DRAFT NATURAL RESOURCES EVALUATION

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

State Road 417 Sanford Airport Connector

Seminole County, Florida

CFX Project No.: 417-246A

Prepared For:

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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Executive Summary

The Central Florida Expressway Authority (CFX) is conducting a Project Development and Environment (PD&E) Study to evaluate transportation alternatives to provide direct access from State Road (SR) 417 to the Orlando Sanford International Airport (also known as SFB by its International Air Transport Association Airport Code). The intent of the proposed SR 417 (Seminole Expressway) Sanford Airport Connector is to provide a direct, limited access connection between SR 417 and SFB to provide better connectivity and accommodate future traffic growth in the area.

This Natural Resource Evaluation (NRE) has been prepared as part of the PD&E Study to assess the direct connection alternatives and identify potential impacts to natural resources throughout the SR 417 Study Area. The purpose of this NRE is to document protected species and habitat and identify the wetlands and other surface waters within the study area and the Preferred Alternative to determine potential impacts to these resources. This NRE provides rationale to support species effect determinations, identify avoidance and minimization measures, and quantify mitigation necessary for the recommended Preferred Alternative.

It is anticipated that the Preferred Alternative, including the preferred pond sites, will result in approximately 20.1 acres of wetland impacts and approximately 4.1 acres of other surface water impacts, most of which will likely not require mitigation. Additionally, under the Preferred Alternative, it is anticipated that two (2) St. Johns River Water Management District (SJRWMD) regulatory conservation easements will be directly impacted, with a total of approximately 12 acres of direct impacts to conservation easements. The proposed direct wetland impacts result in an approximate functional loss of 11.89 UMAM units. The proposed impacts to existing conservation easements will result in approximately 0.52 UMAM units. Mitigation will be addressed pursuant to Chapter 373.4137, FS in order to satisfy all mitigation requirements of Part IV, Chapter 373, FS and 33 U.S.C. 1344.

Effect determinations were based on the results of a field investigation, data collection, the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool, and USFWS effect determination keys. **Table ES-1** identifies protected species evaluated in this document, their regulatory status, and the effect determination under the Preferred Alternative.

Scientific Nome	ientifie Name Common Name Status		Effect
Scientific Name	Common Name	Status	Determination
Birds			
Aphelocoma coerulescens	Florida scrub-jay	FT	NO EFFECT
Athene cunicularia floridana	Florida burrowing owl	ST	NAEA
Caracara plancus audubonii	Audubon's crested caracara	FT	NO EFFECT
Falco sparverius paulus	Southeastern American kestrel	ST	NAEA
Egretta caerulea	Little blue heron	ST	NAEA
Egretta tricolor	Tricolored heron	ST	NAEA
Grus canadensis	Florida sandhill crane	ST	NAEA
Laterallus jamaicensis jamaicensis	Eastern black rail	FT	NO EFFECT
Mycteria americana	Wood stork	FT	MANLAA
Platalea ajaj	Roseate spoonbill	ST	NAEA
Rostrhamus sociabilis	Everglade Snail kite	FE	NO EFFECT
Insects			
Danaus plexippus	Monarch butterfly	Р	
Mammals	· · · · · · · · · · · · · · · · · · ·		
Perimyotis subflavus	Tricolored bat	Р	
Reptiles			
Drymarchon couperi	Eastern indigo snake	FT	MANLAA
Gopherus polyphemus	Gopher tortoise	ST	NAEA
Pituophis melanoleucus	Florida Pine snake	ST	NAEA
Plants			
Carex chapmannii	Chapman's sedge	ST	NAEA
Centrosema arenicola	Sand butterfly pea	SE	NAEA
Chionanthus pygmaeus	Pygmy fringe-tree	FE	NO EFFECT
Coelorachis tuberculosa	Piedmont jointgrass	ST	NAEA
Cucurbita okeechobeensis ssp.	Okeechobee Gourd	FE	MANLAA
Hartwrightia floridana	Hartwrightia	ST	NAEA
Illicium parviflorum	Star anise	SE	NAEA
Lechea cernua	Nodding pinweed	ST	NEA
Nemastylis floridana	Celestial lily	SE	NAEA
Nolina atopocarpa	Florida beargrass	ST	NAEA
Pteroglossaspis ecristata	Giant orchid	ST	NAEA
Salix floridana	Florida willow	SE	NAEA
MANLAA = May Affect, Not Likely to AdverseFE = Federally EndangeredFT = Federally	Participation NAEA = No Adverse Effect A V Threatened SE = State Endangered	nticipated NEA ST =State Threa	= No Effect Anticipated atened P = Proposed

Table Lo 1. Effect Determinations for Frotected Species

There are six (6) fauna and two (2) flora species listed as federally endangered or threatened, with the potential to occur within the project area. The project area is within the USFWS's designated consultation area for the Florida scrub jay, Audubon's crested caracara, eastern black rail, Everglade snail kite, pygmy fringe tree, and Okeechobee gourd. The Florida Fish and Wildlife Conservation Commission (FWC) lists eight (8) fauna and ten (10) flora species as state endangered or threatened, with the potential to occur within the project area.

