- State Aquatic Preserves

N

Land Acquisition Projects

- Florida Forever Board of Trustees Projects

- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

- County Boundary
- Interstate
- Turnpike
- Major Highway
- Local Road
- Railroad [Inactive railroads shown in Gray]
- Water

NOTE
Map should not be interpreted without accompanying documents.

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FNAI ELEMENT OCCURRENCE REPORT on or near

CFX PDE

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description
APHECOER*386	*Aphelocoma coerulescens*	Florida Scrub-Jay	G2?	S2	T	FT	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
APHECOER*423	*Aphelocoma coerulescens*	Florida Scrub-Jay	G2?	S2	T	FT	1992-06-23	DENSE SCRUB, WITH OAKS AND DENSE PALMETTO WITH NO NATURAL OPENINGS.
BIRDROOK*18	Bird Rookery		G5	SNR	N	N	1976-06	CYPRESS SWAMP ALONG CREEK; NESTING SUBSTRATE OF CYPRESS OVER WATER.
CARECHAP*20	*Carex chapmannii*	Chapman's sedge	G3	S3	N	T	1996-03-19	1996-03-19: DRIER OUTER ZONES OF HYDRIC HAMMOCK, WHERE THE SOIL IS MOIST AND HIGH IN HUMUS, BUT NOT CONSTANTLY SATURATED TO THE SURFACE (U96BRI02FLUS).
CICISCAB*8	*Cicindela scabrosa*	Scrub Tiger Beetle	G3	S3	N	N	1992-06-23	SMALL PATCH OF OPEN SCRUB, WITH SOME DENSE AREAS. THE SCRUB INCLUDED 3-5 M OAKS WITH SOME SHORT- AND LONG-NEEDLED PINES AND PALMETTO.
ERIOGNAP*87	*Eriogonum longifolium var. gnaphalifolium*	scrub buckwheat	G4T3	S3	T	E	1977-06-25	1977-06-25: Dry, sandhill type vegetation (Wunderlin and Shuey).
GOPHPOLY*1070	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1987-11-17	Scrub
GOPHPOLY*473	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
GOPHPOLY*782	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1992-06-23	DENSE OAKS AND PALMETTO.

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LECHCERN*66	*Lechea cernua*	nodding pinweed	G3	S3	N	T	1987-11-17	1987-11-17: DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY(U88CHR01FLUS).
NEMAFLOR*4	*Nemastylis floridana*	celestial lily	G2	S2	N	E	1977-09-04	1977-09-04: RICH, MOIST SOIL AMONG GRASSES AND HERBS BETWEEN THE ROAD AND LOW HARDWOOD FOREST (S77SHUSFFLUS).
PLESLIVI*25	*Plestiodon egregius lividus*	Blue-tailed Mole Skink	G5T2	S2	T	FT	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
PLESREYN*190	*Plestiodon reynoldsi*	Sand Skink	G2	S2	T	FT	2016-08-16	Disturbed scrub adjacent to US highway. Local vicinity includes wetlands and residential development.
PLESREYN*64	*Plestiodon reynoldsi*	Sand Skink	G2	S2	T	FT	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
POLYLEWT*8	*Polygala lewtonii*	Lewton's polygala	G2	S2S3	E	E	1981-03-23	OPEN OAK PASTURE
POLYMYRI*86	*Polygonella myriophylla*	Small's jointweed	G3	S3	E	E	1987-11-17	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.

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CFX PDE

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description
SCRUB****519	Scrub		G2	S2	N	N	2004	DOMINATED BY Q. INOPINA, P. CLAUSA, Q. CHAPMANII, SAND PINE, WHITE SAND, LICHENS GRADES INTO FLATWOODS WITH WIREGRASS. BAYHEADS IN VICINITY.
URSUFLOR*95	*Ursus americanus floridanus*	Florida Black Bear	G5T4	S4	N	N	2016	Large area of pine plantation, mesic and wet flatwoods, and dome and basin swamps; Largely private commercial timberland, nurseries, and small neighborhoods; public lands are dominated by pine plantation but also have flatwoods interspersed with dome swamps and patches of scrub; Large area of sand pine and oak scrub, mesic flatwoods, sandhill, depression marshes and hardwood swamps, pine plantation; regular harvesting of sand pine (U05SIM01FLUS).

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Matrix Unit ID: 42907

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Likely					
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Sandhill		G3	S2	N	N
Sandhill upland lake		G3	S2	N	N
Potential					
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 42908

Likely

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Scrub		G2	S2	N	N
Upland hardwood forest		G5	S3	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT

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Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 42909

Documented

Scrub		G2	S2	N	N

Documented-Historic

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Lechea cernua	nodding pinweed	G3	S3	N	T
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Polygonella myriophylla	Small's jointweed	G3	S3	E	E

Likely

Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Mesic flatwoods		G4	S4	N	N

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Mycteria americana	Wood Stork	G4	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
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Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 43279					
Likely					
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43280

Likely

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Sandhill upland lake		G3	S2	N	N
Upland hardwood forest		G5	S3	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T

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Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43281

Likely

Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43282

Likely

Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT

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Biodiversity Matrix Report

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Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Scrub		G2	S2	N	N
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 43651					
Likely					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E

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Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43652

Likely

Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 43653					
Likely					
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N
Potential					
Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N

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Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 43654

Documented

Carex chapmannii	Chapman's sedge	G3	S3	N	T
Cicindela scabrosa	Scrub Tiger Beetle	G3	S3	N	N

Likely

Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT
Scrub		G2	S2	N	N

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Cladonia perforata	perforate reindeer lichen	G1	S1	E	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Crotalaria avonensis	Avon Park rabbit-bells	G1	S1	E	E
Dicerandra christmanii	Garrett's scrub balm	G1	S1	E	E
Dicerandra frutescens	scrub mint	G1T1	S1	E	E

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Florida Natural Areas Inventory

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Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Hypericum cumulicola	Highlands Scrub hypericum	G2	S2	E	E
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Plestiodon reynoldsi	Sand Skink	G2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Schizachyrium niveum	scrub bluestem	G1G2	S1S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 44023

Likely

Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T

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Biodiversity Matrix Report

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Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia	clasping warea	G1	S1	E	E
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 44024

Likely

Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Andropogon arctatus	pinewoods bluestem	G3	S3	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2G3	S2S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Puma concolor coryi	Florida Panther	G5T1	S1	E	FE
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Warea carteri	Carter's warea	G3	S3	E	E

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Elements and Element Occurrences

An **element** is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature.

An **element occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location.

Element Ranking and Legal Status

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range).
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
GX = Believed to be extinct throughout range.
GXC = Extirpated from the wild but still known from captivity or cultivation.
G#? = Tentative rank (e.g., G2?).
G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
G#T#Q = Same as above, but validity as subspecies or variety is questioned.
GU = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
GNR = Element not yet ranked (temporary).
GNRTNR = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
S4 = Apparently secure in Florida (may be rare in parts of range).
S5 = Demonstrably secure in Florida.
SH = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
SX = Believed to be extirpated throughout Florida.
SU = Unrankable; due to a lack of information no rank or range can be assigned.
SNA = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
SNR = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
E = Endangered: species in danger of extinction throughout all or a significant portion of its range.
E, T = Species currently listed endangered in a portion of its range but only listed as threatened in other areas
E, PDL = Species currently listed endangered but has been proposed for delisting.
E, PT = Species currently listed endangered but has been proposed for listing as threatened.
E, XN = Species currently listed endangered but tracked population is a non-essential experimental population.
T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
PE = Species proposed for listing as endangered
PS = Partial status: some but not all of the species' infraspecific taxa have federal
PT = Species proposed for listing as threatened
SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: http://www.doacs.state.fl.us/pi/.

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

A = Excellent estimated viability
A? = Possibly excellent estimated viability
AB = Excellent or good estimated viability
AC = Excellent, good, or fair estimated viability
B = Good estimated viability
B? = Possibly good estimated viability
BC = Good or fair estimated viability
BD = Good, fair, or poor estimated viability
C = Fair estimated viability
C? = Possibly fair estimated viability
CD = Fair or poor estimated viability
D = Poor estimated viability
D? = Possibly poor estimated viability
E = Verified extant (viability not assessed)
F = Failed to find
H = Historical
NR = Not ranked, a placeholder when an EO is not (yet) ranked.
U = Unrankable
X = Extirpated

*For additional detail on the above ranks see: http://www.natureserve.org/explorer/eorankguide.htm

FNAI also uses the following EO ranks:

H? = Possibly historical
F? = Possibly failed to find
X? = Possibly extirpated

The following offers further explanation of the H and X ranks as they are used by FNAI:

The rank of H is used when there is a lack of recent field information verifying the continued existence of an EO, such as (a) when an EO is based only on historical collections data; or (b) when an EO was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. This definition of the H rank is dependent on an interpretation of what constitutes "recent" field information. Generally, if there is no known survey of an EO within the last 20 to 40 years, it should be assigned an H rank. While these time frames represent suggested maximum limits, the actual time period for historical EOs may vary according to the biology of the element and the specific landscape context of each occurrence (including anthropogenic alteration of the environment). Thus, an H rank may be assigned to an EO before the maximum time frames have lapsed. Occurrences that have not been surveyed for periods exceeding these time frames should not be ranked A, B, C, or D. The higher maximum limit for plants and communities (i.e., ranging from 20 to 40 years) is based upon the assumption that occurrences of these elements generally have the potential to persist at a given location for longer periods of time. This greater potential is a reflection of plant biology and community dynamics. However, landscape factors must also be considered. Thus, areas with more anthropogenic impacts on the environment (e.g., development) will be at the lower end of the range, and less-impacted areas will be at the higher end.

The rank of X is assigned to EOs for which there is documented destruction of habitat or environment, or persuasive evidence of eradication based on adequate survey (i.e., thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location).

APPENDIX B

Photographic Log of Survey Stations

Transect 1

Transect 2

Transect 3

Transect 4

Transect 5

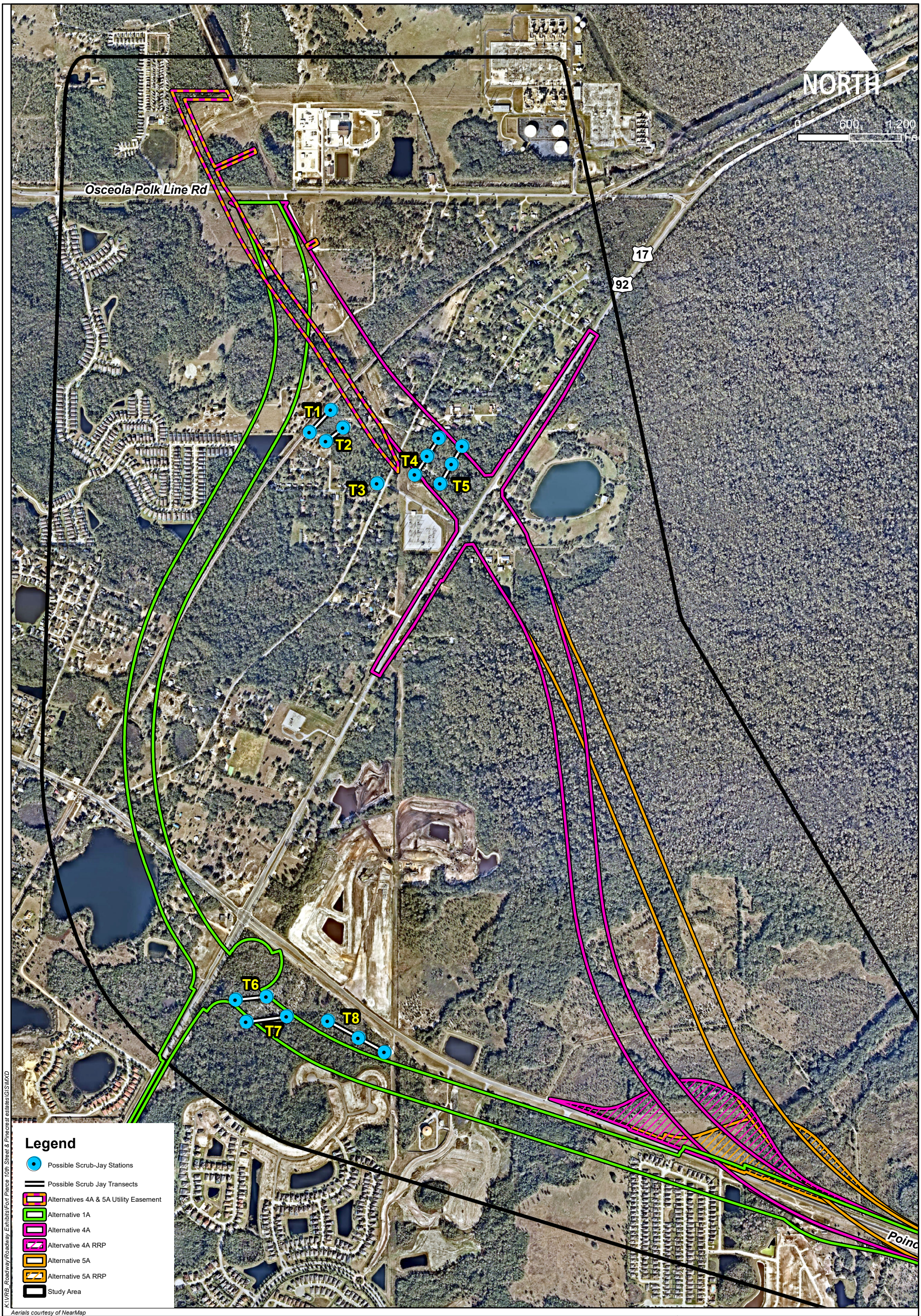
Transect 6

Transect 7

Transect 8

APPENDIX C

Florida Scrub-Jay Transect Maps



Aerials courtesy of NearMap

Florida Scrub-Jay Survey Transect Map - Overall

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

APPENDIX C	PROJECT NUMBER: 149800001	DATE: APRIL 2019	SCALE: 1 inch = 1,000 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

NORTH

0 125 250 Feet

Railroad

S2

T1

S1

S2

S1

T2

Cemetery

Central Ave

T3

S1

Church Rd

Old Kissimmee Road

Legend

- Scrub-Jay Stations
- Scrub Jay Transects
- Alternatives 4A & 5A Utility Easement
- Alternative 1A
- Alternative 4A
- Alternative 4A RRP
- Alternative 5A
- Alternative 5A RRP
- Study Area

K:\VRB_Roadway\Roadway Exhibits\Fort Pierce 10th Street & Pinecrest estates\GIS\MXD

Aerials courtesy of NearMap

Florida Scrub-Jay Survey Transect Map - Transects 1, 2 and 3

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

APPENDIX C	PROJECT NUMBER: 149800001	DATE: APRIL 2019	SCALE: 1 inch = 167 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

NORTH

0 125 250
Feet

Railroad

Old Kissimmee Road

US 17/92

Church Rd

T3
S1

T4
S1
S2
S3

T5
S1
S2
S3

Legend

- Scrub-Jay Stations
- Scrub Jay Transects
- Alternatives 4A & 5A Utility Easement
- Alternative 1A
- Alternative 4A
- Alternative 4A RRP
- Alternative 5A
- Alternative 5A RRP
- Study Area

K:\VRB_Roadway\Roadway Exhibits\Fort Pierce 10th Street & Pinecrest estates\GIS\MXD

Aerials courtesy of NearMap

Florida Scrub-Jay Survey Transect Map - Transects 4 and 5

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

APPENDIX C	***PROJECT NUMBER: 149800001***	***DATE:*** ***APRIL 2019***	***SCALE:*** 1 inch = 167 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

NORTH

0 125 250 Feet

US 17/92

Kinny Harmon Road

T6

S1

S2

S1

S2

T7

Legend

- Scrub-Jay Stations
- Scrub Jay Transects
- Alternatives 4A & 5A Utility Easement
- Alternative 1A
- Alternative 4A
- Alternative 4A RRP
- Alternative 5A
- Alternative 5A RRP
- Study Area

K:\VRB_Roadway\Roadway Exhibits\Fort Pierce 10th Street & Pinecrest estates\GIS\MXD

Aerials courtesy of NearMap

Florida Scrub-Jay Survey Transect Map - Transects 6 and 7

CFX Poinciana Parkway Extension
Polk and Osceola Counties, Florida

APPENDIX C	PROJECT NUMBER: 149800001	DATE: APRIL 2019	SCALE: 1 inch = 167 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

K:\VRB_Roadway\Roadway Exhibits\Fort Pierce 10th Street & Pinecrest estates\GIS\MXD

Aerials courtesy of NearMap

Florida Scrub-Jay Survey Transect Map - Transect 8 CFX

Poinciana Parkway Extension
Polk and Osceola Counties, Florida

APPENDIX C	PROJECT NUMBER: 149800001	DATE: APRIL 2019	SCALE: 1 inch = 167 feet

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

APPENDIX D

Survey Datasheets

Scrub Jay Survey Data Sheet

Site Name: CFX Poinciana Parkway Extension
Observer: Frank Suarez, Rick Browne
Date: 3/11/2019
Project No. 149800001
Arrival Time: 08:41
Departure Time: 11:58
Weather Conditions: Partly Cloudy, Wind West 1 mph, 66°F

Transect No.	Call Station Designation	Start Time	End Time	Observations
T1	S1	08:42	08:46	Northern cardinal calling, No scrub-jays, backhoe working across railroad
T1	S2	08:49	08:53	No scrub-jays
T2	S1	08:56	09:00	No scrub-jays
T2	S2	09:06	09:10	grey catbird calling, No scrub-jays
T3	S1	09:18	09:22	-No scrub-jays observed -Piliated woodpecker flying -grey catbird, northern cardinal calling- No scrub-jays
T4	S1	09:33	09:37	No scrub-jays
T4	S2	09:42	09:46	No scrub-jays, blue jay observed
T4	S3	09:48	09:52	No scrub-jays
T5	S3	09:57	10:01	No scrub-jays
T5	S2	10:09	10:13	-No scrub-jays -grey catbird, american crow flying
T5	S1	10:16	10:20	No scrub-jays
T7	S2	10:47	10:51	No scrub-jays
T7	S1	10:58	11:02	No scrub-jays
T6	S1	11:06	11:10	No scrub-jays
T6	S2	11:14	11:18	No scrub-jays
T8	S3	11:30	11:34	No scrub-jays
T8	S2	11:39	11:43	No scrub-jays
T8	S1	11:51	11:55	No scrub-jays

NOTES: No scrub-jays were observed during monitoring.