A determination of "**no effect**" was made for the following federally listed species as there is little to no probability of occurrence due to a lack of suitable habitat within the Preferred Alternative or due to the proposed project not impacting suitable habitat: Audubon's crested caracara, Florida scrub jay, eastern black rail, Everglade snail kite, and the Pygmy fringe-tree.

A determination of "**may affect, not likely to adversely affect**" was made for the following federally listed species as they were either observed within the study area during the site investigation or there is a moderate to high probability of occurrence due suitable habitat within the Preferred Alternative or due to the proposed project impacting suitable habitat: wood stork, eastern indigo snake, and Okeechobee gourd. Consultation regarding these species will occur during the design phase.

In addition to the six protected species listed as endangered or threatened by the USFWS, the USFWS lists the tri-colored bat as proposed endangered and the monarch butterfly as proposed threatened. At this time, CFX is dedicated to observing the regulations under the ESA in coordination with USFWS for the tri-colored bat and monarch butterfly.

A determination of "**no effect anticipated**" was made for the following state listed species as there is little to no probability of occurrence due to a lack of suitable habitat within the Preferred Alternative: nodding pinweed.

A determination of "**no adverse effect anticipated**" was made for the following state listed species as they were either observed within the study area during the site investigation or there is a moderate to high probability of occurrence due to suitable habitat within the Preferred Alternative or due to the proposed project impacting suitable habitat: Florida burrowing owl, southeastern American kestrel, little blue heron, tricolored heron, Florida sandhill crane, roseate spoonbill, gopher tortoise, Florida pine snake, Chapman's sedge, Sand butterfly pea, piedmont jointgrass, hartwrightia, star anise, celestial lily, Florida beargrass, giant orchid, and the Florida willow.

The Preferred Alternative is located within the 330 ft protection zone of two active bald eagle nests. Consultation with USFWS regarding the bald eagle will occur during the design phase. The Preferred Alternative is not anticipated to impact the Florida black bear. These two species or groups of animals, which may occur in the project vicinity, are not listed as threatened or endangered but receive other legal protection.

The proposed project was evaluated for the occurrence of Critical Habitat as defined by the ESA of 1973, as amended and 50 CFR Part 424. This analysis is consistent with the Protected Species and Habitat chapter of the Florida Department of Transportation (FDOT) PD&E Manual. No Critical Habitat occurs within the Preferred Alternative; therefore, no impacts to Critical Habitat are anticipated as a result of the proposed project.

To avoid and minimize impacts during construction, CFX will adhere to the *USFWS Standard Protection Measures for the Eastern Indigo Snake*. CFX will conduct a 100% gopher tortoise burrow survey of potential habitat in the impact area and associated relocations in compliance with FWC guidelines. Coordination with USFWS and FWC during the design and permitting phase will be conducted to determine if additional species-specific surveys will be required for Audubon's crested caracara, tricolored bat, burrowing owl, sandhill crane, southeastern American kestrel, and federally and state listed plants. An Environmental Resource Permit (ERP) from the SJRWMD, a National Pollutant Discharge Elimination System (NPDES) permit from the Florida Department of Environmental Protection, and a U.S. Army Corps of Engineers (USACE) dredge and fill permit are anticipated.

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Section 1 Introduction

1.1 Project Background and Description

The Project Development and Environment (PD&E) Study for the State Road 417 (Seminole Expressway) Sanford Airport Connector was initiated by the CFX in May 2024 to further develop and evaluate transportation alternatives to provide direct access from SR 417 to the SFB. The goal of the project is to identify a recommended improvement to provide direct access from SR 417 to the airport and to help address roadway capacity needs associated with anticipated future traffic growth in the area. This PD&E Study evaluates a new expressway connection from SR 417 to SFB and alternative mobility programs within the project corridor, including multimodal and intermodal facilities. **Figure 1.1-1** shows the general project location and **Figure 1.1-2** shows the project study area. The study area has been expanded beyond the study area for the Concept, Feasibility & Mobility (CF&M) Study for this project to include the area along East Lake Mary Boulevard to SR 417 for the evaluation of a new elevated expressway along East Lake Mary Boulevard from SR 417 to the airport.

The objective of the PD&E Study is to evaluate each mobility option based on engineering, traffic, economic and environmental evaluations and to identify a Preferred Alternative. This study includes the evaluation of the physical, natural, social and cultural environment, right-of-way considerations and cost estimates, as well as the following goals:

- Identify transportation mobility options
- Enhance direct access to the Orlando Sanford International Airport
- Enhance mobility for the area's growing population and economy
- Provide consistency with local plans and policies
- Promote regional connectivity
- Fulfill the recommendation of Seminole Board of County Commissioners to re-evaluate this corridor



Figure 1.1-1: General Project Location Map

Figure 1.1-2: Project Study Area



Section 2 Purpose and Need

2.1 Project Purpose and Need

The purpose of the proposed SR 417 (Seminole Expressway) Sanford Airport Connector is to provide a direct, limited access connection between SR 417 and SFB to provide better connectivity and accommodate future traffic growth in the area. The primary access to the airport is along East Lake Mary Boulevard via Red Cleveland Boulevard, which extends north from the airport entrance to the airport terminal. A proposed connector would provide a limited access connection directly to SFB from SR 417, thereby reducing the demand along East Lake Mary Boulevard and improving travel time for all users. The proposed improvements are to 1) enhance regional connectivity, 2) accommodate transportation demand, 3) provide needed capacity, 4) improve safety, 5) support modal connectivity and 6) serve social and economic growth.