Scrub Jay Survey Data Sheet

Site Name: CFX Poinciana Parkway Extension
Observer: Tori Bacheler + Frank Suarez
Date: 3/12/2019
Project No. 149800001
Arrival Time: 8:30 am
Departure Time: 11:45 am
Weather Conditions: 66°F N @ 2 mph 100% cloud cover

Transect No.	Call Station Designation	Start Time	End Time	Observations
T6	S2	8:35	8:39	blue-gray gnatcatcher NO SJ
T6	S1	8:43	8:47	white-eyed vireo, northern cardinal NO SJ
T7	S1	8:55	8:59	northern cardinal NO SJ
T7	S2	9:05	9:09	NO SJ
T8	S1	9:15	9:19	NO SJ
T8	S2	9:25	9:29	NO SJ
T8	S3	9:32	9:36	NO SJ
T4	S1	9:49	9:54	blue jay NO SJ
T4	S2	9:57	10:02	NO SJ
T4	S3	10:07	10:11	NO SJ
T5	S3	10:20	10:24	NO SJ
T5	S2	10:30	10:34	NO SJ
T5	S1	10:38	10:42	northern cardinal
T3	S1	10:50	10:54	NO SJ
T3	S2	10:59	11:03	NO SJ
T2	S2	11:20	11:24	NO SJ
T2	S1	11:30	11:34	NO SJ

NOTES: skink tracts @ 28.23414 -81.55809
28.23402 -81.55842
28.23397 -81.55835
GT burrow 28.23383 -81.55792
skink tracts 28.23338 -81.55496
28.23322 -81.55507

Scrub Jay Survey Data Sheet

Site Name: CFX Poinciana Parkway Extension **Project No.** 149800001
Observer: Shelby Oenbrink, Frank Suarez
Date: 03/13/19
Arrival Time: 8:49
Departure Time: 11:58
Weather Conditions: morning: 65°, sunny, calm winds end survey: 73°, partly cloudy, winds 8mph NW

Transect No.	Call Station Designation	Start Time	End Time	Observations
T4	S1	8:53	8:57	no SJ
T4	S2	8:59	9:03	vulture flyover, no SJ
T4	S3	9:05	9:09	American crow (2), no SJ
T5	S3	9:12	9:16	no SJ
T5	S2	9:18	9:22	crow, no SJ
T5	S1	9:26	9:30	mourning dove, no SJ
T1	S1	9:38	9:42	crows (2), vulture, sandhill cranes (calling) no SJ
T1	S2	9:43	9:47	no SJ
T2	S1	9:50	9:54	no SJ
T2	S2	9:56	10:00	vulture flyover, no SJ
T3	S1	10:09	10:13	no SJ
T7	S2	10:42	10:46	crow flyover, no SJ
T6	S2	10:49	10:53	no SJ
T6	S1	11:02 ~~10:54~~	11:06	no SJ
T7	S1	11:09	11:13	bald eagle flyover, no SJ
T8	S3	11:32	11:36	vulture flyover, no SJ
T8	S1	11:41	11:45	no SJ
T8	S2	11:49	11:53	sandhill crane (calling), no SJ

NOTES:

Scrub Jay Survey Data Sheet

Site Name: CFX Poinciana Parkway Extension
Project No. 149800001
Observer: Frank Suarez & Shelby Oenbrink
Date: 3.14.19
Arrival Time: 8:50
Departure Time: 10:57
Weather Conditions: Morning: 67°, Sunny, winds 5mph W end time: 71°, sunny, 8 mph NW

Transect No.	Call Station Designation	Start Time	End Time	Observations
T8	S3	8:55	8:59	no SJ
T8	S2	9:02	9:06	no SJ
T8	S1	9:09	9:13	northern cardinal, no SJ
T7	S2	9:19	9:23	no SJ
T6	S2	9:25	9:29	no SJ
T6	S1	9:30	9:34	[redacted] no SJ
T7	S1	9:35	9:39	vulture flyover, no SJ
T3	S1	9:48	9:52	mockingbird, no SJ
T1	S1	9:55	9:59	mourning dove, no SJ
T1	S2	10:00	10:04	vultures kettling, no SJ
T2	S1	10:07	10:11	no SJ
T2	S2	10:12	10:16	vulture flyover, no SJ
T5	S1	10:22	10:26	catbird, no SJ
T5	S2	10:28	10:32	no SJ
T5	S3	10:33	10:37	no SJ
T4	S3	10:38	10:42	no SJ, mockingbird
T4	S2	10:44	10:48	crow calling, no SJ
T4	S1	10:50	10:54	no SJ

NOTES:

Skink track: 28.23316
-81.55499

Scrub Jay Survey Data Sheet

Site Name: CFX Poinciana Parkway Extension **Project No.** 149800001
Observer: FS & RB
Date: 3-15-19 **Arrival Time:** 08:50
Departure Time: 11:15
Weather Conditions: Morning: Sunny, wind 2mph, 64° end: ~~Hazy~~ sunny, 74° wind 5mph south

Transect No.	Call Station Designation	Start Time	End Time	Observations
T7	S2	09:06	09:10	No SJs ; N. cardinal
T7	S1	09:12	09:16	No SJs
T6	S2	09:17	09:21	No SJs
T6	S1	09:24	09:28	No SJs
T8	S1	09:38	09:42	No SJs
T8	S2	09:45	09:49	No SJs ; 2 crows
T8	S3	09:55	09:59	No SJs
T1	S1	10:07	10:11	No SJs
T1	S2	10:13	10:17	No SJs
T2	S1	10:20	10:24	No SJs ; N. cardinal
T2	S2	10:25	10:29	No SJs ; black vulture , catbird
T3	S1	10:33	10:37	No SJs
T4	S1	10:39	10:43	No SJs
T4	S2	10:45	10:49	No SJs
T4	S3	10:50	10:54	No SJs
T5	S3	10:56	11:00	No SJs ; black vulture
T5	S2	11:01	11:05	No SJs
T5	S1	11:06	11:10	No SJs

NOTES: GT burrow: 28.23401 -81.55888 @T6-S2
Skunk tracks: 28.23337 -81.55503 @T8-S2

APPENDIX J

Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or "approval" from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11" x 17" or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A <u>LIVE</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A <u>DEAD</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.

2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.

3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).

2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.

3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

APPENDIX K

South Florida Water Management District and US Army Corps of Engineers Coordination Meeting Minutes

USACE Meeting Summary
Poinciana Parkway Extension (SR 538) PD&E Study

MEETING DATE: February 28, 2019

MEETING TIME: 9:00 AM to 10:00 AM

LOCATION: USACE Cocoa Field Office
400 High Point Drive, Suite 600, Cocoa, FL

ATTENDEES: Andrew W. Phillips, USACE
Nicole Gough, Dewberry
Lynn Kiefer, Kimley-Horn and Associates, Inc. (Kimley-Horn)
Clif Tate, Kimley-Horn

A meeting was held with the US Army Corps of Engineers (USACE) to discuss the status of the PD&E Study and to obtain feedback on the alternatives presented during the Environmental Advisory Group (EAG) and Project Advisory Group (PAG) meetings held on February 19, 2019.

Nicole provided a brief introduction of the purpose of the meeting and Clif walked through the power point that was presented at the EAG and PAG meetings (copy attached). Lynn discussed the previous studies including the Florida Department of Transportation (FDOT) District 5 PD&E Study. District 5 has screened a larger project study area in the FDOT's Efficient Transportation Decision Making (ETDM), Environmental Screening Tool (EST). Andy mentioned that Garret Lips had been the reviewer for the ETDM screening and the USACE had issued a letter indicating an Environmental Impact Statement (EIS) may be required. But after further discussion, it was determined that this previous review and letter was based on alternatives that were further south in Polk County that would have impacted several resources including listed species, particularly sand skinks. The EIS recommendation did not apply to the current project area.

Andy recommended that the FDOT District 5 Quality Enhancement Strategies be incorporated into the documentation for this PD&E (copy attached). This is a good tool for documenting alternatives analyses and helps with the documentation for future permitting, if a build alternative moves forward. It was discussed whether the Reedy Creek Mitigation Bank would need to be a co-applicant on future permit applications. It was believed that this is not the case as CFX would acquire the right-of-way. But it was acknowledged that if Alternatives 4A or 5A, which impact the Reedy Creek Mitigation Bank, move forward into design and permitting, future coordination would be needed with the bank and with the USACE's mitigation banking team to determine how the mitigation banking instrument (MBI) would be affected or modified. Prior to our meeting USACE reached out to the mitigation banker and they did not appear to know much about the proposed alternatives. We mentioned that two separate teleconferences have been conducted with the mitigation bank representatives.

USACE is supportive of bridging the wetlands in the bank if Alternative 4A or 5A move forward. But fire management may be an issue that needs to be documented in the study. The current MBI requires the existing portion of Poinciana Parkway to be closed during fire management. Need to consider how to inform the public of road closures and traffic control. Nicole acknowledged that the management plan for the bank calls for burning, but this portion of the bank and the SFWMD Upper Lakes Basin property, adjacent to the bank have generally been managed mechanically and not by fire. This is primarily due to the existing development that occurs adjacent to this portion of the bank and the difficulty in finding a window when burn conditions are appropriate. The overall management of the bank needs to be

considered. It was discussed that access gates at gantries can be considered during design to provide equipment access.

MBI credits were based on fire management. If burning options are further reduced, this will need to be considered in the overall impacts. The bank currently has USACE credits and mitigation for this project could occur in the bank, but state credits are more limited. It was suggested that coordination begin early with the USACE Mitigation Banking Team on process of addressing how the MBI would be affected as this can take some time.

It was suggested that reductions in the typical section may need to be considered for those sections through the mitigation bank to demonstrate minimization.

This summary serves to document this meeting. If anyone wishes to modify or append to this account, please contact Lynn Kiefer either by phone 772-794-4075 or by email at lynn.kiefer@kimley-horn.com.

cc: Jonathan Williamson, Dewberry
Mary Brooks, Quest Corporation of America

Poinciana Parkway Extension
Project Development & Environment Study

Nicole Gough, Dewberry
Mary Brooks, Quest Corporation of America
Clif Tate, Kimley-Horn and Associates

— February 19, 2019 —

Title VI Compliance

This meeting, project, or study is being conducted without regard to race, color, national origin, age, sex, religion, disability or family status. Persons wishing to express their concerns relative to compliance by the Central Florida Expressway Authority (CFX) with Title VI may do so by contacting:

Mary Brooks
Public Involvement Coordinator
4974 ORL Tower Road
Orlando, FL 32807
407-802-3210
Projectstudies@CFXway.com

All inquiries or complaints will be handled according to CFX procedure and in a prompt and courteous manner.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Advisory Group Roles

Environmental

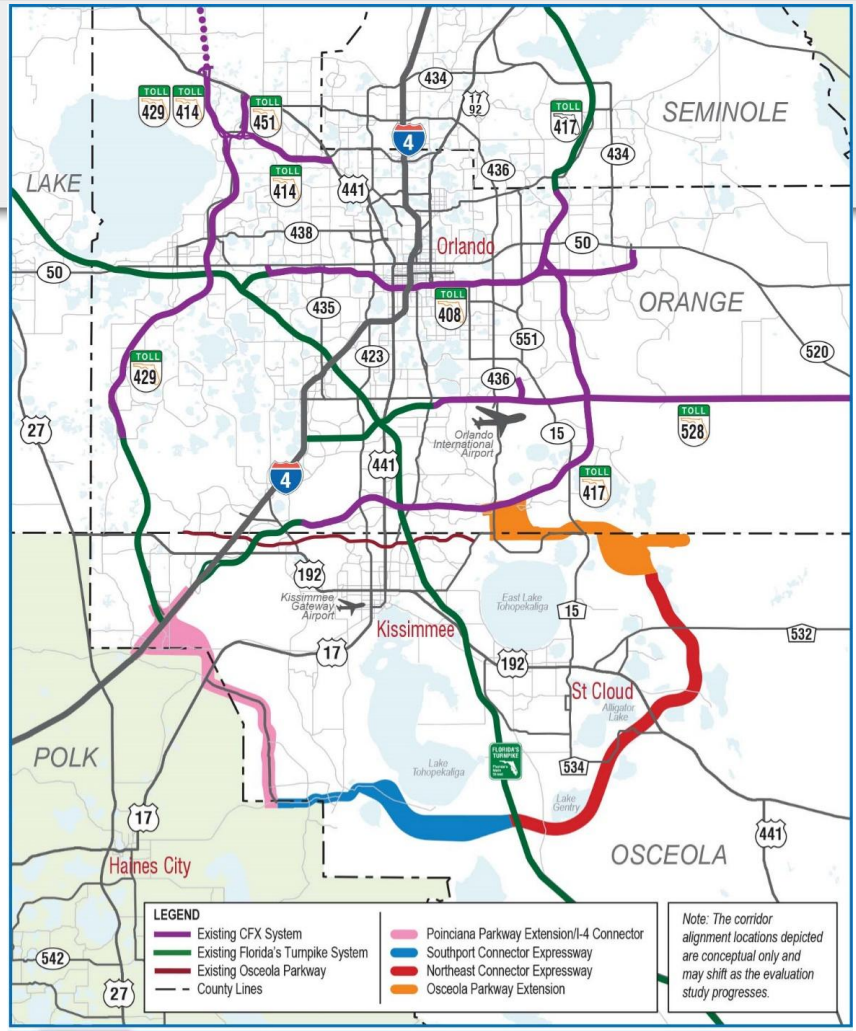
- Natural environment analysis;
- Special advisory resource;
- Providing environmental impact input on project alternatives;
- Local knowledge, issues and concerns regarding environmental impacts.

Project

- Mobility analysis;
- Special advisory resource;
- Providing input on project alternatives;
- Local knowledge, issues and concerns.

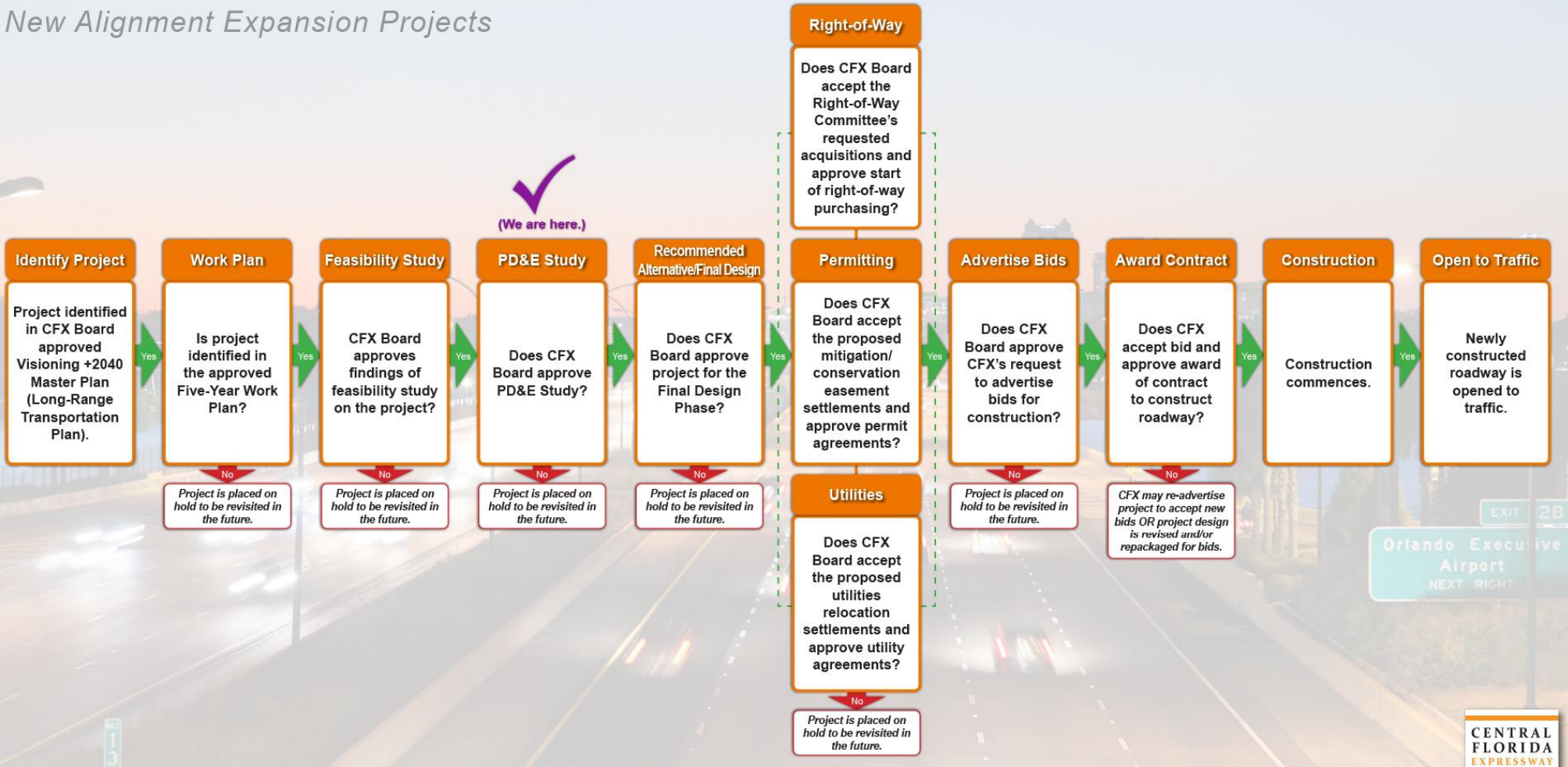
Background

- 2005 – Osceola County Comprehensive Plan: New corridors around growth boundary
- 2012 – Osceola County Expressway Authority (OCX): 2040 Master Plan
- 2016 – Poinciana Parkway Connected to US 17/92
- March 2018 – CFX finished Feasibility Studies
  - Authorized Poinciana Parkway Extension PD&E study
- July 2018 – PD&E Study began



PROJECT DEVELOPMENT PROCESS

New Alignment Expansion Projects



CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Purpose and Need

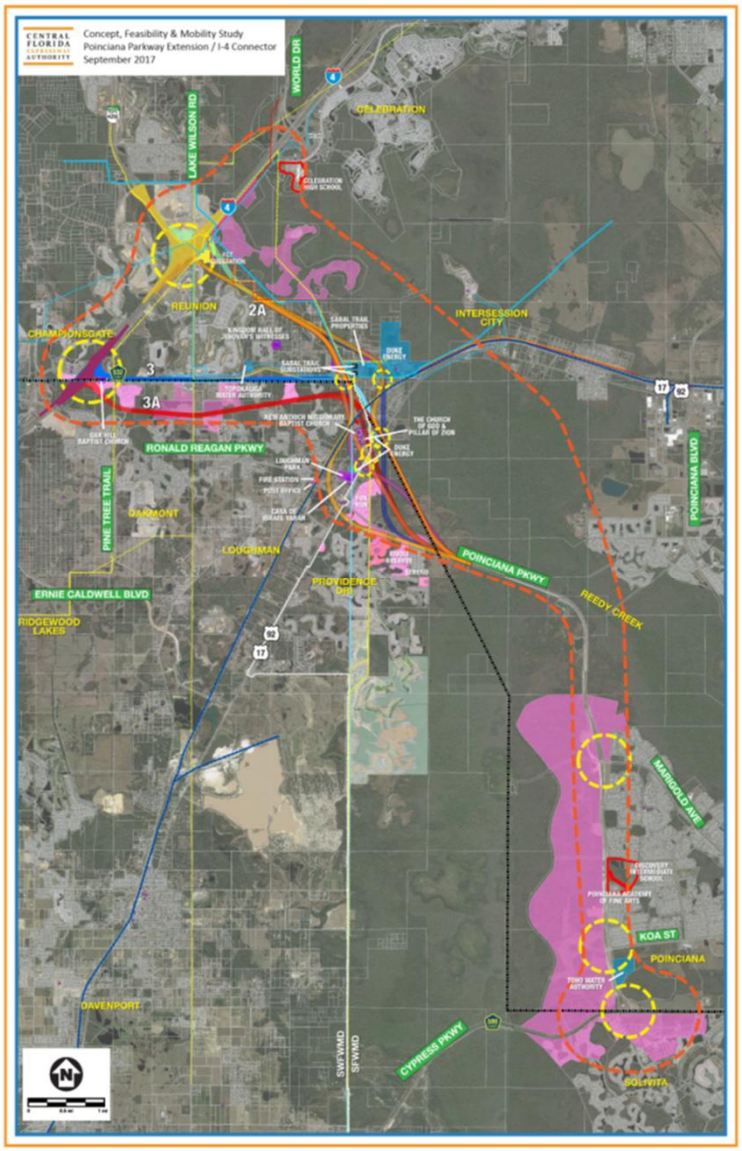
- Enhance mobility: CR 532 to Poinciana Parkway
- Reduce roadway congestion and delays on local roadways
- Expand regional connectivity
- Provide transportation infrastructure for planned growth
- Provide consistency with local plans and policies
- Enhance safety