2.2 Regional Connectivity

SFB is a designated Strategic Intermodal System (SIS) Strategic Growth Commercial Service Airport. SR 417 serves as a SIS Highway Corridor providing regional connectivity west of the airport and connects to two designated SIS Strategic Growth Highway Connectors: East Lake Mary Boulevard between SR 417 and Red Cleveland Boulevard between East Lake Mary Boulevard and Airport Boulevard. Airport passengers using East Lake Mary Boulevard are intermixed with local, non-airport traffic. For example, northbound SR 417 traffic exiting the interchange at Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard, travel through three signalized intersections within 0.3 mile of the SR 417 northbound off-ramp, impeding traffic flow and increasing travel time for airport users. In addition to the designated SIS route, airport access to the passenger terminal is also provided via Airport Boulevard from SR 46/Sanford Avenue.

Results from traffic analyses conducted for the CF&M (2018) Study are summarized throughout this section and are presented in a memorandum titled SR 417 to Orlando Sanford International Airport Connector Concept Traffic Analysis Memorandum (CDM Smith 2023). A desktop travel time analysis was conducted to compare travel times between the existing route from SR 417 northbound to SFB via East Lake Mary Boulevard and the proposed connector to SFB. Both routes started on northbound SR 417 at the Lake Jesup mainline toll plaza and terminated at the SFB terminal building. The analysis found that the proposed connector could reduce the travel distance by 28% and reduce travel time to SFB by as much as 51% during the PM peak period. In addition, travel time savings are expected to be higher in future conditions when traffic demand is anticipated to increase, and congestion worsens at the SR 417 and Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange. A direct connection from SR 417 to SFB is expected to enhance regional connectivity by improving access to the airport, increasing mobility options and providing enhanced system linkage between the SIS facilities.

2.3 Anticipated Transportation Demand

As part of the CF&M Study traffic analysis, an origin and destination evaluation was performed to identify travel patterns for trips originating from SR 417 south and north of the Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange to the SFB terminal, using data from StreetLight Data, Inc. Review of the one-way 2022 Annual Average Daily Traffic (AADT) indicates that 5% of the trips from northbound SR 417 access the airport terminal through either Airport Boulevard (2%) and Red Cleveland Boulevard (3%), while 9% continue travel on East Lake Mary Boulevard, east of Red Cleveland Boulevard. Origin and destination data indicate that no trips from southbound SR 417 enter the airport terminal but that 3% of the trips continue on East Lake Mary Boulevard, east of Red Cleveland Boulevard. It is expected that 17% (or 4,400 vehicles per day one-way) of northbound and southbound SR 417 trips would potentially be diverted to the proposed connector if it was in place in the year 2022. Based on the traffic analysis, the AADT along SR 417, south of the Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange, is anticipated to increase from 61,150 in the year 2022 to 118,100 by 2050 (93% increase). In addition, AADT at the SR 417 and Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange ramps to/from the south is anticipated to increase from 17,750 to 33,100 by 2050 (87% increase). The analysis also indicates that the proposed connector could potentially divert as much as 51% (17,000 AADT) of traffic in the year 2050 from the SR 417 and Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange ramps to/from the south, thereby reducing congestion and improving operations at the existing interchange.

The traffic analysis also indicates that AADT along East Lake Mary Boulevard, west of Red Cleveland Boulevard, is anticipated to increase from 23,800 to 36,500 by 2050 (53% increase). However, the analysis indicates that the proposed connector is anticipated to reduce traffic demand along this segment of East Lake Mary Boulevard, by as much as 46% (or 17,000 AADT) in 2050. East of Red Cleveland Boulevard, the AADT along East Lake Mary Boulevard is anticipated to increase from 23,000 in 2022 to 35,400 in 2050 (54% increase). The proposed connector is also anticipated to divert 3,800 trips from Airport Boulevard, east of Sanford Avenue, as well as 17,000 trips from Ronald Reagan Boulevard (CR 427), south of East Lake Mary Boulevard, in 2050.

As documented in the 2021 Airport Master Plan Update for SFB, the number of passengers in 2017 was 1,436,224. The plan also forecasts the number of passengers to nearly double to 2,747,325 by 2037, further indicating that traffic demand along East Lake Mary Boulevard and Red Cleveland Boulevard is likely to increase in future years. The plan also notes that the air freight tonnage through the airport in 2017 totaled 332 tons, with an expected increase to 1,671 tons by the year 2037 (WS Atkins, Inc. 2021).

The FDOT Florida Traffic Online website indicates that the 2021 Average Annual Daily Truck Traffic along Airport Boulevard is 274 or 6% of total traffic, and 2860 or 13% along East Lake Mary Boulevard (FDOT n.d.). Based on the forecasted increase in air freight tonnage through the airport, it is anticipated that truck traffic will also increase.