EAG and PAG input: Address the Purpose and Need

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Poinciana Parkway Extension Feasibility Study

- Widen Poinciana Parkway
- Evaluated Alternatives: Poinciana Parkway to I-4



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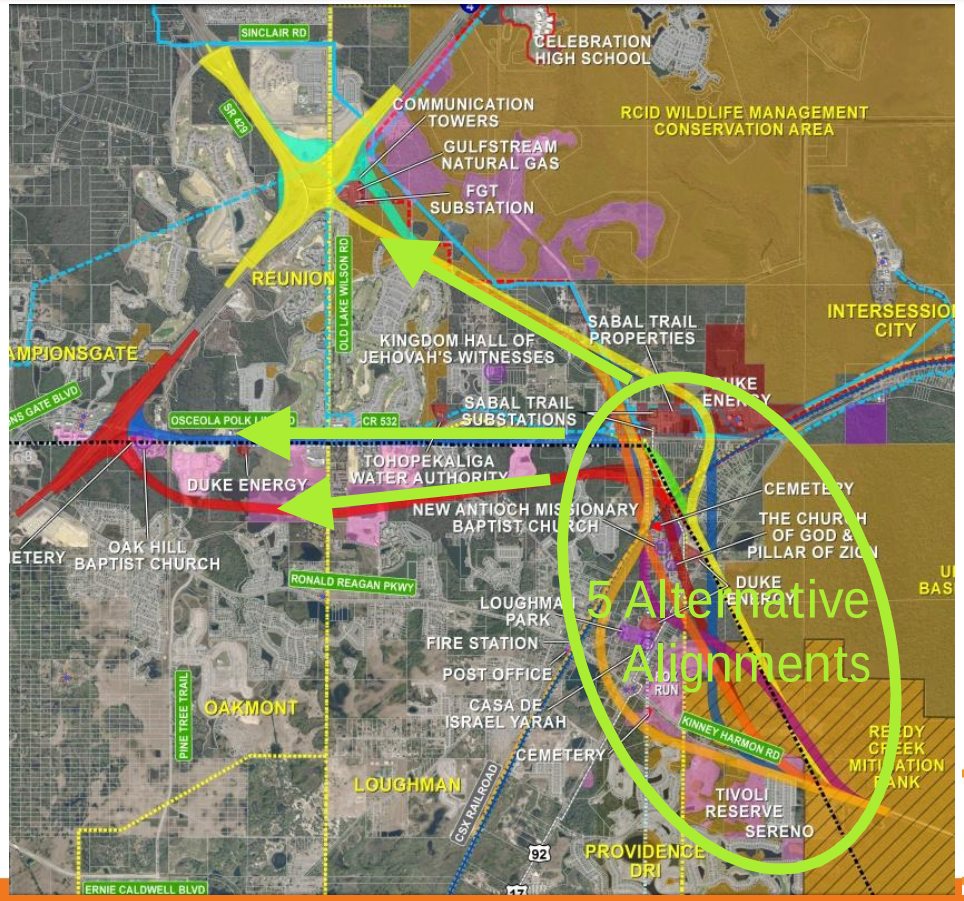
Poinciana Parkway Extension Feasibility Study and Findings

- 5 alternative alignments: Parkway to CR 532
- 3 alternative alignments: CR 532 to I-4
- Project may be viable (CFX criteria)
- Phase I: Connection to CR 532



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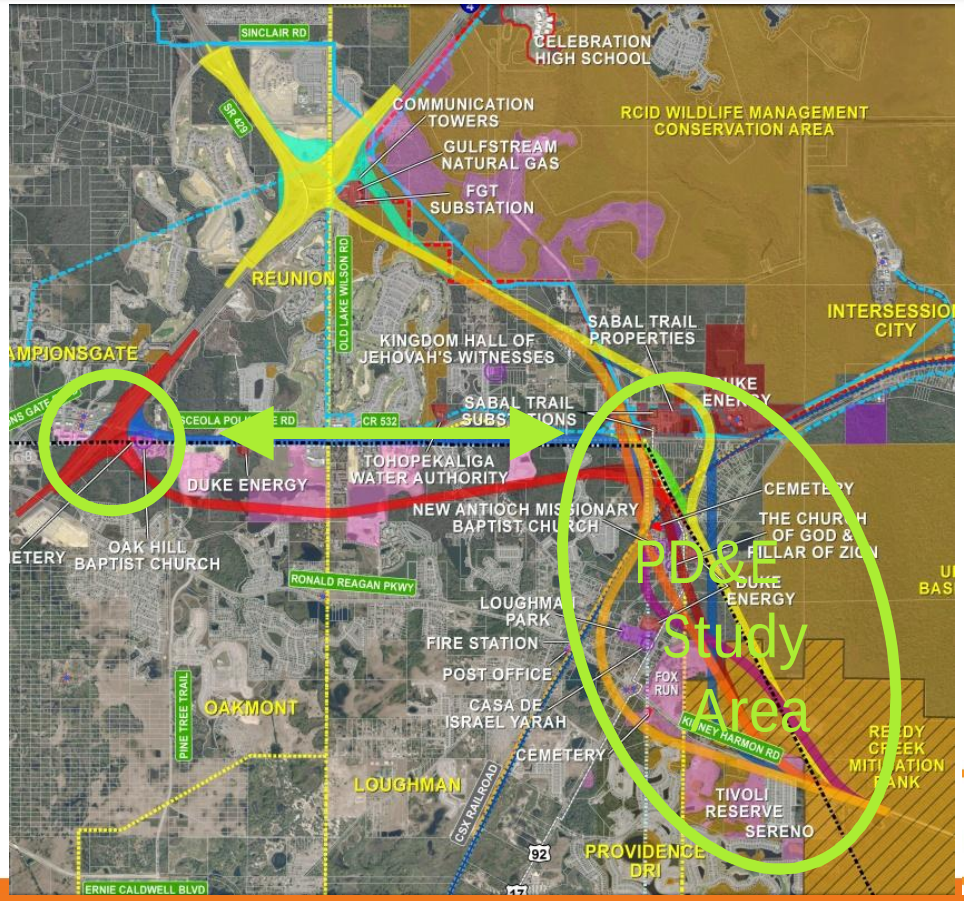
Benefits of Phased Approach
North end of bridge to CR 532

- I-4 connection: Requires FDOT and FHWA approval
  - Consistent with I-4 plans
  - Requires additional studies
- Project advancement: Extension to CR 532
- PD&E Alignments compatible with future I-4 connection (SR 429 or CR 532)
- Improvements by others:
  - Osceola County/CFX: Widen CR 532
  - FDOT/Osceola County: I-4/CR 532 interchange



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PD&E Study Methodology

- Follow FDOT PD&E Manual
- Project Environmental Impact Report (PEIR) (CFX approval)
- Analyze and document potential impacts
  - Physical
  - Natural
  - Social
  - Cultural

Public Involvement

- Multiple opportunities for participation
- Environmental & Project Advisory Groups
- Public Meetings
  - Kick-off – September 25, 2018
  - Alternatives Workshop – March 14, 2019
    Poinciana High School Cafeteria
    2300 S. Poinciana Blvd., Kissimmee
    5:30 pm to 7:30 pm
  - Public Hearing – August/September 2019
- Board Presentations – CFX, Osceola and Polk Board of County Commissioners
- Stakeholder Meetings
- CFX Study Webpage & Study Facebook Page

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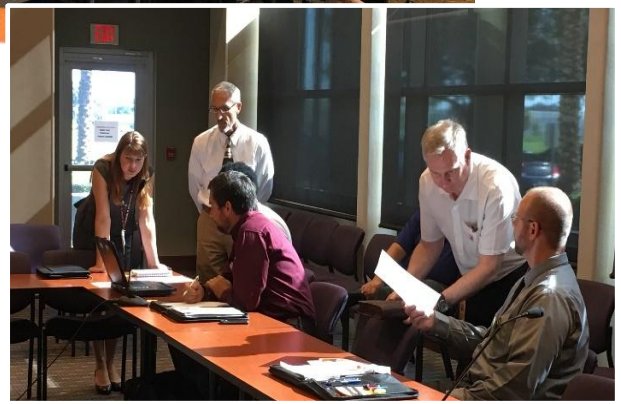
Stakeholder Outreach

- Cassidy Homes
- Central Florida Expressway Authority
- Duke Energy
- FDOT
  - Districts 1 & 5
  - Florida's Turnpike Enterprise
- Florida Southeast Connection
- Gulfstream Natural Gas System
- Kinder-Morgan
- Lake Wilson Preserve
- MetroPlan Orlando
- Osceola County
- Osceola County Expressway Authority
- Polk County
- Polk Transportation Planning Organization
- Reedy Creek Mitigation Bank
- Sabal Trail Transmission
- US Fish and Wildlife Service

EAG Input Received

- ✓ Coordinate with Mitigation Bank
- ✓ Consider bridging the Mitigation Bank
- ✓ Consider improving CR 532
- ✓ Consider social impacts, especially to the traditionally underserved community of Loughman
- ✓ Consider wildlife crossings in conservation areas and for wildlife corridors



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PAG Input Received

- ✓ There is concern about the social impacts of Alternative 1
- ✓ Consider shifting Alternative 1 to the west side of the railroad tracks to reduce social impacts in the Loughman area
- ✓ The project is needed as soon as possible, including a direct connection to I-4

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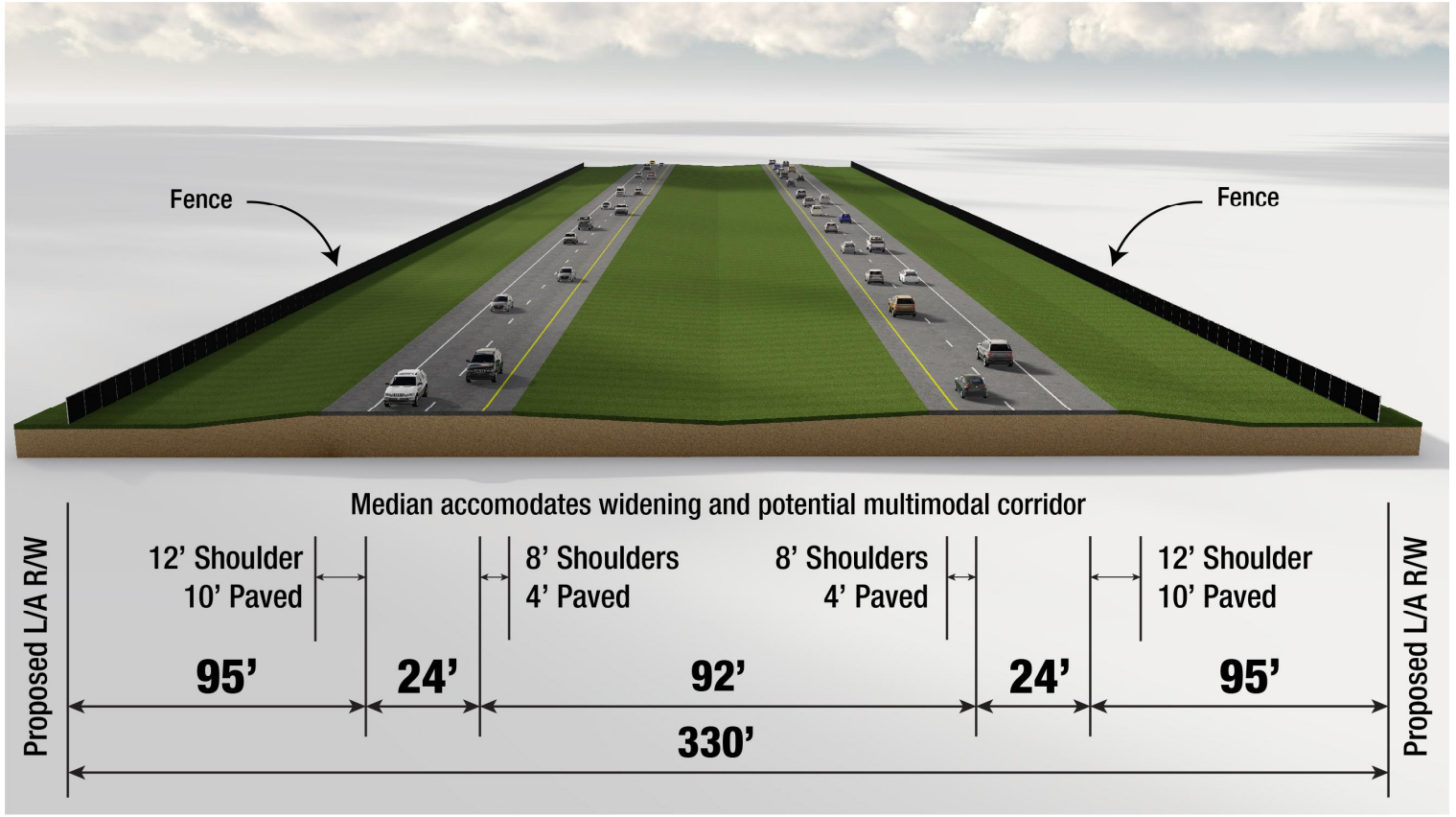
Poinciana Parkway Extension
Typical Section



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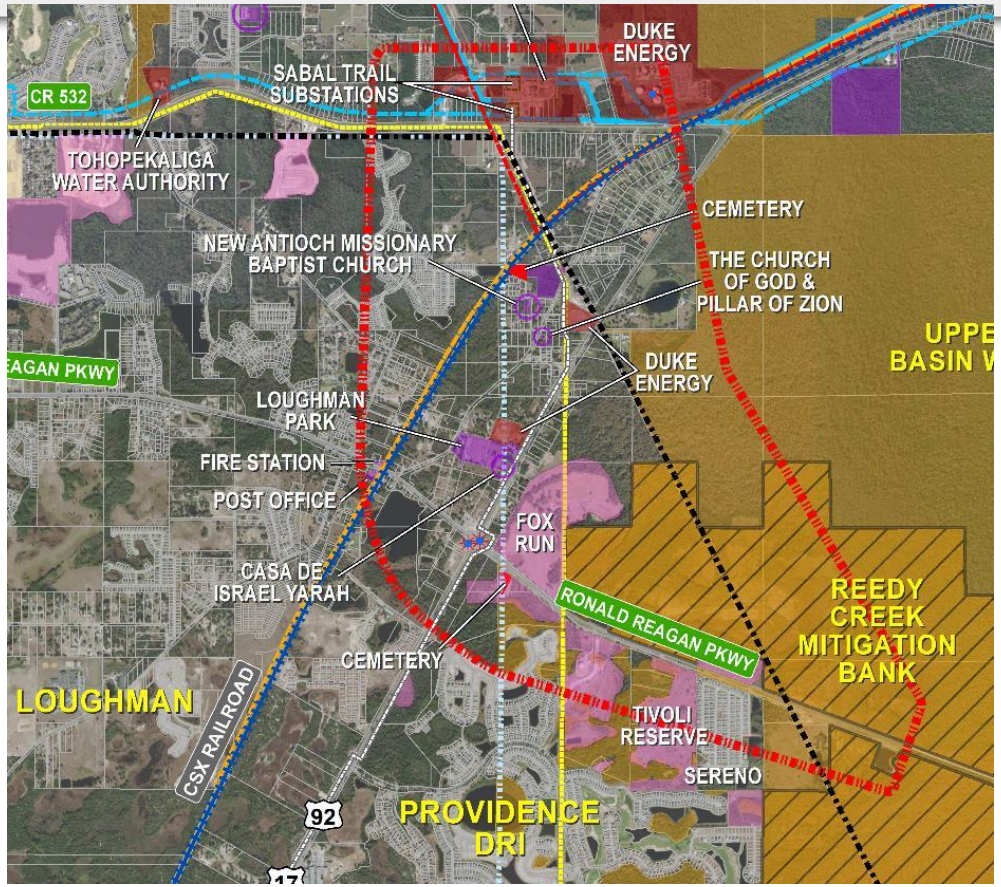
Poinciana Parkway Extension Constraints

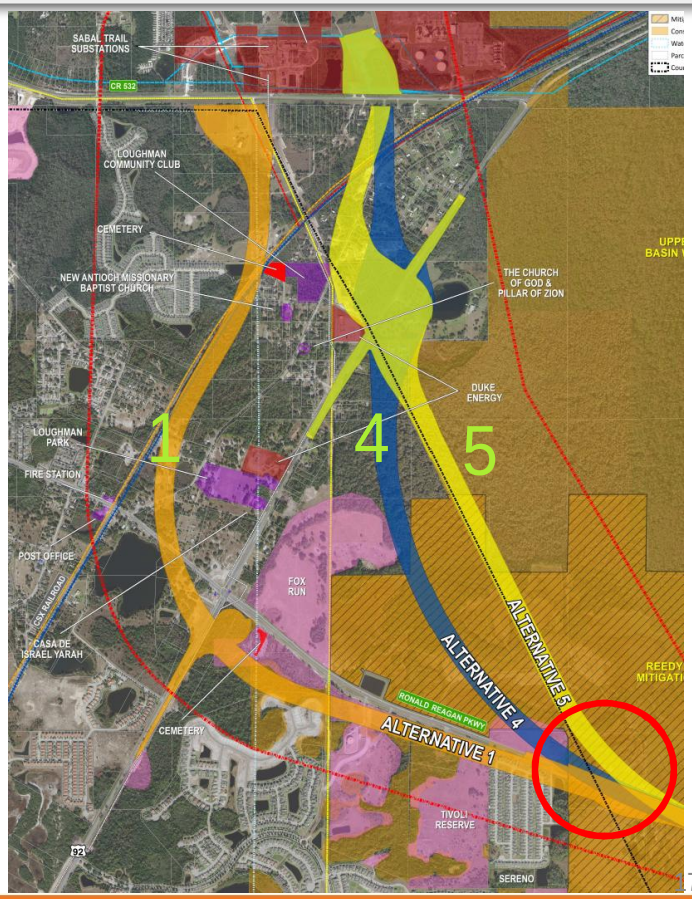
- Mitigation Bank
- Wetlands
- Cemeteries
- Places of worship
- Loughman Park
- Loughman Community
- Power Substations
- Gas Transmission Substations
- Businesses and Residences



CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Poinciana Parkway Extension
Polk County, Osceola County & OCX Agreement

- Expansion: Maintain connection to Ronald Reagan Parkway
- Alternative 1: East-west connection to Poinciana Parkway
- Alternatives 4 and 5: Added east-west connection (evaluation)
- Polk County access to expressway at US 17/92 interchange



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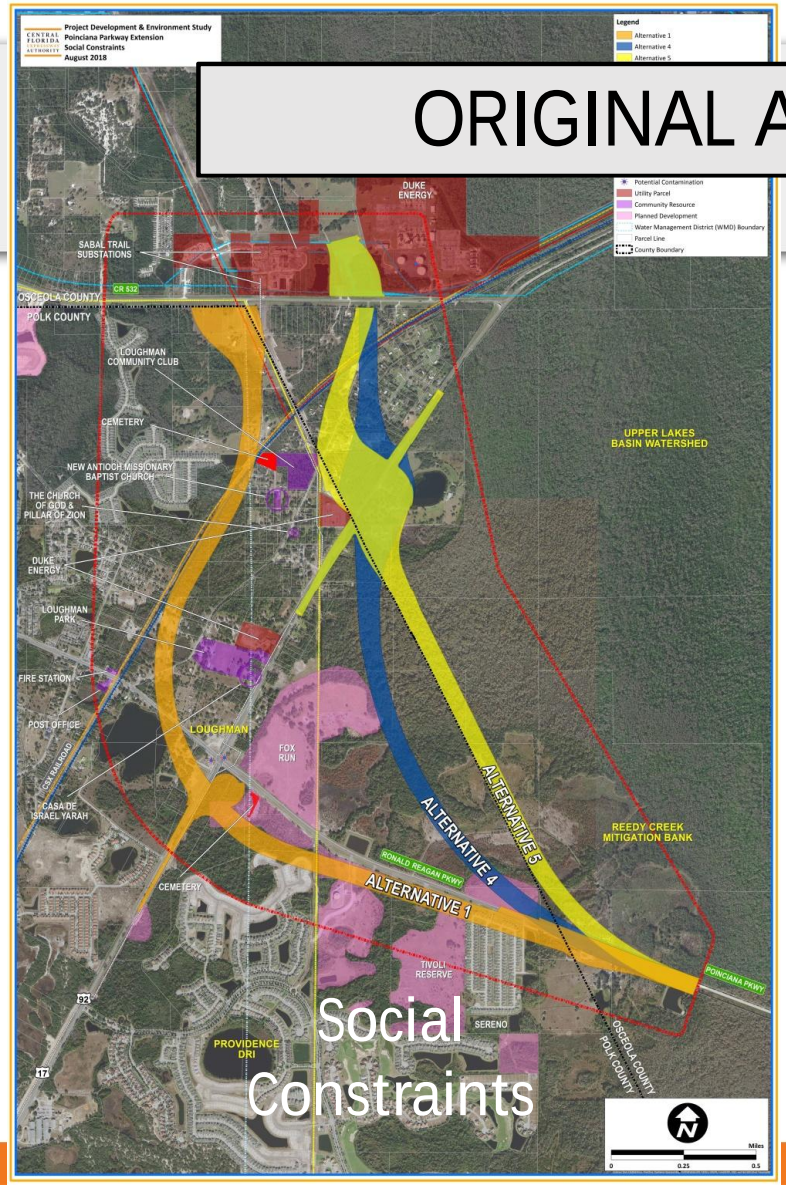
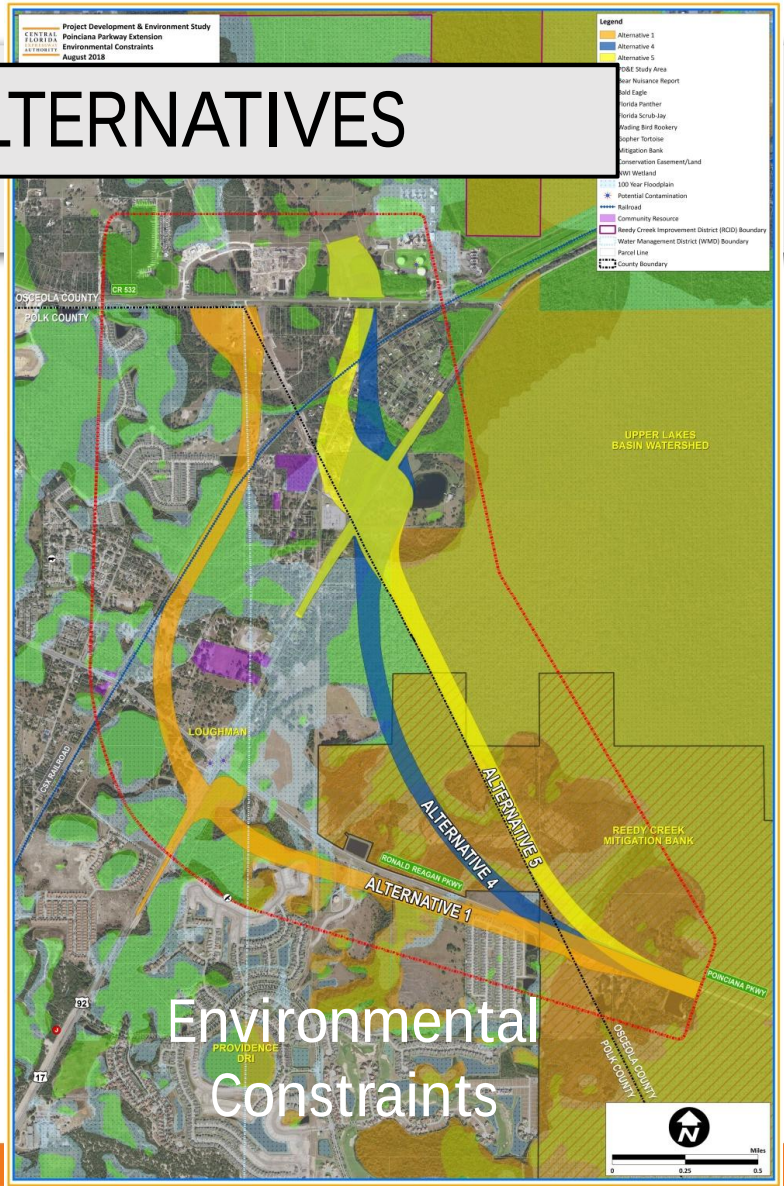
ORIGINAL ALTERNATIVES



Social Constraints



Environmental Constraints

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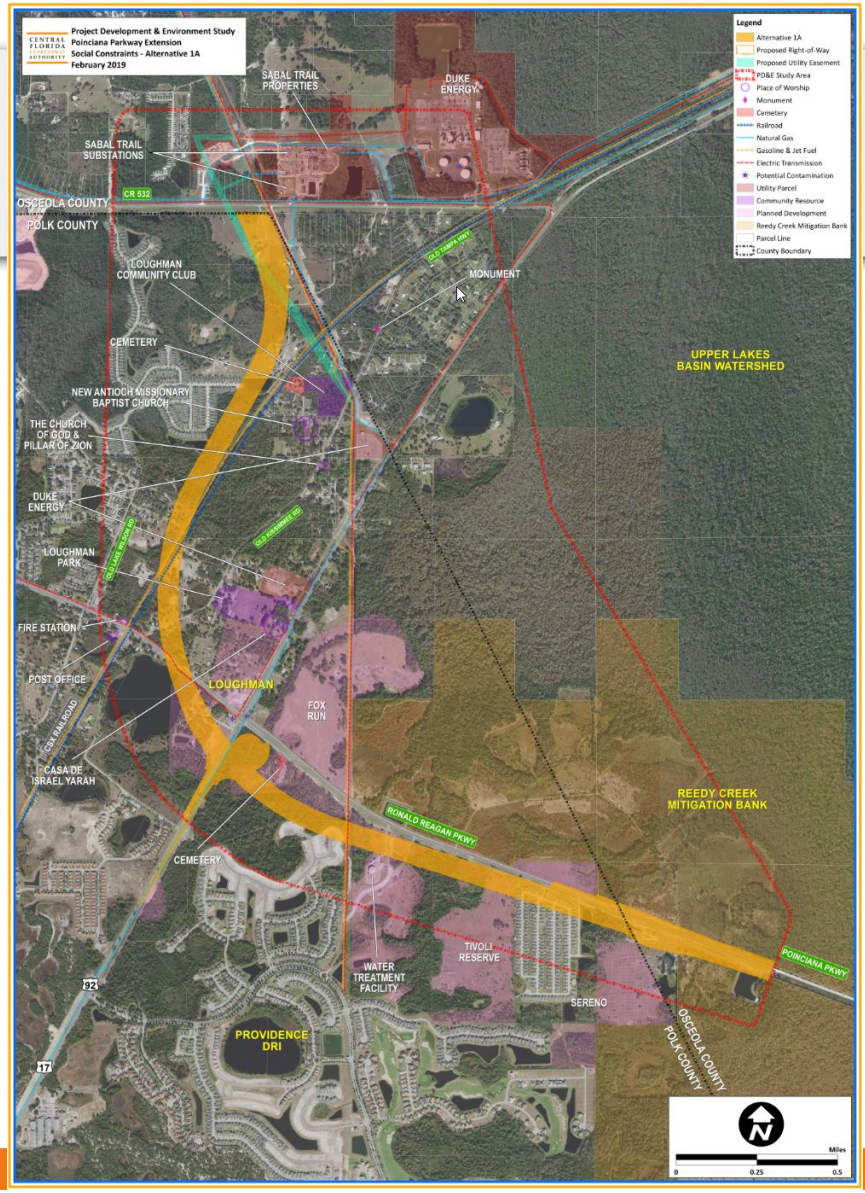
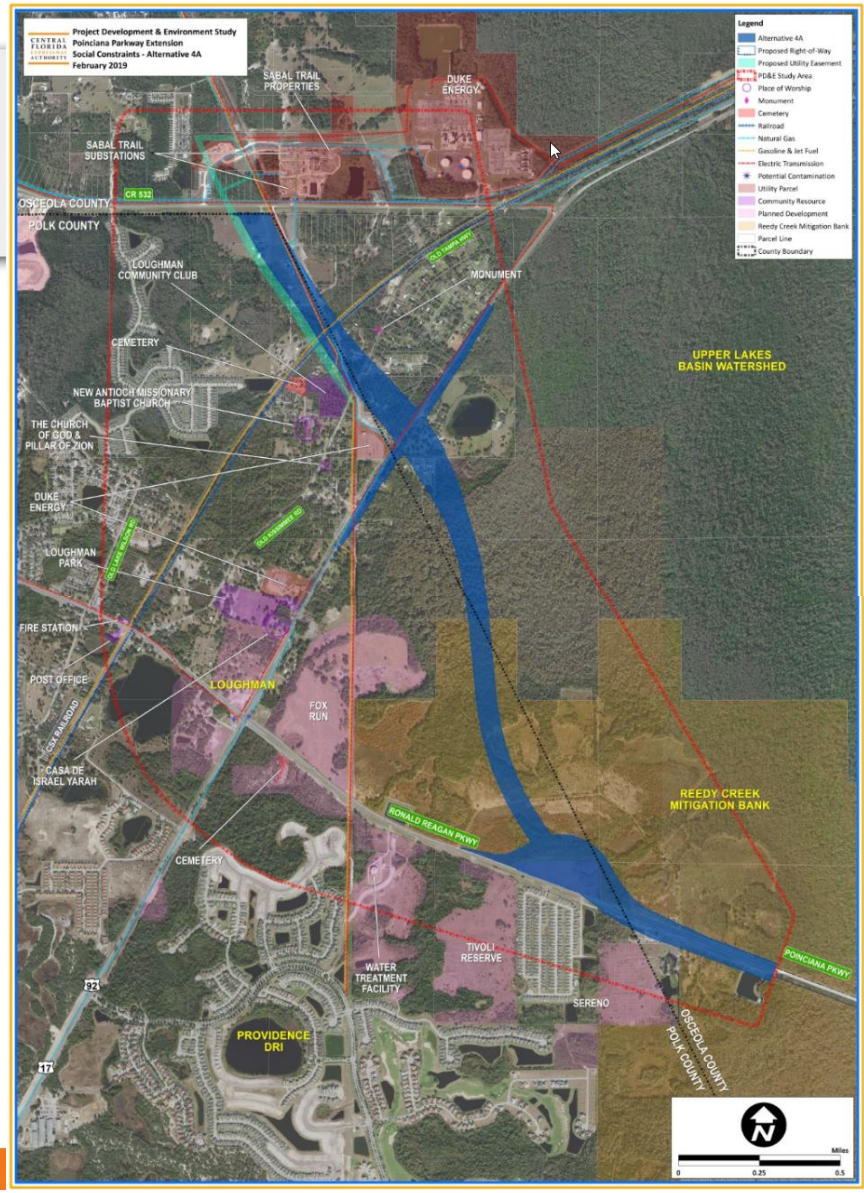
Refinement of Alternative 1 to Alternative 1A

- Recommendation through PAG
  - Consider expressway along west side of railroad tracks
- Screening Evaluation Alternative 1 and 1A
- Similar impacts and costs
  - Alternative 1A impacts fewer existing residents
- Recommendation: Eliminate Alternative 1, Proceed with Alternative 1A as a possible alternative



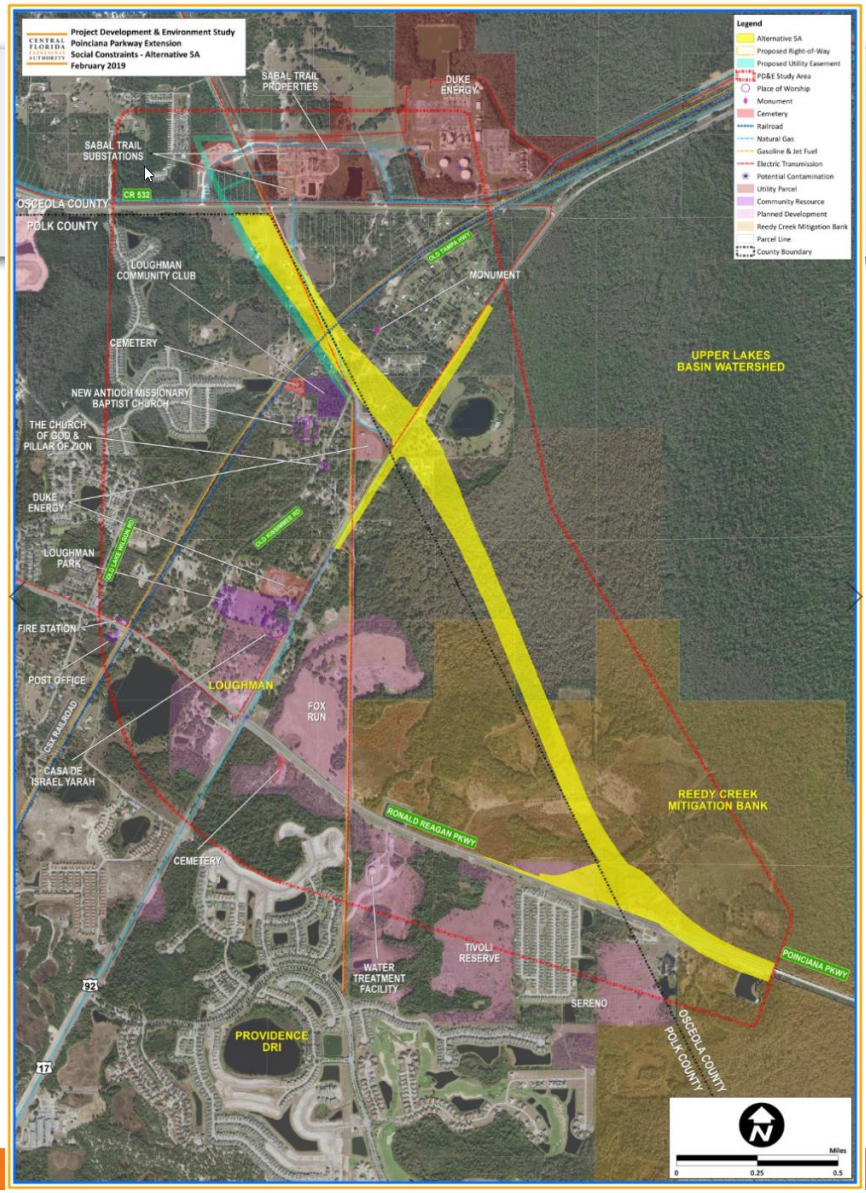
Refinement of Alternative 4 to Alternative 4A

- Original alignment cannot bridge over railroad tracks and get down to CR 532
- Original plan for loop ramps on north side of CR 532 encroach on utilities
- Agreement with Polk County to provide slip ramps to Ronald Reagan Pkwy.
- Recommendation: Shift alignments to west of Sabal Trail facility and add option for slip ramps to Ronald Reagan Pkwy.



Refinement of Alternative 5 to Alternative 5A

- Original alignment cannot bridge over railroad tracks and get down to CR 532
- Original plan for loop ramps on north side of CR 532 encroach on utilities
- Agreement with Polk County to provide slip ramps to Ronald Reagan Pkwy.
- Recommendation: Shift alignments to west of Sabal Trail facility and add option for slip ramps to Ronald Reagan Pkwy.