2.4 Capacity

The existing traffic demand (2022) analysis shows that westbound East Lake Mary Boulevard (west of Red Cleveland Boulevard) experiences a Level of Service D Volume to Capacity ratio of 0.8 during the AM peak hour, which increases to 0.9 east of Red Cleveland Boulevard. The existing traffic operations analysis also indicates extended delays and long queues during peak periods at the SR 417 and Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange. The adjacent intersections at East Lake Mary Boulevard at Ronald Reagan Boulevard (CR 427) and Sanford Avenue (CR 425) also operate unacceptably and impact operations at the interchange. Congestion mostly occurs along the facilities approaching and within the interchange footprint including the SR 417 northbound off-ramp, East Lake Mary Boulevard and Ronald Reagan Boulevard (CR 427). Providing additional capacity with a direct connection from SR 417 to the airport is anticipated to alleviate congestion at the existing interchange.

Review of the future 2050 No-Action analysis indicates that the Volume to LOS D Maximum Service Volumes ratio during the PM Peak Hours at SR 417 for the northbound exit ramp at the Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange is 1.0. The future 2050 Build analysis indicates that the proposed connector is expected to divert northbound traffic away from the interchange and reduce the Volume to LOS D MSV ratio to 0.5 in 2050, and further indicates that the proposed connector gates and reduce the Volume to LOS D MSV ratio to 0.5 in 2050, and further indicates that the proposed connector could reduce traffic along the following arterial segments:

- East Lake Mary Boulevard, west of Red Cleveland Boulevard
- Airport Boulevard, east of Sanford Avenue
- CR 427, south of East Lake Mary Boulevard

The future 2050 No-Action analysis indicates the Volume to LOS D MSV ratios at these arterial segments are expected to be between 1.1 to 1.2. However, the future 2050 Build analysis indicates that the Volume to LOS D MSV ratios is expected to be reduced to between 0.6 and 0.9.

The future 2050 No-Action analysis indicates that the westbound through movements for the East Lake Mary Boulevard and Red Cleveland Boulevard intersection are expected to operate at LOS F during the AM peak period. However, the future 2050 Build indicates that the overall operations are expected to operate at a LOS E during the AM peak period. Because of the existing constrained capacity and expected increase in traffic volumes, additional capacity is anticipated to be needed for satisfactory traffic operations in future years.

2.5 Safety

Because of the three signalized intersections within 0.3 mile of the SR 417 northbound off-ramp, traffic at the SR 417 northbound off-ramp occasionally backs up onto the SR 417 mainline, impacting safety and operations along SR 417. The proposed connector would divert traffic from the SR 417 and Ronald Reagan Boulevard (CR 427) and East Lake Mary Boulevard interchange, thereby enhancing safety and operations at the interchange.

2.6 Modal Connectivity

The U.S. Department of Transportation Federal Aviation Administration National Plan of Integrated Airport Systems 2023-2027 published September 30, 2022, designates SFB as a Small Hub, Primary Commercial Service airport facility. Primary Commercial Service airports are publicly owned airports that receive scheduled air carrier service with 10,000 or more passenger boardings per year. Small Hub airports are defined as accounting for 0.05% and 0.25% of total U.S. passengers. The 2021 Airport Master Plan Update for SFB forecasts enplanements to increase 91%, and air freight tonnage to increase 400% by the year 2037. The proposed connector is anticipated to support mobility to other modes of travel at SFB.

2.7 Social Demand

According to the University of Florida's Bureau of Economics and Business Research (BEBR) Florida Population:

2020 Census Summary, Seminole County's population grew from 422,718 in 2010 to 470,856 in 2020, or 11.4%. The BEBR data also showed that the city of Sanford experienced a 14% increase in population over the same period (BEBR 2021). Further, BEBR estimates that Seminole County's population is projected to grow approximately 21% by the year 2050 (BEBR 2022).

Land use in the area is primarily comprised of residential, agricultural and undeveloped lands. However, a review of planned developments in the study area shows that the region is undergoing extensive land use changes, resulting in increased traffic generators. As of July 2023, the city of Sanford's Building Division Online Permitting Service noted there are 10 residential, commercial and industrial planned developments in the study area (City of Sanford 2023). These planned developments account for 55% of the undeveloped lands in the study area, or 349 acres of 637 acres of undeveloped lands. Of the planned developments, five are residential developments, which are expected to create an additional 849 single-family houses and townhomes in the study area.

As a result, local traffic along East Lake Mary Boulevard and surrounding roadways is expected to increase. The proposed connector is expected to divert traffic from East Lake Mary Boulevard, providing local traffic with increased mobility to and from the existing and planned development in the area.

Section 3 Status

3.1 Project Status

The CFX identified the SR 417 Sanford Airport Connector in their 2045 Master Plan, shown in **Figure 3.1-1**. CFX conducted a Concept, Feasibility, and Mobility (CF&M) Study for this proposed new direct connect expressway between SR 417 and East Lake Mary Boulevard at Red Cleveland Boulevard and developed four potential corridors to determine if they were viable and fundable in accordance with CFX policies and procedures. The CF&M Study determined that there were no fatal flaws with any of the four corridors, but the project was not considered financially viable (toll revenue over 30 years did not cover at least 50% of project costs). However, the CFX Board approved the findings of the SR 417 Sanford Airport Connector

CF&M Study at the August 10, 2023 board meeting, and directed staff to move forward to the Project Development & Environment (PD&E) Study phase. The Board indicated a desire to further refine the alignments and project costs and to identify potential funding partners that could help make the project financially viable. The PD&E Study will also evaluate a fifth corridor which consists of an elevated two-lane expressway along East Lake Mary Boulevard between SR 417 and Red Cleveland Boulevard that was suggested by the CFX Environmental Stewardship Committee near the end of the CF&M Study.

The need for a direct connect expressway between SR 417 and Red Cleveland Boulevard at East Lake Mary Boulevard is supported by both Seminole County and the Orlando Sanford International Airport. The proposed project is also consistent with the CFX 2045 Master Plan as a Short-Term Project which means it is recommended for design and construction. See Figure **3.1-2** from the CFX 2045 Master Plan for more information on this project.



Figure 3.1-1: CFX 2045 Master Plan Projects



Figure 3.1-2: SR 417 Sanford Airport Connector Future Expressway



Location: Seminole County Length: Approximately 2 miles

The proposed State Road 417 Connector would link SR 417, south of the Ronald Reagan Boulevard interchange, to the Orlando Sanford International Airport via Red Cleveland Boulevard.

This future connector would provide direct access to the airport and serve as an alternative route for residents along East Lake Mary Boulevard, to help relieve the constrained local roadways and improve regional connectivity.

Enhance mobility and direct access to Orlando Sanford International Airport, which is growing and projected to serve 2.7 million passengers by 2037.

Accommodate future traffic demands by reducing congestion at the constrained SR 417, Ronald Reagan Boulevard and East Lake Mary Boulevard interchange.

Expand economic and employment vitality to move goods and people to and from the airport.

PROJECT COST

SR 417 to Orlando Sanford International Airport Connector estimated project cost is \$150 million to \$300 million and contingent on the final length and design characteristics.

TIME FRAME | Short-Term

Recommended for design and construction: 0-5 years.

Learn more about this project: cfxway.com

Section 4 Project Area Description

4.1 Existing Drainage Conditions

The existing drainage system within the study area is comprised of an open system where runoff ultimately drains to Lake Jesup. The five alignments within the project limits drain primarily to two named waterways and various channelized ditches, which then discharge to Lake Jesup. These two named waterways are Six Mile Creek and Phelps Creek (aka Navy Canal). As this area is highly developed, runoff generally flows from north to south, and drains into existing ponds, roadside ditches and swales before discharging into Lake Jesup. Existing Stormwater Management Facilities (SMFs) within the study area include wet detention ponds, dry retention ponds, and linear swales.

The terrain within the study area is relatively flat, and elevations range from 3-feet to 94-feet NAVD. The elevations are lower in the vicinity of Lake Jesup, located southeast of the study limits. The elevations within the study area are illustrated on the USGS quadrangle map (**Figure 4.1**). The existing land use within the study area consists mainly of roadways, residential (low density and rural), commercial and services, agriculture, and institutional. There are several existing retention ponds located within the study area.

Figure 4.1: USGS Quadrangle Map



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4.2 Existing Permits

Previous construction plans and existing SJRWMD permits within the study area were researched to obtain existing stormwater and drainage design information. Summarized in **Table 4.2** and shown in **Figure 4.2** are the existing permits deemed to be relevant to the study as they are in close proximity to the proposed alignments and may potentially be impacted by the proposed alignments or may be an option for proposed project stormwater management. All existing permitted SMFs eventually discharge to Lake Jesup.

Project Name	Permit No.	Date Issued	Description
Baker Farms	21757	1/08/1985	Single family residential subdivision
Lake Mary Boulevard	21945-12	4/08/1996	Widening of US 17-92 to Sanford Ave and construction of wet detention ponds.
Silver Lakes Industrial Park	22290-2	12/7/1992	Construction of lot industrial subdivision consisting of streets, stormwater management facilities, and conservation and mitigation areas.
Silver Lakes Industrial Park	22290-3	1/11/1993	Construction of a conveyance network for a 46-lot industrial subdivision.
Sylvestri Estates	22290-10	9/29/2016	Construction stormwater management system to serve 215 acres single family development.
Sylvestri Lakes SD Sanford	22290-12	6/21/2021	Construction of a Stormwater Management System
Sylvestri Lakes Amenity Center	22290-14	10/14/2021	Minor modification of Permit No. 22290-12 to include the construction and operation of a 1.5 - acre project.
Safari Commercial Parcels	22290-15	2/5/2023	Minor modification of Permit No. 22290-12 to include the construction and operation of a 14.25-acre project.
Sylvestri Lakes S/D (Transfer) Sanford	22290-17	7/24/2023	Operation and maintenance transfer of a surface water management system serving a 229.084-acre single-family residential development.
SFB Crossing	22290-18	Pending	Minor modification of Permit No. 22290-12 to include the construction and operation of a 9.31-acre project.
FDOT Borrow Pit	22339-1	9/08/1992	Excavation of a proposed borrow pit
White Construction Borrow Pits CR 427	22339-3	9/08/1992	Construction of two borrow pits