Evaluation Matrix – Design, Physical

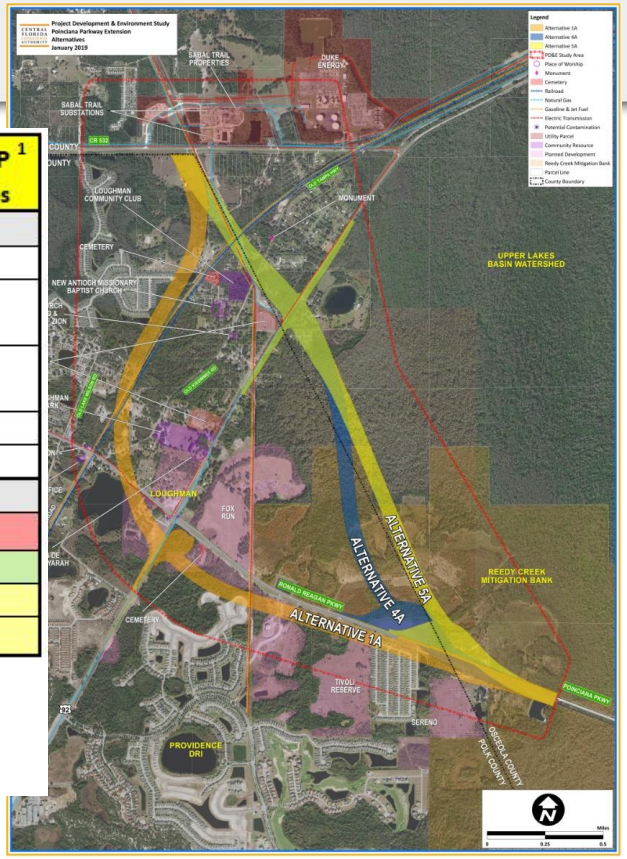
Evaluation Criteria	Unit of Measure	No-Build	1A	4A with RRP [1] Slip Ramps	5A with RRP [1] Slip Ramps
Design					
Alternative Length (approximate)	Miles	0	3.6	3.0	2.9
Proposed Right-of-Way Width (general and varies at interchanges)	feet	0	330	330	330
Proposed Bridges	Structures	0	20	15	15
(total structures per alternative / total length of all structures)	feet	0	4,317	10,815	10,234
Proposed Interchanges	Number	0	1	2	2
Proposed At-Grade Intersections	Number	0	1	1	1
Physical Environment Effects					
Major Utility Conflicts - Existing	No. of Conflicts	0	5 [2]	5	5
Major Utility Conflicts - Planned	No. of Conflicts	0	0	0	0
Contamination Sites & Facilities	No. of Conflicts	0	3	2	2
Railroad Involvement	No. of Conflicts	0	1 [3]	1	1

Notes:

1 - Ronald Reagan Parkway

2 - Less major utility relocations required

3 - Railroad crossing at skew



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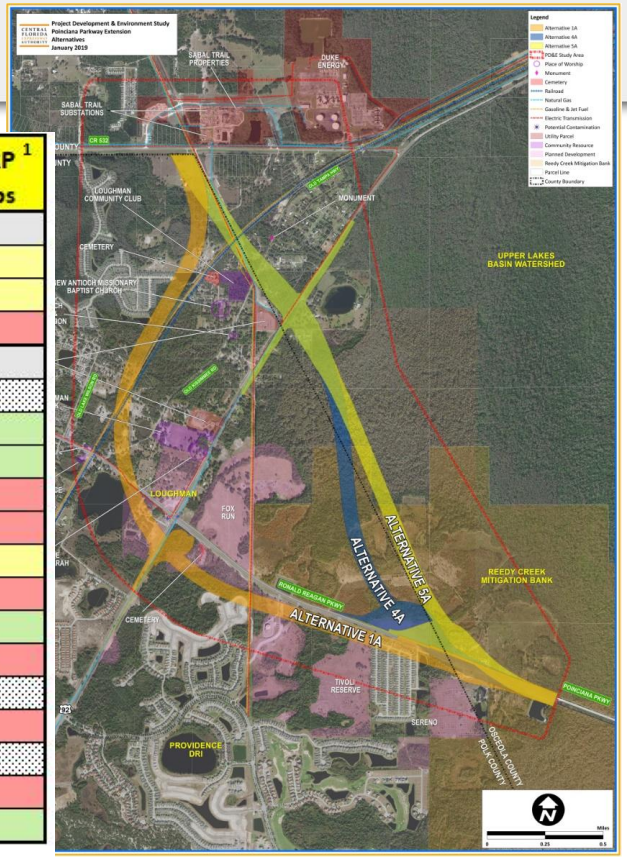
Evaluation Matrix – Cultural, Natural

Evaluation Criteria	Unit of Measure	No-Build	1A	4A with RRP [1] Slip Ramps	5A with RRP [1] Slip Ramps
Cultural Environment Effects					
Potential Historic Resources	No. of Conflicts	0	1	1	1
Potential Historic Linear Resources (Highways/Railroads)	No. of Resources	0	2	2	2
Potential Archaeological Resources	No. of Resources	0	2	4	4
Natural Environment Effects					
Water Features					
Ponds / Lakes	acres	0	5	1	1
Canals/Regulated Floodways	No. of Conflicts	0	0	0	0
Flood Hazard Areas - 100 Year Floodplain	acres	0	73	64	57
Wetlands (non-forested and forested)	acres	0	50	56	56
Habitat - Federal Listed Species	acres	0	6	7	7
Habitat - State Listed Species	acres	0	41	77	83
Bald Eagle Nest	Y/N	0	Y	N	N
Species Impacts (composite rating)	Rating	NONE	HIGH	HIGH	HIGH
Mitigation Banks					
Reedy Creek Mitigation Bank	acres	0	28	69	59
Conservation Easements					
Upper Lakes Basin Watershed	acres	0	0	22	31
SFWMD Regulatory Conservation Lands	acres	0	11	0	0



Notes:

1 - Ronald Reagan Parkway

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

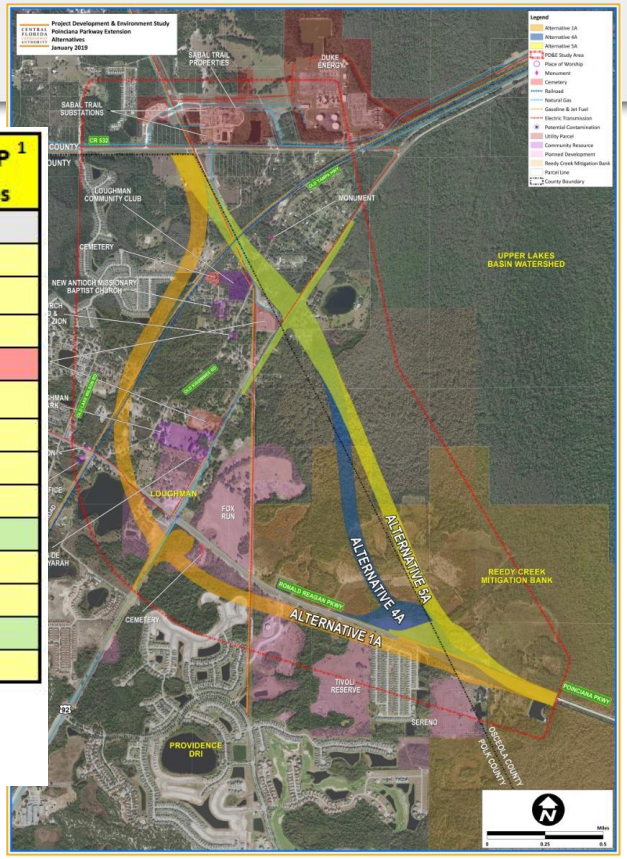
Evaluation Matrix – Social

Evaluation Criteria	Unit of Measure	No-Build	1A	4A with RRP [1] Slip Ramps	5A with RRP [1] Slip Ramps
Social Environment Effects					
Right-of-Way Area (NOT including proposed ponds)	acres	0	142	150	148
Potential Residential Impacts [4]	Total Parcels	0	123	88	87
Existing	*Parcels*	*0*	*52*	*18*	*18*
Future	*Parcels*	*0*	*71*	*70*	*69*
Potential Non-Residential Impacts [4]	Total Parcels	0	24	15	13
Existing	*Parcels*	*0*	*11*	*9*	*7*
Future	*Parcels*	*0*	*13*	*6*	*6*
Community Facilities	No. of Conflicts	0	1	1	1
Parks and Recreational Facilities (public & private)	No. of Conflicts	0	0	0	0
Trails	No. of Conflicts	0	1	1	1
Community Cohesion Effects	Ranking	NONE	HIGH	MEDIUM	MEDIUM
Socioeconomic Impacts to Special Populations	Ranking	NONE	HIGH	LOW	LOW
Proposed Development	acres	0	61	12	3

Notes:

1 - Ronald Reagan Parkway

4 - Includes partially impacted parcels



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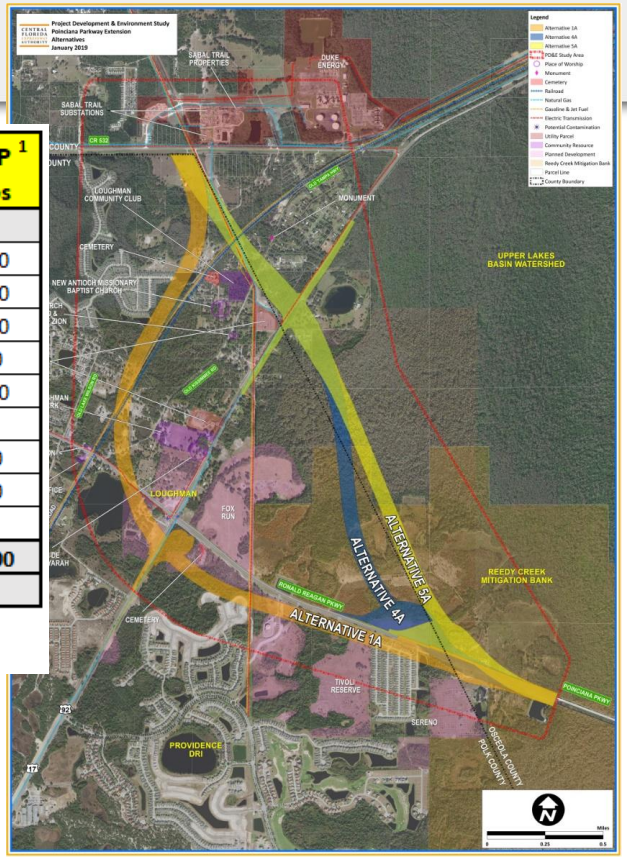
Evaluation Matrix – Cost, Traffic

Evaluation Criteria	Unit of Measure	No-Build	1A	4A with RRP [1] Slip Ramps	5A with RRP [1] Slip Ramps
Estimated Cost					
Roadway Construction	2019 $	$0	$116,000,000	$94,700,000	$93,500,000
Bridges Construction	2019 $	$0	$56,600,000	$95,200,000	$94,600,000
Interchanges Construction	2019 $	$0	$30,600,000	$55,700,000	$53,800,000
Toll Collection Equipment	2019 $	$0	$1,500,000	$1,700,000	$1,700,000
Utility Relocation	2019 $	$0	$22,400,000	$36,000,000	$36,000,000
Right-of-Way Areas	2019 $	$0	TBD	TBD	TBD
CR 532 (West)	2019 $	$0	$9,600,000	$9,600,000	$9,600,000
CR 532 (East)	2019 $	$0	$9,200,000	$9,200,000	$9,200,000
Mitigation, Wetlands, & Wildlife	2019 $	$0	TBD	TBD	TBD
Total Estimated Alternative Costs			**$245,900,000**	**$302,100,000**	**$298,400,000**
Projected Annual Average Daily Traffic Volume (2045)			**18,000**	**15,200**	**15,200**

Notes:

1 - Ronald Reagan Parkway



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Alternatives Analysis

What's Next?

- Receive input on the project alternatives
- Select a recommended preferred alternative
- Conduct detailed engineering and environmental analysis
- Prepare engineering and environmental reports

Group Discussion

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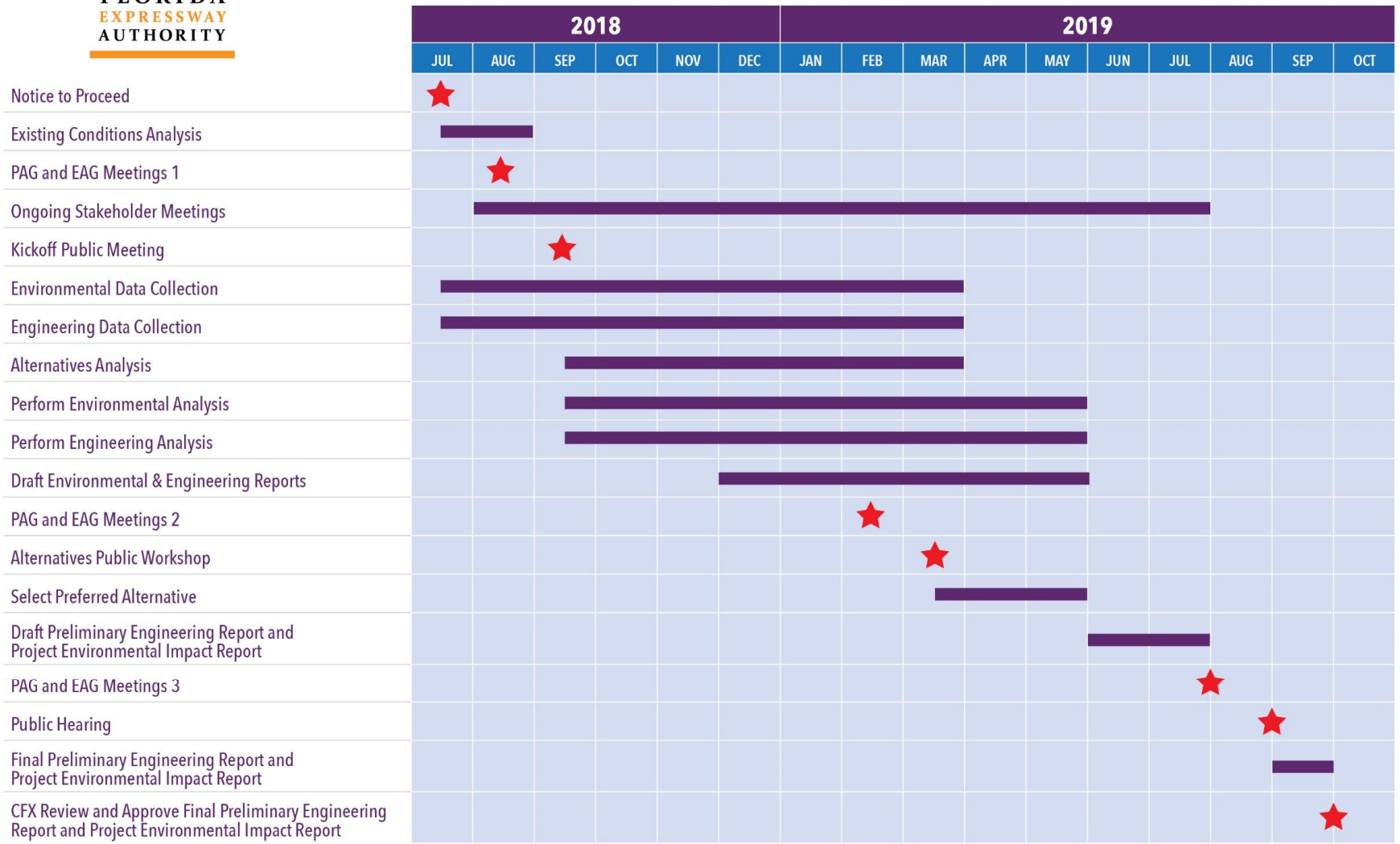
Poinciana Parkway Extension PD&E Study Schedule



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Poinciana Parkway Extension
PD&E Study

Comments & Questions

For more information contact:

Mary Brooks
Public Involvement Coordinator
407-802-3210
Projectstudies@CFXway.com

CFX web address:
www.CFXway.com
Shortened study web address:
https://goo.gl/VBpNhr

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

USACE PERMIT STREAMLINING
QUALITY ENHANCEMENT STRATEGIES (QES) FOR WETLAND IMPACT MINIMIZATION

1. OBJECTIVES:

In adherence to the below policies and guidelines and in furtherance of our joint efforts to streamline the federal permitting process, FDOT desire to develop specific Quality Enhancement Strategies for District's Two, Three, and Five capacity improvement projects. These QES's would be aimed at providing reasonable assurances to the regulatory agencies that FDOT projects have been designed to minimize wetland impacts as much as is practicable while conforming to acceptable design criteria without jeopardizing public safety.

Presidential Executive Order 11990 entitled "Protection of Wetlands", dated May 23, 1977 establishes a National Policy to "avoid to the extent possible the long-term and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." In implementing this Presidential Executive Order, the U.S. Department of Transportation set forth its policy on wetlands in USDOT Order 5660.1A "Preservation of the Nation's Wetlands", dated August 24, 1978, which is "to assure the protection, preservation and enhancement of the Nation's wetlands to the fullest extent practicable during the planning, construction and operation of transportation facilities and projects. New construction in wetlands shall be avoided unless there is no practicable alternative to the construction and the proposed action includes all practicable measures to minimize harm to wetlands which may result from such construction. In making a finding of no practicable alternative, economic, environmental and other factors may be taken into account. Some additional cost alone will not necessarily render alternatives or minimization measures impracticable since additional cost would normally be recognized as necessary and justified to meet national wetland policy objectives."

In carrying out USDOT Order 5660.1A, the Federal Highway Administration has implemented its wetland policy through the Technical Advisory T 6640.8A, dated October 30, 1987, which provides guidance on the preparation of environmental documents including the assessment of project impacts on wetlands. The Technical Advisory prescribes a wetland evaluation methodology which, in part, calls for:

- An evaluation of all project alternatives including avoidance alternatives,
- A formal wetlands finding stating that no practical alternatives to the wetland taking exist, if such is the case, and, among others,
- An evaluation of all practicable measures to minimize harm to wetlands.

2. IMPLEMENTATION:

A. Perform early identification and quantification of wetland locations and preliminary impacts at PD&E and design stages.

B. Determine possible wetland avoidance strategies and verify validity of alignment alternatives from the Preliminary Engineering Report.

C. Perform alternative design analysis.

1. Reduce roadway and pond footprint in order to avoid and / or minimize wetland impacts. Considerations may include:

Roadway:

A. Median widths
B. Fill slopes
C. Shoulder widths
D. Guardrail
E. Bridge vs. embankment

Ponds:

A. Relocation of pond sites
B. Providing alternative treatment methods

2. Quantify impact reduction.

3. Evaluate safety aspects.

4. Provide cost of alternatives.

D. Prepare written summary of analysis and conclusions at the Phase I Plans Stage. Review and comment by Department Planning, Environmental and Production/Permitting staff.

E. Obtain concurrence from Department Roadway District Design Engineer or Interstate Design Engineer at the Phase II plan stage.

3. BENEFITS:

Implementation of these strategies will allow early identification and reduction of environmental impacts thereby streamlining the regulatory and production process.

MEETING NOTES

SFWMD Pre-Application Meeting

Osceola Parkway Extension (599-223) & Poinciana Parkway Extension (599-224A) Project Development & Environmental (PD&E) Study

Osceola and Orange Counties

Location: SFWMD Orlando Service Center; Date: Tuesday, November 27, 2018; Time: 8:30 am

1. **INTRODUCTION – See Attached Sign In sheet**

2. **PROJECTS OVERVIEW and STATUS**
   a. Osceola Parkway Extension - Construct new limited access facility from SR 417 to Sunbridge Parkway; Permit for 8-lane typical section (Osceola and Orange County)
   b. Poinciana Parkway Extension – Construct new limited access facility from Poinciana Parkway to CR 532; (Osceola and Polk County)

3. **STORMWATER CRITERIA**
   a. Water Quantity
      i. Mr. Daron confirmed that SFWMD will follow the attenuation criteria set forth by Counties (Orange and Osceola) as this is considered the historic discharge rates for these areas:
         1. Osceola County: 10-year/72-hour storm event (using SFWMD72 distribution) (8.0 inches)
         2. Orange County: 25-year/24-hour with Orange distribution (8.6 inches) (*Osceola Parkway Extension only*)
   b. Water Quality
      i. Standard Wet detention criteria: Greater of the first one (1) inch of runoff from the total developed project or runoff from two and one-half (2.5) inches over the net new impervious area
      ii. Additional treatment and/or nutrient loading requirements are required if the proposed improvements are within an impaired WBID:
         1. Mr. Daron confirmed that Phosphorous Loading calculations are not required if the only basis is because the project is within the Lake Okeechobee BMAP
         2. *Poinciana Parkway Extension*- Mr. Ady recommended that CFX follow the criteria set forth in the previous Poinciana Parkway permit as a template for this project
      iii. In the area of the Reedy Creek Mitigation Bank, alternative treatment systems may be considered such as providing linear treatement swales which discharge via sheet flow to the adjacent wetlands, but are not sized for attenuation in order to avoid wetland impacts.
   c. Floodplain compensation options -
      i. Cup for Cup between the 100-year elevation and estimated average wet season water table
      ii. Can be provided within the proposed stormwater ponds
      iii. Mr. Daron confirmed that stormwater modeling is not allowed to demonstrate compensation, only cup for cup
   d. Other-
      i. As part of the permit application, a list of impacted permitted facilities should be provided for the District's use in tracking future compliance

ii. Mr. Daron confirmed that the District will allow flexibility in the dimensional criteria for wet detention ponds for linear transportation projects
iii. Any impacts to District lands (i.e. conservation, Canal R/W, etc.) will require further coordination outside of the Regulatory department.
iv. Existing borrow pits
    1. If they were previously permitted to provide floodplain compensation, then any impacts to this volume would need to be mitigated. If the borrow pits were not permitted for floodplain compensation, then floodplain impacts would not need to be considered.
    2. Existing borrow pits can be evaluated to be converted into stormwater ponds
    3. Permitted Pre-development discharge can provide proof of discharge, but may need to be evaluated for reasonableness prior to use in comparison against the post-development discharge
    4. Pre-post volume may be required where there was no permitted pre-development discharge

4. ENVIRONMENTAL

a. Osceola Parkway Extension
    i. Advanced Notification Package originally submitted by Florida's Turnpike in April 2012
    ii. PEIR completed in May 2017. Recommended alternative included 144 acres of wetland impacts
    iii. PEIR Reevaluation initiated in July 2017 to evaluate additional alternatives
        1. Ms. Gough outlined that the goal of this reevaluation was to develop an avoidance alternative for impacts to Split Oak Forest and to work with some of the adjacent landowners.
        2. Ms. Gough noted that there have been ongoing discussion with Florida Communities Trust regarding potential impacts to Split Oak Forest.
    iv. Mr. Dailey outlined the alternatives which are currently under consideration.
        1. Boggy Creek Alternative (west of Narcoosee Road)
        2. Lake Nona Alternative (west of Narcoosee Road)
        3. Alternative 107C-1 (east of Narcoose Road)
        4. Alternative 207D-1 (Split Oak Forest avoidance alternative)
    v. Natural Resource Evaluation update being prepared to evaluate wetland and potential species habitat effects.
        1. Mr. Dailey noted that there are several bald eagle nests located within the project corridor and the project is also within the consultation area for the caracara and scrub-jay.
        2. Mr. Ady noted that either of the alignments will impact District-owned lands.
        3. Mr. Ady noted that it will be important to demonstrate avoidance and minimization of wetland impacts.
    vi. Mitigation Opportunities – there are multiple mitigation bank options in this area.
    vii. Permit discussion: Mr. Daron noted that if the project impacts an existing permitted facility, the permittee will be responsible for making sure that they are still in compliance.

b. Poinciana Parkway Extension
    i. Advanced Notification Package submitted in September 2018.
    ii. Environmental Advisory Group Meeting held August 15, 2018. SFWMD in attendance.
    iii. Alternatives 1, 4 and 5 carried forward from previous Feasibility Study.
    iv. Alternatives 4 and 5 extend into Reedy Creek Mitigation Bank and Upper Lakes Basin Watershed. Alternative 1 minimizes impacts to Reedy Creek Mitigation Bank, and avoids Upper Lakes Basin. But Alternative 1 has greater impacts to existing and proposed

developments, listed species and business/residential impacts.

v. Natural Resource Evaluation being prepared to evaluate wetland and species habitat effects.
vi. Evaluating avoidance, minimization and mitigation.
vii. Open discussion regarding effects

Mr. Ady suggested the existing Poinciana Parkway permit is a good template for evaluating the impacts, direct and secondary, the wetland assessments etc.

Ms. Gough asked about the lead agency for future permitting because the alternative alignments fall within both SFWMD and Southwest Florida Water Management District jurisdiction. Hydrologically the drainage basins discharge /drain to Reedy Creek. There could be a Memorandum of Agreement (MOA) between the SFWMD and SWFWMD, but Mr. Ady suggested that we meet with SWFWMD to discuss as they would need to agree.

Need to look at avoidance and minimization strategies and the previous permit provides a good template for this consideration as well.

Mitigation may be within the Reedy Creek bank, but sufficient credits may not be available. Additional mitigation options may be evaluated. Additionally, an evaluation of the effects on the bank needs to be evaluated and again the District indicated the previous permit may be a good template. The team has begun coordination with the bank owners/consultants.

Because there are impacts to the SFWMD Upper Lakes Basin, coordination with SFWMD Real Estate division will be needed during design and permitting.

Mr. Ady stressed the point that impacts need to be minimized.

Modica and Associates with Kimley-Horn has conducted field evaluations of the wetlands and listed species surveys will begin in January. All of this will be summarized in the PD&E documentation.

5. ACTION ITEMS

APPENDIX L

Environmental Advisory Group (EAG) Meeting Minutes

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Project Development & Environment Studies

POINCIANA PARKWAY EXTENSION

ENVIRONMENTAL ADVISORY GROUP (EAG) MEETING #1 – SUMMARY

DATE/TIME: Thursday, August 15, 2018, 9 a.m. – 11 a.m.

LOCATION: Central Florida Expressway Authority (CFX) Board Room, 4974 ORL Tower Road, Orlando

ATTENDEES: There were 18 attendees and 10 staff members. See sign-in sheets attached.

I. Notifications

Invitation letters were emailed to 111 members of the EAG on July 27, 2018. A GotoMeeting invitation was sent to members who needed to join remotely. Eight people participated by GotoMeeting.

II. Welcome

General Engineering Consultant Nicole Gough, of Dewberry, called the meeting to order and welcomed everyone. Attendees introduced themselves and the organization they represented. Public Involvement Coordinator Mary Brooks, of Quest Corporation of America, gave a brief introduction about the meeting and provided safety, housekeeping and Title VI information.

III. Study Overview and Background

Consultant Project Manager Clif Tate, with Kimley-Horn, reviewed the study background. The purpose of this EAG meeting was to review the project, present an update on the status of potential impacts and receive feedback. The corridors are being evaluated in greater detail by CFX after previous studies reached various levels of approvals.

In 2005, Osceola County adopted a Comprehensive Plan that proposed several new corridors to meet the county's anticipated growth. The Osceola County Expressway Authority (OCX) Master Plan 2040 was finalized in 2013, defining the county's expressway needs and providing a program of projects to implement the plan. In September 2016, an interlocal agreement was approved, transferring the lead for developing the remainder of the OCX 2040 Master Plan to CFX. CFX then incorporated the OCX Master Plan segments into its Master Plan and conducted Concept, Feasibility, and Mobility (CF&M) Studies on four of the OCX Master Plan projects.

In March 2018, the CFX Governing Board approved two of the projects, including the Poinciana Parkway Extension, to move forward to the Project Development & Environment (PD&E) study phase. This PD&E study began in July 2018.

IV. Advisory Group Roles

Clif explained the roles of the Environmental and Project Advisory Groups, saying this group serves as a resource to provide input on environmental conditions and potential impacts of various project alternatives.

During the previous CF&M study phase, public involvement efforts for all four projects included six public meetings that attracted 1,300 participants and generated 630 comments.

V. Project Development Process

The CF&M study phase was completed last spring, and the project is currently in the PD&E phase. If the CFX Governing Board moves the project forward, it would first go into design and then, later, construction.

VI. Previous Feasibility Study

Clif gave an overview of the CF&M study:

- Evaluated extending Poinciana Parkway to Interstate 4 (I-4)
- Included five alternative alignments between Poinciana Parkway and County Road (CR) 532
- Included three alternative alignments between CR 532 and I-4
- Concluded the project may be viable under CFX criteria
- Concluded advantages of a phased connection from Poinciana Parkway to CR 532 and, subsequently, from CR 532 to I-4

VII. Benefits of Phased Approach

Clif explained the benefits of breaking the extension of Poinciana Parkway to I-4 into two phases:

- I-4 connection requires approval from the Florida Department of Transportation (FDOT) and the Federal Highway Administration (FHWA).
- The connection to I-4 needs to be planned in concert with FDOT's "Beyond the Ultimate" plans for I-4.
- This will require extensive planning and coordination and will be years in the making.
- This study is looking at the extension of Poinciana Parkway to CR 532, which will advance the project and could provide traffic relief in the short-term for the area.
- This will tie in with improvements planned by others, such as Osceola County's plan to widen CR 532 and FDOT's interim plans for the I-4/CR 532 interchange.

VIII. PD&E Study

The study is focusing on extending Poinciana Parkway to CR 532, and is considering alternative alignments that would be compatible with a future connection to I-4 at State Road (SR) 429 or CR 532.

IX. Purpose and Need

The purpose and need for this study includes:

- Enhance mobility between CR 532 and Poinciana Parkway
- Reduce roadway congestion and delays
- Expand regional connectivity
- Provide transportation infrastructure for planned growth
- Provide consistency with local plans and policies
- Enhance safety

X. Study Methodology

We will follow FDOT's PD&E manual. This study will result in a Project Environmental Impact Report (PEIR) with CFX's approval. This study will analyze and document physical, natural, social, and cultural impacts.

XI. Typical Section on New Alignment

The typical section for this roadway would be 330 feet wide. It would have two lanes in each direction with a 92-foot-wide median. The median would accommodate future widening and room for multi-modal options.

XII. Constraints

The constraints apparent in this area include:

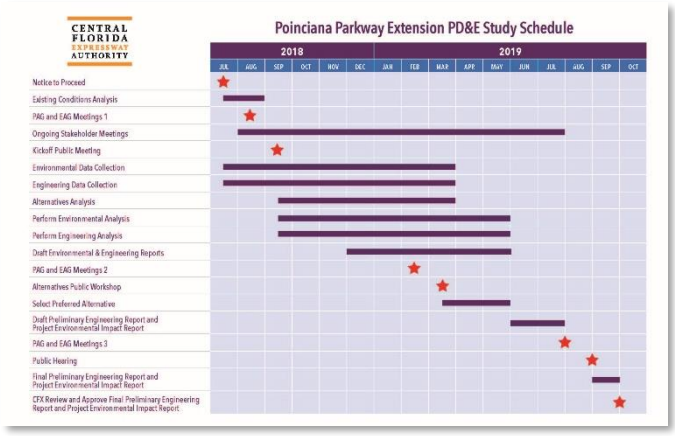
- Reedy Creek Mitigation Bank
- Wetlands
- Cemeteries
- Places of Worship
- Loughman Park
- Loughman Community
- Utility Underground Pipes and Overhead Lines
- Power Substations
- Gas Transmission Substations
- Businesses and Residences

XIII. Anticipated Impacts & Alignment Elimination

The PD&E Study will take a closer look at the physical, natural, cultural and social impacts anticipated from the various alignments from the CF&M study. Since Alternatives 2 and 3 had high social and natural impacts, they were eliminated from further consideration. The PD&E Study now focuses on Alternatives 1, 4 and 5.

XIV. Polk County, Osceola County & OCX Agreement

The PD&E study is adhering to agreements with Osceola County, Polk County and the Osceola County Expressway Authority stating that a connection with Ronald Reagan Parkway will remain if Poinciana Parkway is extended to I-4. Alternative 1 has considered that connection, but 4 and 5 did not. That connection to those alternatives is now being added to study the impacts. The study team is working on this with Polk County as the study continues.



XV. Schedule

Next month we'll have a public kickoff meeting. We anticipate our second EAG and PAG meetings in February 2019, and the third round in July 2019.

XVI. Public Involvement

There will be multiple opportunities for participation, including the EAG and PAG meetings, as well as public meetings. The kickoff meeting is scheduled for September 25, 2018. We anticipate the Alternatives Workshop in March 2019 and the Public Hearing in August/September 2019. The study team also will make Board Presentations to CFX, Osceola and Polk Board of County Commissioners and will hold

stakeholder meetings. The public can get information through the CFX study webpage and Facebook page.

XVII. Open Discussion

Nicole Gough opened the meeting up for questions and comments.

Henry Pinzon, Florida's Turnpike Enterprise: What happened with the connection to SR 429?

Clif Tate, Kimley-Horn: We've been coordinating with FDOT District Five. We must be consistent with FDOT's Beyond the Ultimate. FDOT will decide how to do it.

Henry Pinzon: So, is that still on table?

Clif Tate: Yes, but they'll decide the timing.

Marge Holt, Sierra Club: Has anyone the from mitigation bank commented or weighed in?

Mary Brooks, Quest: We haven't received any comments or questions about that.

Marge Holt: Are there any plans to bridge the mitigation bank?

Clif Tate: That's not in the plans, but we can evaluate it.

Marge Holt: What does "may be" feasible mean?

Clif Tate: The project needs to produce enough traffic to cover half of the roadway's cost within a 30-year period. During the concept study phase, we took a higher look and it was on the bubble on whether it was feasible. This PD&E will give us more information to determine viability.

Josh DeVries, Osceola County Transportation and Transit: So, with a CFX expressway there's the potential for extending a local road a mile as needed to connect with the existing network. And feasibility relies on CR 532 and partnership with FDOT and Osceola. We're looking at adding the four-laning of CR 532 to our work program. Inclusion of a mile-long stretch where that may be, depending on right-of-way, is 98-110 feet, and there's 200 feet there, so it's feasible. If CFX does that, then Osceola could extend (CR 532) to Old Lake Wilson Road.

Fred Milch, East Central Florida Regional Planning Council (ECFRPC): You need to be looking at social impacts and what that does to lower income folks in the area and how they'll be relocated. There are low wages in tourism and that's where these folks live. Eventually there will be a shift in the type of people who will live there due to transit improvements. Also, there may be a disparity in what local governments want and what CFX wants. CFX looks at traffic and the money

it will produce to cover bonds. That might not be so critical here because Osceola wants it, too, but CFX is driving land use plans, which is the prerogative of the local government. It's not bad here, but Wekiva is an example of land use driven by CFX and not getting great input from local governments. I've mentioned this with other projects. We want to make sure low-income areas and other impacts are considered. Watching low-income housing is a responsibility of CFX to mitigate, because it's what impacts these people.

Clif Tate: I can't speak to others, but on this project, this was done in conjunction with and driven by Osceola County, because they needed a beltway for their urban boundary plan.

Lee Pulham, Reedy Creek Improvement District (RCID): Our concern is the connection to SR 429, so this is premature. A lot of employees who live in the RCID would benefit from this to get from their homes to work. It's nice to have an expressway, but tolls could be tough on lower income workers. RCID and Disney are supportive of improved transportation. Disney often mitigates their projects in their own mitigation banks, but this one is used for some of Disney's impacts.

Chad Allison, South Florida Water Management District (SFWMD): If it went through Alternative 1 in Loughman, that's Polk County. I'm under the impression that Polk is involved in this?

Clif Tate: As part of the concept [CF&M] study we presented to Polk County and to the Polk County Transportation Planning Organization as recently as last week. We've been coordinating and they're supportive.

Chad Allison: To echo the regional planning council (Fred Milch) on residents and social costs – looking at the park in Loughman, I echo concerns about the impact on that community and residents' ability to access the park.

Clif Tate: It goes around the local park. We have bridges, but it does impact the community.

Casey Lyon, FDOT District Five: D5 has credits in Reedy Creek for Beyond the I-4 project. I can't imagine some of these credits haven't already been released. We recommend an evaluation of some wildlife crossings if you're going through conservation areas.

Marian Ryan, Sierra Club: I would emphasize what Casey said about wildlife crossings. We've been trying to get these constructed for 25 years and nothing has happened. Crossings are vital to the future of these populations as growth constrains their movements.

Fred Milch, ECFRPC: I hear people talking about bridging wildlife crossings near mitigation banks, but wildlife corridors are needed farther out with the growth that's going to occur as a result of this. Are you identifying wildlife corridors south of this and how they're going to be maintained?

Lynn Kiefer, Kimley-Horn: Yes, we'll evaluate that and what will be impacted with a road through here. We've also noted other comments here about accommodating wildlife movement through this area.

XVIII. Next Steps:

EAG comments will be reviewed as part of the alternatives' evaluation. The public will be able to comment on the alternatives at the Sept. 25 Kickoff Public Meeting.

XIX. Action items:

Everyone will receive a copy of the presentation with the exhibits, which will be posted on the study webpage.

There being no further questions or comments, the meeting was adjourned.

END OF SUMMARY

This meeting summary was prepared by Mary Brooks, Public Involvement Coordinator with Quest Corporation of America. It is not meant to be verbatim, but is a summary of the meeting activities and overall discussion. If you feel something should be added or revised, please contact Mary Brooks by email at mary.brooks@qcausa.com or by telephone 407-694-5505 within (5) days of receipt of this summary.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Project Development & Environment Studies

POINCIANA PARKWAY EXTENSION

ENVIRONMENTAL ADVISORY GROUP (EAG) MEETING #2 - SUMMARY

DATE / TIME: Tuesday, February 19, 2019, 9:30 a.m. - 11:30 a.m.

LOCATION: Central Florida Expressway Authority (CFX) Board Room, 4974 ORL Tower Road, Orlando

ATTENDEES: There were eight attendees and seven staff members. See sign-in sheets attached.

I. Notifications

Invitation letters were emailed to 90 members of the EAG on January 24, 2019. A GotoMeeting invitation was sent to members who needed to join remotely. There were four participants in the GotoMeeting.

II. Welcome

Nicole Gough of Dewberry, the General Engineering Consultant (GEC) for CFX, called the meeting to order and welcomed everyone. Attendees introduced themselves and the organization they represented. Nicole gave a brief introduction about the meeting and Title VI information.

III. Study Presentation

Nicole called up Consultant Project Manager Clif Tate from Kimley-Horn to review the history and study background.

- **Overview and Background**
  The purpose of this EAG meeting was to review the project, present an update on the status of potential impacts and receive feedback. The corridors are being evaluated in greater detail by CFX after previous studies reached various levels of approvals.