Table 4.2: Existing Permits Summary with the SR 417 Study Area

Project Name	Permit No.	Date Issued	Description
FDOT Borrow Pit	22339-5	7/13/1993	Modification of previous permit – excavation only in dry instead of wet.
Marquette Shores Borrow Pit	22367-3	2/09/1993	Restoration of a Borrow Pit
CR 427	22381-1	2/08/1994	Roadway Improvements from SR 434 to Longwood-Lake Mary Road.
East Lake Mary Boulevard Segment IIA	22496-3	6/10/2002	The proposed project includes the construction of a surface water management system consisting of the modification and expansion (by two lanes) of a 0.5-mile segment of Lake Mary Boulevard, a 0.45-mile segment of Airport Road and construction of a 0.17-mile segment of Frontage Road.
East Lake Mary Boulevard Segment IIB	22496-4	4/08/2003	Modification of the existing permit 4-117-22496-3 for the extension of East Lake Mary Blvd. consisting of approximately 3.70 miles of a four-lane roadway on a new alignment with an urban section.
East Lake Mary Boulevard Segment I	22496-5	11/12/2002	The project site extends along the East Lake Mary Boulevard right-of-way from Sanford Avenue to Ohio Avenue, in Seminole County.
Pine Way @ Navy Canal Culvert Replacement	70929 - 1	5/02/2001	The project consists of replacing six existing 42" pipes and a 10'x5' box culvert under the Pine Way crossing at the Navy Canal with equiv. sized 3-10'x4' box culverts.
Magnolia Park, PD	71069-1	8/14/2001	Construction of a surface water management system consisting of a 170 lots single-family subdivision on 64.570-acre site. The system includes two wet detention systems and a storm sewer system.
Navy Canal Stormwater Facility	90051-1	9/07/2004	Construction of a 5 acres off-line wet detention pond and the impoundment of water along the historical flow path of Navy Canal for the purpose of reducing pollutant load to Lake Jessup.
The Preserve at Eagle Lake	96997-1	7/29/2005	Construction of a surface water management to serve a 65.63 acres single family attached townhome development.

Project Name	Permit No.	Date Issued	Description
Brisson East	110906-3	8/31/2012	Construction of a Surface Water Management System with stormwater treatment by wet detention.
Brisson East Residential Development	110906-5	4/30/2014	Modification of a Surface Water Management System with stormwater treatment by wet detention.
Brisson West Residential	110906-7	11/3/2017	Construction of a Surface Water Management System with stormwater treatment by wet detention.
Skylar Crest Townhomes Stormwater Management System	181400-1	5/09/2022	Construction and operation of a Stormwater Management System for a 14.69 acre(s) multifamily residential project known as Skylar Crest.
Palmetto Pointe	182187 - 2	10/11/2023	Construction and operation of a Stormwater Management System for a 39.76 acres project.
SR 417 (Seminole Expressway)	FDEP Permit No. MS591733339 & 591723289	Unknown	Construction of SR 417 and Stormwater Management System in Seminole County



Figure 4.2: Relevant Existing Permits

Natural Resources Evaluation June 2025

4.3 Existing Environmental Conditions

Prior to field surveys, staff ecologists reviewed the most currently available information to determine the location and extent of habitats and land uses within the study area. This information included land use maps provided by the SJRWMD. The land use descriptions were based on the Florida Land Use, Cover, and Forms Classification System (FLUCFCS) (FDOT 1999). Other information included but was not limited to:

- U.S. Geographic Survey (USGS) Topographic Maps
- Natural Resources Conservation Service (NRCS) Soil Maps
- Florida Natural Areas (FNAI) Inventory Cooperative Land Cover Maps
- SJRWMD Geospatial Open Data platform
- Seminole County Property Appraise
- Florida Forever Conservation and Recreation Land Acquisition Program

4.3.1 Land Use

Land cover and land use data from the SJRWMD online resources were utilized to develop a baseline of existing habitat types within the study area. Limited ground truthing by ecologists was conducted during a field review on November 26, 2024, to confirm as well as modify the existing land uses within the study area. Habitat types were mapped using FLUCFCS.

Habitat types within the project study area are shown on **Figure 4.3.1**. A detailed list of the land uses within the study area is provided in **Table 4.3.1**.