In 2005, Osceola County adopted a Comprehensive Plan that proposed several new corridors to meet the county's anticipated growth. The Osceola County Expressway Authority (OCX) Master Plan 2040 was finalized in 2013, defining the county's expressway needs and providing a program of projects to implement the plan. In September 2016, an interlocal agreement was approved, transferring the lead for developing the remainder of the OCX 2040 Master Plan to CFX. CFX then incorporated the OCX Master Plan segments into its Master Plan and conducted Concept, Feasibility and Mobility (CF&M) Studies on four of the OCX Master Plan projects.

In March 2018, the CFX Governing Board approved two of the projects, including the Poinciana Parkway Extension, to move forward to the Project Development & Environment (PD&E) study phase. This PD&E study began in July 2018.

In September 2018, a public meeting was held at Poinciana High School so the public could ask questions and give their input on the proposed alternatives. The meeting was held in open house format and was attended by 116 community members. A total of 24 written comments were received. The project team used the comments and other factors to come up with three alternatives which were presented at the PAG meeting on February 19, 2019.

- **Advisory Group Roles**

Clif explained the roles of the Environmental and Project Advisory Groups, saying this group is focused on natural environment analysis and providing environmental impact input on project alternatives.

During the previous CF&M study phase, public involvement efforts for all four projects included six public meetings that attracted 1,300 participants and generated 630 comments.

- **Project Development Process**

The CF&M study phase was completed last spring, and the project is currently in the PD&E phase. If the CFX Governing Board moves the project forward, it would first go into design and then, later, construction.

- **Purpose and Need**

The purpose and need for this study include:

- Enhance mobility between CR 532 and Poinciana Parkway
- Reduce roadway congestion and delays
- Expand regional connectivity
- Provide transportation infrastructure for planned growth

- Provide consistency with local plans and policies
- Enhance safety

- **Previous Feasibility Study**

Clif gave an overview of the CF&M study:
- Evaluated extending Poinciana Parkway to Interstate 4 (I-4).
- Included five alternative alignments between Poinciana Parkway and County Road (CR) 532.
- Included three alternative alignments between CR 532 and I-4.
- Concluded the project may be viable under CFX criteria.
- Concluded advantages of a phased connection from Poinciana Parkway to CR 532 and, subsequently, from CR 532 to I-4.

- **Benefits of Phased Approach**

Clif reviewed the benefits of breaking the extension of Poinciana Parkway to I-4 into two phases:
- I-4 connection requires approval from the Florida Department of Transportation (FDOT) and the Federal Highway Administration (FHWA).
- The connection to I-4 needs to be planned in concert with FDOT's "Beyond the Ultimate" plans for I-4.
- This will require extensive planning and coordination and will be years in the making.
- This study is looking at the extension of Poinciana Parkway to CR 532, which will advance the project and could provide traffic relief in the short-term for the area.
- This will tie in with improvements planned by others, such as Osceola County's plan to widen CR 532 and FDOT's interim plans for the I-4/CR 532 interchange.

- **Study Methodology**

We are following FDOT's PD&E manual. This study will result in a Project Environmental Impact Report (PEIR) with CFX's approval. This study is analyzing and documenting physical, natural, social, and cultural impacts.

- **Stakeholder Outreach**

Clif explained the outreach to nearly 20 key stakeholders in the area to let them know the team is available to meet with any of them regarding the project.

- **Public Involvement**

There have been, and will continue to be, multiple opportunities for participation, including the EAG and PAG meetings, as well as public meetings. The kickoff meeting was held on September 25, 2018. The second public meeting is scheduled for March 14, 2019 and the

Public Hearing in August / September 2019.

The study team also will make Board Presentations to CFX, Osceola and Polk Board of County Commissioners and will hold stakeholder meetings. The public can get information through the CFX study webpage and Facebook page.

- **EAG / PAG Input**

The team received input from the last EAG and PAG meetings. The considerations led to the three new alternatives now being proposed.

- **Typical Section on New Alignment**

The typical section for this roadway would be 330 feet wide. It would have two lanes in each direction with a 92-foot-wide median. The median would accommodate future widening and room for multi-modal options.

- **Constraints**

The constraints apparent in this area include:
- Reedy Creek Mitigation Bank
- Wetlands
- Cemeteries
- Places of worship
- Loughman Park
- Loughman community
- Utility underground pipes and overhead lines
- Power substations
- Gas transmission substations
- Businesses and residences

- **Polk County, Osceola County & OCX Agreement**

The PD&E study is adhering to agreements with Osceola County, Polk County and the former Osceola County Expressway Authority stating that a connection with Ronald Reagan Parkway will remain if Poinciana Parkway is extended to I-4. Alternative 1 has considered that connection, but Alternatives 4 and 5 did not. That connection to those alternatives is now being added to study the impacts. The study team is working on this with Polk County as the study continues.

- **Original Alternatives**

  Clif provided a look at the original alternatives next to the newly proposed alternatives. He noted that Alternative 4 was intended to provide reduced impacts to the Reedy Creek Mitigation Bank as compared to Alternative 5. These alternatives have been further refined to Alternatives 1A, 4A and 5A.

- **Refinement of Alternative 1 to Alternative 1A**

  Clif discussed the request to evaluate moving Alternative 1 to the west side of the railroad tracks to reduce the impacts in the historic Loughman area. That alternative became Alternative 1A. The team had conducted a screening analysis which compared Alternatives 1 and 1A. That analysis resulted in the elimination of Alternative 1 from further consideration and allowed them to proceed with Alternative 1A as a possible alternative.

- **Refinement of Alternative 4 to Alternative 4A**

  Challenges were discussed for both Alternatives 4 and 5 in crossing over the railroad tracks and then getting down to grade at CR 532. The original concept included loop ramps on the north side of CR 532 which allowed for the vertical transition. However, the loop ramps encroached on both the Duke Energy facility and the Sabal Trail facility. We needed to shift the connection to CR 532 west to achieve the vertical requirements. We also added the slip ramps to Ronald Reagan Parkway per the agreement. These changes resulted in Alternative 4A.

  As previously mentioned, Alternative 4 originally had fewer impacts to the Reedy Creek Mitigation Bank than Alternative 5. However, due to revisions, Alternative 4A now has more impacts to the Reedy Creek Mitigation Bank than Alternative 5A.

- **Refinement of Alternative 5 to Alternative 5A**

  Clif went on to explain the same adjustments to Alternative 5 as to Alternative 4, including shifting the connection to CR 532 west to achieve the vertical requirements and adding the slip ramps to Ronald Reagan Parkway per the agreement. These changes resulted in Alternative 5A.

- **Evaluation Matrix – Design, Physical**

  The Evaluation Matrix for the Design and Physical information shows Alternative 1A is the longest alternative. Alternatives 4A and 5A have longer structures, with bridges over

wetlands in the Reedy Creek Mitigation Bank and the Upper Lakes Basin Watershed. Alternative 1A has one more contamination site than the others.

- **Evaluation Matrix – Cultural, Natural**

The Evaluation Matrix for the Cultural and Natural information shows Alternatives 4A and 5A impact two potential historic resources, compared to one historic resource for Alternative 1A. Alternatives 4A and 5A impact four potential archaeological resources compared to two for Alternative 1A. Alternative 1A impacts more ponds, lakes and flood hazard areas. Alternatives 4A and 5A impact more state-listed-species habitat. Alternative 1A impacts a bald eagle's nest in the vicinity of the Providence DRI. Alternatives 4A and 5A impact more of the Reedy Creek Mitigation Bank, with 4A having the largest impact. Alternatives 4A and 5A impact the Upper Lakes Basin Watershed and Alternative 1A impacts regulatory conservation lands.

- **Evaluation Matrix – Social, Financial**

The Evaluation Matrix for the Social and Financial information shows Alternative 4A requires the most right-of-way, even though it is shorter than 1A, due to inclusion of the Ronald Reagan Parkway slip ramps. Alternative 1A has the most impacts to existing and future residential and non-residential parcels. Alternative 1A has high impacts to community cohesion, impacts to special populations and the greatest impacts to proposed development.

Alternative 1A has the highest projected Annual Average Daily Traffic volume. These volumes do not include an expressway connection to I-4. With an expressway connection to I-4, Alternative 1A still has the highest volume in 2045, which is approximately four percent higher than the volumes for Alternatives 4A and 5A.

- **Alternatives Analysis**

Regarding what's next, the study team will continue to solicit public input on the project alternatives and eventually identify a recommended preferred alternative. They also will perform a detailed engineering and environmental analysis on the alternatives with the results documented in a series of engineering and environmental reports.

IV. Open Discussion

Nicole Gough asked attendees for their questions and comments.

Atlee Mercer, Osceola County: So, construction costs are higher than I expected. Are you 4-

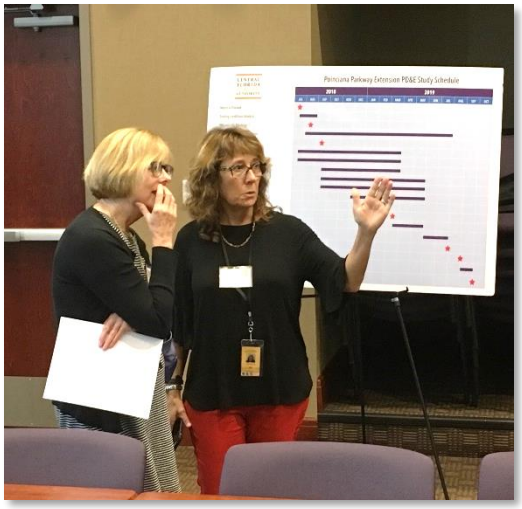
laning the existing Poinciana Parkway?

Clif Tate: No, it doesn't include the 4-laning of the existing Poinciana Parkway. In an effort to reduce impacts, the interchange at 17-92 for 4A and 5A are SPUI's – single point urban interchanges, that are more costly, but have a smaller footprint. Then we have the same thing set up for the interchange at CR 532. And we included bridges over the wetlands, so that's pretty expensive.

Atlee Mercer, Osceola County: Perhaps look at phasing it in. Phasing is always good.

Nicole Gough: To go a little further with that, phasing is typically how those things would be looked at, but for the study purposes it would be overall connectivity. That plays into our purpose and need. We aren't really able to support building something that's just a small piece.

Atlee Mercer, Osceola County: OCX had acquired enough right of way for six lanes.



Nicole asked the group for thoughts on the alternatives following the revisions made after hearing from the public and looking closely at social and environmental impacts.

Josh DeVries, Osceola County Transportation and Transit: Clif had mentioned the connection to our widening of CR 532. I wanted to put on the record that Osceola County looks forward to working with CFX and coordinating the timing, phasing and construction of the facilities. It's certainly needed, and this will make that need even greater.

Atlee Mercer, Osceola County: Because 1A is the most economical, but has the most social conflicts, have you considered doing an urban expressway through that area to tighten down your right of way? Is that a viable alternative? I know you've talked about keeping a transit corridor.

Clif Tate: We can take that into consideration. We can look into that.

Nicole Gough: Any comments regarding our consideration on more bridging through some of the conservation areas in the area and integrating more wildlife crossings into the alternatives?

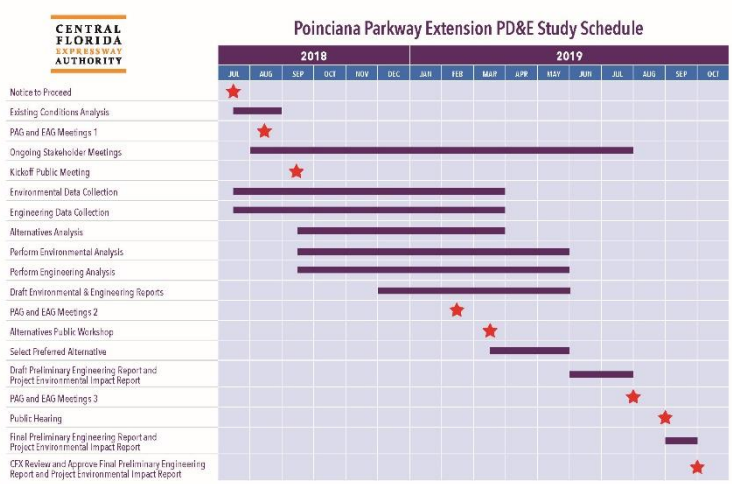
Brian Barnett, Florida Fish and Wildlife Conservation Commission: Yeah, we definitely want to work with you as all the alternatives have pretty heavy fish and wildlife impacts. I'd need to take a close look at the revised alternatives to see what we might be able to do with them. But I think you're heading toward minimization anyway, so that's good.

Rax Jung, Florida's Turnpike Enterprise: Have you looked at the I-4 operations between 532 and 429 in conjunction with this study?

Clif Tate: Right now, we are not anticipating looking at any conditions on I-4 during Phase I. That, of course, would be evaluated during the Phase II connection to I-4. We did identify that there is a need at the interchange at CR 532 and I-4, so Osceola County and DOT are looking at options that would increase capacity at that interchange, but we're not looking at that at this time.

Nicole Gough asked if there were any other comments or questions. Receiving none, she turned to Mary Brooks, Public Involvement Coordinator with Quest Corporation of America, to review public involvement activities and close the meeting.

Mary reminded everyone to take the fact sheet and a comment form in case they think of something else. She discussed the schedule, the study website and provided her contact information.



V. Schedule

The second public meeting is scheduled for March 14. We anticipate our final EAG and PAG meetings in late July or early August 2019.

VI. Next Steps:

EAG comments will be reviewed as part of the alternatives' evaluation. The public will be able to comment on the alternatives at the second public meeting on March 14, 2019.

VII. Action items:

Everyone will receive a copy of the presentation with the exhibits, which also will be posted on the study webpage.

There being no further questions or comments, the meeting was adjourned.

END OF SUMMARY

This meeting summary was prepared by Mary Brooks, Public Involvement Coordinator with Quest Corporation of America. It is not meant to be verbatim, but is a summary of the meeting activities and overall discussion. If you feel something should be added or revised, please contact Mary Brooks by email at ProjectStudies@CFXway.com or by telephone 407-802-3210 within five days of receipt of this summary.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SIGN IN

Poinciana Parkway Extension Project Development & Environment (PD&E) Study
ENVIRONMENTAL ADVISORY GROUP - MEETING NO. 2
CFX Project No.: 599-224
CFX Headquarters, 4974 ORL Tower Rd, Orlando, FL 32807
February 19, 2019, 9:30 a.m. – 11:30 a.m.

Name	Organization	Address	City/State/Zip	Email Address	Initials
Hugh Harling	East Central Florida Regional Planning Council	455 N Garland Ave, 4th Floor	Orlando, FL 32801	hharling@ecfrpc.org	
Fred Hawkins	Osceola County Commissioner – District 5	1 Courthouse Square	Kissimmee, FL 34741	fred.hawkinsjr@osceola.org	
Thomas Hawkins	1000 Friends of Florida	P. O. Box 5948	Tallahassee, FL 32314-5984	friends@1000fof.org	
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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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Poinciana Parkway Extension Project Development & Environment (PD&E) Study
ENVIRONMENTAL ADVISORY GROUP - MEETING NO. 2
CFX Project No.: 599-224
CFX Headquarters, 4974 ORL Tower Rd, Orlando, FL 32807
February 19, 2019, 9:30 a.m. – 11:30 a.m.

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STAFF SIGN IN SHEET

Poinciana Parkway Extension Project Development & Environment (PD&E) Study

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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Project Development & Environment Studies

POINCIANA PARKWAY EXTENSION

ENVIRONMENTAL ADVISORY GROUP (EAG) MEETING #3 - SUMMARY

DATE / TIME: Tuesday, May 21, 2019, 9:30 a.m. - 11:30 a.m.

LOCATION: Central Florida Expressway Authority (CFX) Board Room, 4974 ORL Tower Road, Orlando

ATTENDEES: There were seven attendees and 10 staff members. Three of the attendees joined by GotoMeeting. See sign-in sheets attached.

I. Notifications

Invitation letters were emailed to 89 members of the EAG on April 26, 2019 and a reminder was emailed on May 16, 2019. A GotoMeeting invitation was sent to members who needed to join remotely. There were three participants in the GotoMeeting.

II. Welcome

Nicole Gough of Dewberry, the General Engineering Consultant (GEC) for CFX, called the meeting to order and welcomed everyone. Attendees introduced themselves and the organization they represented. Nicole gave a brief introduction about the meeting and Title VI information.

III. Study Presentation

Nicole called up Consultant Project Manager Clif Tate from Kimley-Horn to review the history and study background.

- **Advisory Group Roles**

  Clif explained the roles of the Environmental and Project Advisory Groups, saying this group is focused on natural environment analysis and providing environmental impact input on

project alternatives.

- **Background**

The purpose of this EAG meeting was to review the alternative evaluation findings, present an update on the status of potential impacts and receive feedback. The corridors are being evaluated in greater detail by CFX after previous studies reached various levels of approvals.

In 2005, Osceola County adopted a Comprehensive Plan that proposed several new corridors to meet the county's anticipated growth. The Osceola County Expressway Authority (OCX) Master Plan 2040 was finalized in 2013, defining the county's expressway needs and providing a program of projects to implement the plan. In September 2016, an interlocal agreement was approved, transferring the lead for developing the remainder of the OCX 2040 Master Plan to CFX. CFX then incorporated the OCX Master Plan segments into its Master Plan and conducted Concept, Feasibility and Mobility (CF&M) Studies on four of the OCX Master Plan projects.

In March 2018, the CFX Governing Board approved two of the projects, including the Poinciana Parkway Extension, to move forward to the Project Development & Environment (PD&E) study phase. This PD&E study began in July 2018.

In September 2018, a public meeting was held at Poinciana High School so the public could ask questions and give their input on the proposed alternatives. The meeting was held in an open house format and was attended by 116 community members. A total of 24 written comments were received. The project team used the comments and other factors to come up with three alternatives which were presented at the PAG meeting on February 19, 2019.

- **Project Development Process**

The CF&M study phase was completed in the spring of 2018, and the project is currently in the PD&E phase. If the CFX Governing Board moves the project forward, it would first go into design and then, later, construction.

- **Purpose and Need**

The purpose and need for this study include:

- Enhance mobility between CR 532 and Poinciana Parkway
- Reduce roadway congestion and delays

- Expand regional connectivity
- Provide transportation infrastructure for planned growth
- Provide consistency with local plans and policies
- Enhance safety

- **Previous Feasibility Study**

Clif gave an overview of the CF&M study:
- Evaluated extending Poinciana Parkway to Interstate 4 (I-4).
- Included five alternative alignments between Poinciana Parkway and County Road (CR) 532.
- Included three alternative alignments between CR 532 and I-4.
- Concluded the project may be viable under CFX criteria.
- Concluded advantages of a phased connection from Poinciana Parkway to CR 532 and, subsequently, from CR 532 to I-4.

- **Study Methodology**

We are following FDOT's PD&E manual. This study will result in a Project Environmental Impact Report (PEIR) with CFX's approval. This study is analyzing and documenting physical, natural, social, and cultural impacts.