FLUCFCS Code	FLUCFCS Description	Area (ac.)
110	Residential Low Density	254
118	Rural Residential	182
119	Low Density Under Construction	20
120	Residential, Medium Density	15
130	Residential, High Density	471
140	Commercial and Services	13
155	Other Light Industrial	122
170	Institutional	29
211	Improved Pastures	137
213	Woodland Pastures	40
214	Row Crops	9
221	Citrus Groves	18
224	Abandoned Groves	39
241	Tree Nurseries	6

Table 4.3.1: FLUCFCS within the SR 417 Study Area

FLUCFCS Code	FLUCFCS Description	Area (ac.)
243	Ornamentals	23
251	Horse Farms	19
310	Herbaceous (Dry Prairie)	44
320	Shrub and Brushland	35
330	Mixed Rangeland	44
411	Pine Flatwoods	3
420	Upland Hardwood Forests	34
428	Cabbage Palm	8
434	Hardwood-Conifer Mixed	237
443	Forest Regeneration Areas	22
520	Lakes	3
530	Reservoirs	140
617	Mixed Wetland Hardwoods	234
618	Willow and Elderberry	47
621	Cypress	3
625	Hydric Pine Flatwoods	25
630	Wetland Forested Mixed	67
631	Wetland Scrub	76
641	Freshwater Marshes	84
643	Wet Prairies	67
644	Emergent Aquatic Vegetation	2
811	Airports	37
814	Roads and Highways	159
833	Water Supply Plants	1
837	Surface Water Collection Basins	7
Total		2,776

520 rm 243 140 170 643 837 811 118 310 118 434 211 110 330 443 110 420 **170** 641 434 211 631 641 810 617 420 110 837 625 330 614 530 530 140 630 428 130 155 530 630 110 170 833 630 837 110 224 221 434 643 641 434 530 130 617 320 120 **S10** 530 617 434 1118 530 434 641 119 110 155 130 130 530 617 631 530 213 110 420 130 530 837 631 221 211 434 221 214 211 251 251 434 641 443 630 211 618 330 243 617 617 617 118 411 520 10 617 201 641 110 434 631 617 241 330 110 Legend 434 61 61 61 110 434 621 643 **1B** PD&E Study Area 617 102 Preferred Alternative 618 617 320 Proposed Ponds 420 643 631 101 Preferred Ponds 618 617 Legend 119: Low Density Under Construction 140: Commercial and Services 213: Woodland Pastures 621: Cypress Urban & Built-Up 251: Horse Farms Upland Forest Surface Waters Roads/Utilities -625: Hydric Pine 110: Residential, Rangeland 411: Pine Flatwoods 520: Lakes 811: Airports 155: Other Light 214: Row Crops 120: Residential, 814: Roads and Low Density <Less than two dwelling 530: Reservoirs Flatwoods 310: Herbaceous 420: Upland Medium Density <Two-five dwelling Industrial 630: Wetland Forested Mixed 221: Citrus Groves (Dry Prairie) Hardwood Forests Highways Wetlands units per acre> 170: Institutional 224: Abandoned 320: Shrub and 428: Cabbage Palm 617: Mixed Wetland 833: Water Supply Plants units per acre> 118: Rural Residential, Low 1 434: Hardwood -631: Wetland Shrub Agriculture Groves Brushland 130: Residential, Hardwoods 211: Improved Pastures 241: Tree Nurseries 330: Mixed Rangeland 641: Freshwater Marshes 837: Surface Water Collection Basin Coniferous Mixed Density High Density -618: Willow and 443: Forest Regeneration Areas 243: Ornamentals Elderberry 643: Wet Prairies

Figure 4.3.1: FLUCFCS Map

4.3.2 Soils

The soil survey of Seminole County, Florida, published by the USDA NRCS (dated 2024) was reviewed to determine the soil types and characteristics within the SR 417 study area. According to the soil survey, there are twenty (20) different soil types within the SR 417 study area. The soils encountered within the study area include Hydrologic Soil Group (HSG) A, A/D,B/D, C/D, and D.

HSG A consists of deep, well to excessively well-drained sand or gravel soils. HSG B consists of moderately drained to well drained soils and have moderate runoff potential. HSG C consists of moderately fine to fine-textured soil that restricts percolation of water. HSG D consists of soils with permanently high-water tables and often indicative of wetlands or depressions. If a soil is assigned to a dual HSG, the first letter is for drained areas and the second is for un-drained areas. Only the soils that are in their natural condition are in group D are assigned to dual classes. **Table 4.3.2** summarizes and lists the soil types within the study area. The soil types and locations are depicted on **Figure 4.3.2**.