- **Stakeholder Outreach**

Clif explained the outreach to, and meetings with, nearly 20 key stakeholders in the area. The study team is open to additional meetings upon request.

- **Public Involvement**

There have been, and will continue to be, multiple opportunities for participation. We met with the EAG and PAG on August 15, 2018 and February 19, 2019. The public kickoff meeting was held on September 25, 2018 and the second public meeting was held on March 14, 2019. The study's Public Hearing is scheduled for August 29, 2019.

The study team also made a presentation to the Polk County Board of County Commissioners and will be making presentations to the Osceola County Board of County Commissioners and CFX. The public can get information through the CFX study webpage and Facebook page.

- **EAG / PAG Input**

  The team received input from the last EAG and PAG meetings. The input was used to finalize and refine the alternatives considered in the study.

- **Public Meeting Input Received**

  We had 166 people attend the last public workshop and we received 32 written comments that evening. We received eight additional written comments prior to the comment period closing on March 28. For the folks who expressly favored an alternative, 4A and 5A received the most support. Alternative 1A was expressly opposed by the most people.

- **Typical Section on New Alignment**

  The typical section for this roadway would be 330 feet wide. It would have two lanes in each direction with a 92-foot-wide median. The median would accommodate future widening and multi-modal options.

- **Initial Alternatives**

  Clif presented a graphic of the initial Alternatives 1, 4 and 5. He noted that Alternative 4 was intended to provide reduced impacts to the Reedy Creek Mitigation Bank as compared to Alternative 5. These alternatives have been further refined to Alternatives 1A, 4A and 5A. Alternative 4 originally had fewer impacts to the Reedy Creek Mitigation Bank than Alternative 5; due to revisions, Alternative 4A now has more impacts to the Reedy Creek Mitigation Bank than Alternative 5A. Therefore, Alternative 4A has been dropped from further consideration.

- **Alternative 1A**

  The Alternative 1A alignment has the expressway on the west side of the railroad tracks to reduce the impacts in the historic Loughman area. This alternative impacts 54 acres of wetlands, 39 acres pf conservation and mitigation areas, 123 residential parcels, 24 non-residential parcels. It is projected to carry 18,000 vehicles a day in 2045 and to cost $295 million.

- **Alternative 5A Without Slip Ramps**

  Clif explained that Alternative 5A requires the relocation of some utilities and it includes

bridging major wetlands in the Reedy Creek Mitigation Bank and Upper Lakes Basin Watershed.

This alternative impacts more wetlands, conservation and mitigation areas than Alternative 1A; however, the residential parcels impacted decreases to 52 and the non-residential parcels decrease to eight.

This alternative has the highest projected 2045 daily traffic volume at 24,800. It also has the lowest projected cost at $275 million.

- **Alternative 5A With Slip Ramps**

Adding slip ramps to Ronald Reagan Parkway increases the impacts to wetlands, conservation and mitigation areas, residential parcels and non-residential parcels. The projected 2045 daily traffic volume goes down to 15,200. And the projected cost increases to $309 million.

- **Comparative Matrix of Key Elements**

A summary of the various key elements for each alternative was presented. As previously noted, Alternative 5A without slip ramps has lower social impacts and lower natural impacts than if the slip ramps are included. It also has the lowest cost and serves the highest number of vehicles.

- **Alternative 5A Without Slip Ramps**

After evaluating the alternatives, the study team proposes to advance Alternative 5A without slip ramps to Ronald Reagan Parkway as the preferred alternative. Polk County has passed a resolution supporting this as the preferred alternative.

This alternative has the lowest social impacts, and lower natural impacts than would occur if the slip ramps to Ronald Reagan Parkway are added.

This alternative also has the lowest total cost and the highest traffic volume. This helps with the financial feasibility of the project since it is a tolled roadway.

IV. Next Steps

We are currently soliciting input on the preferred alternative. Detailed engineering and environmental analysis are being performed on this alternative and the results are being documented in a series of engineering and environmental reports. The Public Hearing will occur

on August 29, followed by a decision by the CFX Governing Board on October 10 on how to proceed.

V. Open Discussion

Nicole Gough of Dewberry asked attendees for their questions and comments.

Charles Lee, Audubon of Florida: So, there are no slip ramps with Alternative 5A?

Clif Tate, Kimley-Horn: Correct, the preferred alternative does not include slip ramps.

Charles Lee, Audubon of Florida: Is this going to be built regardless of what happens between here (County Road 532) and I-4?

Clif Tate, Kimley-Horn: That depends on what the CFX Board decides, but yes, it's anticipated that this will be built to CR 532. CFX has the ability to build improvements along local roads within one mile of the expressway. As part of this project, CFX is going to widen CR 532 one mile to the west.

Charles Lee, Audubon of Florida: If the road from the northern end of this to I-4 was never built, would you still recommend this project standing alone?

Clif Tate, Kimley-Horn: Yes, the financials show it could stand alone.

Nicole Gough, Dewberry: At the interchange, is that at grade?

Clif Tate, Kimley-Horn: Yes, the tie-in to CR 532 will be at grade. If the project is extended further to the north … the expressway lanes would go over 532.

Charles Lee, Audubon of Florida: What is the concept for the actual location of tolling facilities on this fairly short segment?

Clif Tate, Kimley-Horn: Going by recollection, I believe there will be tolls getting on and off here (pointed at map), there may be a mainline toll here. There's an existing mainline structure further to the east that would be able to capture the value for people traveling on that up to 17-92. It would all be electronic tolling.

Charles Lee, Audubon of Florida: Would there be a dead-end segment of the current road that leads out to… (the area of the Sereno development).

Clif Tate, Kimley-Horn: Correct, there would be a cul de sac on the existing road (Clif showed the location on the map to the EAG). So, there's currently this residential development that's there

(Sereno). About half of this (pointing at map, east of Sereno) has been constructed, and then this residential development (north of Sereno) is under construction now.

Charles Lee, Audubon of Florida: So that would be a cul de sac just to serve only that development?

Clif Tate, Kimley-Horn: Yes. There's additional access to Providence DRI and also Fox Run, which is another development to the west.

Charles Lee, Audubon of Florida: Looking at this bridging, I'm concerned that while the bridge length on the southern end is adequate to transition into the upland components within the mitigation bank area, when you get up here the bridging stops short of wetlands. Therefore, there is no upland interface crossing under the bridge. There is a terrestrial wildlife movement that would be interrupted by the failure to provide bridging over that area. My second concern is that the property west of the bridge area – is that private property that is subject to development and is not inside the mitigation bank or the conservation area?

Clif Tate, Kimley-Horn: The bridge extension is a good point and is noted. The parcel west of the bridge is not within the Upper Lakes Basin Watershed area.

Ayounga Riddick, South Florida Water Management District (SFWMD): That property is very close to our boundary and may straddle our western boundary to the Upper Lakes Watershed.

Charles Lee, Audubon of Florida: My concern is that ultimately, with this being in private ownership, even though it is a wetland area, the likelihood with frontage on 17-92, is that there's going to be development on that parcel. They'll ultimately present a plan that combines the purchase of mitigation credits somewhere and take out the wetlands and you're going to see a Walmart or residential or something in there. If that were the case, then quite a few million dollars of bridging is being essentially wasted. … I'm not proposing getting rid of the bridge, … but as a consequence of the impacts of this project on SFWMD holdings and the mitigation bank's holdings, that in addition to purchasing mitigation credits for the actual wetland mitigation, it would be appropriate to have an outcome for this project be that that parcel become publicly owned and is joined with the SFWMD holdings. If not, it's almost a nonsensical situation. You're building 1000 feet of bridge that would be for no good reason. If all that is developed, this bridge is silly. I'm proposing that you complete the environmental integrity … one of the components that need to be part of the plan, is at least the purchasing the wetlands part of that tract of private land.

Keith Laytham, Poinciana Residents for Smart Change: Alternatives 5 and 5A are the most attractive because they get us closest to where we want to go. To answer the question Charles had about what happens if we don't ever tie into 429, because of the Poinciana Parkway as it

exists today and because of the nature of the people who live in Poinciana, traffic is going to continue to flow up through the ChampionsGate area, whether we get 532 expanded or not, whether we get that (I-4) interchange expanded or not. You're still going to have all of those people getting on at the ChampionsGate intersection.

The benefit that this project brings to the people of Poinciana is that it makes it quicker to get to CR 532, and it makes it a lot easier as far as the congestion on the 17-92 corridor, particularly the intersection now between 17-92 and 532. The intersection … has a left turn lane but not currently a left turn signal, that causes a lot of problems at rush hour with people trying to make a left turn. This will be a significant benefit of going ahead with this project even if it doesn't go to I-4.

I wasn't at the Polk County meeting so I don't know their rationale for why they approved the alternative without the slip ramps. I definitely like the idea of the slip ramps at the Kinney Harmon Road and existing Poinciana Parkway. I realize it costs more and has impact on traffic volumes, but lots of people in Poinciana use the Poinciana Parkway to get to Posner Park. By not putting slip ramps, you make it more difficult to get there. The other thing is, in addition to housing construction, there's a new Publix plaza at 17-92 and Kinney Harmon Road. That will be very attractive to people who use the SunRail station and 17-92 to get to the Kissimmee area. It will be convenient to stop there on the way home from work. Without the slip ramp, you have to go back the other way from Publix to get back to the parkway, which would be a tremendous inconvenience for people and would have financial impact on the people investing in the Publix. You'd be missing traffic going to the Posner Park area.

Clif Tate, Kimley-Horn: When we met with Polk County, that was a concern – the access to Posner Park and all of the development there. But after considering the facts, they said traveling one mile wasn't that much of an inconvenience. They recognized the concerns you have and decided to recommend 5A with no slip ramps.

Keith Laytham, Poinciana Residents for Smart Change: I know all the commissioners and they don't live in Poinciana. It's a mile, but in rush hour a mile can take 20 minutes to get through there. Coming home from work that would make a big difference.

Charles Lee, Audubon of Florida: If you're going to do the alternative with slip ramps, you'd have to have a second toll collection point. Otherwise people would recognize they could avoid the toll by taking the route access to the south. You'll have to have a tolled entrance way coming off the road providing access.

Keith Laytham, Poinciana Residents for Smart Change: We already have that with the toll plaza on Poinciana Parkway bridge. People today that use the parkway – and some of them do complain

about the price of the toll – use the existing Kinney Harmon Road to access and pay the toll after the bridge. Without the slip ramp, in order to use the Poinciana Parkway Extension, you've just raised the toll. You're not adding value to people who want to get to Posner Park.

Charles Lee, Audubon of Florida: Without the slip ramps, you'll add a toll to transit that parkway. It's out of our interest area, but if you're balancing toll collection, you'll need to present a toll avoidance scenario … potential that people avoid the northern part of this to save a buck or so. … You'll end up with a situation where people are going to be loading up that corner, making that turn to avoid the toll.

Clif Tate, Kimley-Horn: Yes, I think that's part of what was reflected in the increase in the 5A volume without the slip ramps.

Brandon Arrington, Osceola County Commissioner: We're excited to see the progress you guys are making. That northern terminus, there's a lot of utility action north of County Line Road. So, you're taking into consideration the utilities for the second phase? It's great that we're here, but I'd still love to see the entire thing connected, as opposed to being broken into two phases. I've unfortunately seen how breaking things into phases works. Usually that second phase takes a lot longer to get done. I know we've got a lot of interaction with (Congressman) Darren Soto's office and FHWA. If there's any way we can make this project whole the toll revenues would double, the way we would be able to shift truck traffic once we make that connection – for not only Central Florida but all of Florida was well – it would be a win for all of us.

Clif Tate, Kimley-Horn: Good point. As far as utility relocations go, this blue line (pointing at map) is the relocation of the power lines. That has been taken into consideration for Phase 2. There are additional utilities once you get past there that would be addressed in the next phase.

Brandon Arrington, Osceola County Commissioner: I'm sure you're aware of the gas transmission lines recently added and the power plant just to the east as well? So, it's going to be a tricky needle to thread.

Nicole Gough, Dewberry: We ended up with the terminus of this project based on trying to thread that needle with the utilities originally.

Conroy Jacobs, Osceola County: This is a great presentation and good conversation. We're in support of our neighbors in Polk County and if 5A is the preferred alternative without the slip ramps, we're definitely in support of that. What is the timing for construction and fiscal years for future plans?

Clif Tate, Kimley-Horn: Once the decision is made, CFX has the ability to move into design and complete the project; they have the funding available for that. But it hasn't been identified in their work plan yet. All of those specifics will be worked out following the Board's decision on Oct. 10.

Conroy Jacobs, Osceola County: We just want to make sure we collaborate on that. I know there are some improvements that we're going to have to make as well, so we want to make sure we also adopt those as part of our 5-year plan as well.

Keith Laytham, Poinciana Residents for Smart Change: I support what Commissioner Arrington said: I'd like to make this entire project whole as quickly as possible. A major holdup both for Southport (Connector) and the extension of this project up to 429 is the approval and cost of the Turnpike interchange. The federal government takes longer than what we'd like. Anything we can do to move this more quickly – on both Southport and the Poinciana extension – would be greatly appreciated.

Nicole Gough, Dewberry: Any comments on how this would affect the SFWMD property management?

Ayounga Riddick, South Florida Water Management District: No comments on the management, but we do support the recommendation that CFX look into acquisition of the wetlands that are part of the private parcel to the west of the proposed 5A alignment. The wetland connectivity would be beneficial to have that not separated. I support the recommendation that someone acquire that private piece and potentially transfer ownership to SFWMD for long-term management.

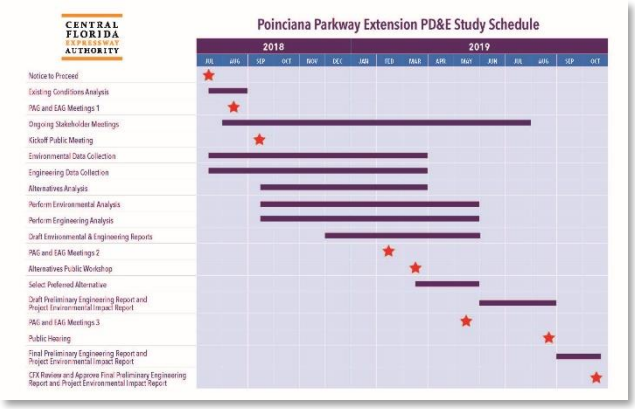
Nicole Gough of Dewberry noted that Fish and Wildlife wants to make comments, but they're having trouble with the audio, so we'll continue to work to get those comments from them. She noted that overall this conversation has not stopped. We'll continue to provide opportunities for meetings or to make your comments known.

Nicole noted with no further comments in the room, she turned to Mary Brooks, Public Involvement Coordinator with Quest Corporation of America, to review public involvement activities and close the meeting.

Mary reminded everyone to take the fact sheet and a comment form in case they think of something else. She discussed the schedule, the study website and provided her contact information.

VI. Schedule

The public hearing is scheduled for August 29.



VII. Next Steps

EAG comments will be reviewed as part of the preferred alternative evaluation. The public will be able to comment on it at the public hearing.

VIII. Action items

Everyone will receive a copy of the presentation with the exhibits, which also will be posted on the study webpage.

There being no further questions or comments, the meeting was adjourned.

NOTE: Immediately following the meeting staff reached out to all of those on the phone having trouble with the audio. The following additional EAG member comments were received:

John Wrublick, US Fish and Wildlife Service: *The U.S. Fish and Wildlife Service (Service) has a long history in the review of this project with the Florida Department of Transportation. As we have stated in the past, we continue to find that Alternative 1A would result in the least impacts to fish and wildlife resources of the three alternatives proposed. As such, we support Alternative 1A and recommend it be adopted as the preferred alternative for the project. I don't have any other questions or comments regarding the project at this time. As such, I don't think a follow-up phone call is necessary.*

Keith Laytham, Poinciana Residents for Smart Change: *Here is a follow-up to my comment made at this morning's meeting. Today Poinciana Parkway provides a toll road between Poinciana, Cypress Parkway or Marigold Ave, and 17-92 Kinney Harmon. There is a toll for a set amount depending on whether Marigold or Cypress Parkway/KOA are used.*

The Poinciana Parkway extension is a good add-on project and should stand on its own merits. Without the slip ramp option 5A then there will be no alternative for traffic to optionally use the extension, but they will be forced to use it whenever they want to use the existing Parkway. They will also be forced to pay the increased toll. Even if all they want to do is get to Kinney Harmon/17-92 Ronald Reagan. There is a significant amount of Poinciana Parkway traffic that does not want to go to 17-92 farther to the east interchange nor to CR 532. They want to go to 17-92 West or Ronald Reagan to Posner parks [sic] as they do today. Without the slip ramp option, they will be forced to use the extension to take them out of their way and more importantly forced to pay the additional toll which they neither need nor want to do. Please listen to the customers who have

made the Poinciana Parkway the success that it is and provide them the slip ramp option. Thank you.

END OF SUMMARY

This meeting summary was prepared by Mary Brooks, Public Involvement Coordinator with Quest Corporation of America. It is not meant to be verbatim but is a summary of the meeting activities and overall discussion. If you feel something should be added or revised, please contact Mary Brooks by email at ProjectStudies@CFXway.com or by telephone 407-802-3210 within five days of receipt of this summary.

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ENVIRONMENTAL ADVISORY GROUP - MEETING NO. 3
CFX Project No.: 599-224
CFX Headquarters, 4974 ORL Tower Rd, Orlando, FL 32807
May 21, 2019, 9:30 a.m. – 11:30 a.m.

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CFX Headquarters, 4974 ORL Tower Rd, Orlando, FL 32807
May 21, 2019, 9:30 a.m. – 11:30 a.m.

Name	Organization	Address	City/State/Zip	Email Address	Initials
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Kelly Wiener	Florida Trail Association	1050 NW 2nd Street, Ste A	Gainesville, FL 32601	KellyW@Floridatrail.org	
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Shannon Wright	Florida Fish and Wildlife Conservation Commission	Farris Bryant Building; 620 S Meridian St	Tallahassee, FL 32399-1600	shannon.wright@myfwc.com	
John Wrublik	US Fish and Wildlife Service (USFWS)	North Florida Ecological Services Field Office 7915 Baymeadows Way, Ste 200	Jacksonville, FL 32256-7517	john_wrublik@fws.gov	GTM
Jim Yawn	Walt Disney Imagineering	1365 Avenue of the Stars	Orlando, FL 32836	jim.yawn@disney.com	
Joedel Zaballero	Osceola County	1 Courthouse Square	Kissimmee, FL 34741	joedel.zaballero@osceola.org	
John Zielinski	Florida Department of Transportation – District Five	719 S. Woodland Blvd.	DeLand, FL 32720	john.zielinski@dot.state.fl.us	
Jim Blush	So. FL Water mgt. District	3800 Old Canoe Creek Rd	St. Cloud, FL	JBLUSH@SFWMD.GOV	JB

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

STAFF SIGN IN SHEET

Poinciana Parkway Extension Project Development & Environment (PD&E) Study

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Name	Organization	Email Address	Initials
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Name	Organization	Email Address	Initials
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