Figure 4.3.2: NRCS Soils Map



Soil	USDA Soil	Seaso Grou	onal High ndwater			Soil Classifica	ition
No.	Name	Depth (feet)	Duration (months)	HSG	Depth (inches)	Unified	AASHTO
	Adamsville	2 0-3 5	Jun-Nov	C	0-4	SP-SM	A-3, A-2-4
	Additisville	2.0 5.5	Sun Nov	C	4-80	SP-SM,SP	A-3, A-2-4
					0-4	SP-SM, SM	A-3, A-2-4
2					4-41	SP-SM, SM	A-3, A-2-4
	Sparr	1.5-3.5	Jun-Nov	C	41-43	SM-SC, SC, SM	A-2-4
					43-72	SC, SM-SC	A-2, A-4, A-6
					72-80	SC, SM-SC. SM	A-2, A-4, A-6
	Astatula	+6.0-0		Α	0-4	SP, SP-SM	A-3
6					4-80	SP, SP-SM	A-3
6	Anonko	1600		^	0-64	SP, SP-SM	A-3
	Арорка	+0.0-0		A	64-80	SM-SC, SC	A-2-4, A-2-6, A-4, A-6
	Basinger	0-1.0	lun-Feb	B/D	0-5	SP	A-3
	Dasinger	0 1.0	Sun res	0,0	5-80	SP, SP-SM	A-3, A-2-4
9	Delroy	0 1 0	Jun Mor	D/D	0-12	SP-SM, SM, SM- SC	A-3, A-2-4
	Deiray	0-1.0	Jun-Mar	B/D	12-50	SP-SM	A-3, A-2-4
					50-80	SM, SM-SC, SC	A-2-4, A-2-6
	Pasingor	1200	lun Eob	D	0-6	SP, SP-SM	A-3, A-2-4
	basiliyei	+2.0-0	Juli-Feb	U	6-80	SP, SP-SM	A-3, A-2-4
10	Samsula	+2 0-0	lan-Dec	B/D	0-26	PT	
	Samsula	12.00	Jan Dec	0,0	26-80	SP-SM, SM, SP	A-3, A-2-4
	Hontoon	+2.0-0	Jan-Dec	B/D	0-80	PT	A-8
	Basinger	+2 0-0	lun-Feb	D	0-5	SP, SP-SM	A-3, A-2-4
	Dasinger	1210 0	5411105	5	5-80	SP, SP-SM	A-3, A-2-4
11					0-2	SP, SP-SM	A-3, A-2-4
	Smyrna	+2.0-0	Jun-Feb	D	2-15	SP, SP-SM	A-3
	,				15-25	SM, SP-SM	A-3, A-2-4
					25-80	SP, SP-SM	A-3
					0-18	SP, SP-SM	A-3
	Fau Callia	0 1 0	hun Ont		18-30	SP-SM, SM	A-3, A-2-4
	EauGaille	0-1.0	Jun-Oct	в/D	30-45	5P, 5P-5M	A-3, A-2-4
12					45-04	SIM, SIM-SC, SC	A-2-4, A-2-0
13					04-80	SP-SM, SM	A-3, A-2-4
					0-4	SP, SP-SM	A-3
	Immokalee	0-1.0	Jun-Oct	B/D	4-42	SP, SP-SM	A-3
					42-62	SP-SM, SM	A-3, A-2-4
					62-80	SP, SP-SM	A-3
					0-4	SP, SP-SM	A-3, A-2-4
	Felda	+2.0-0	Jun-Dec	D	4-28	SP, SP-SM	A-3
					20-30	SP SP-SM	Α-2-4, Α-2-0
15					0_10		Δ_3 Λ_7_Δ
15					19-50	ST-SITI, SITI	Δ_7_4
	Manatee	+2.0-0	Jun-Feb	D	50-80	SM, SM-SC, SC, GM	A-2-4

Table 4.3.2: Soil Types Within the Seminole County Study Area

Soil	USDA Soil	Seaso Grou	onal High ndwater			Soil Classifica	tion
No.	Name	Depth (feet)	Duration (months)	HSG	Depth (inches)	Unified	AASHTO
	Brighton	+2.0-0	lan-Doc	B/D	0-8	PT	
	Brighton	+2.0-0	Jan-Dec	IJD	8-80	PT	
	Comeulo	1200	Jan Dag		0-26	PT	
17	Samsula	+2.0-0	Jan-Dec	Ъ/D	26-80	SP-SM, SM, SP	A-3, A-2-4
					0-6	PT	
	Sanibel	+2.0-0	Jun-Feb	B/D	6-8	SP, SP-SM	A-3
					8-80	SP, SP-SM	A-3
					0-10	SP-SM, SM	A-3, A-2-4
	Manatee	0-1.0	Jun-Feb	D	10-52	SM-SC, SC	A-2-4
					52-80	SM, SM-SC, SC	A-2-4
10					0-18	SP-SM, SM	A-3, A-2-4
19	Floridana	0-1.0	Jul-Sep	D	18-29	SP, SP-SM	A-3
					29-80	SM-SC, SC	A-2-4, A-2-6
	Holonaw	0-1.0	lun-Feb	р	0-50	SP, SP-SM	A-3
	Поюрам	0 1.0	Jun Co	U	50-80	SM, SM-SC, SC	A-2-4, A-2-6
					0-28	SP, SP-SM	A-3
	Myakka	0-1.0	Jun-Oct	B/D	28-45	SM, SP-SM	A-3, A-2-4
					45-80	SP, SP-SM	A-3
20					0-18	SP, SP-SM	A-3
					18-30	SP-SM, SM	A-3, A-2-4
	EauGallie	0-1.0	Jun-Oct	B/D	30-41	SP, SP-SM	A-3, A-2-4
					41-60	SM, SM-SC, SC	A-2-4, A-26
					60-80	SP-SM, SM	A-3, A-2-4
					0-2		
22	Nittaw	0-1.0	Jun-Nov	П	2-10		A-3, A-2-4
22	INICLAW	0-1.0	Juli-NOV	D	10-00	SP SP-SM SM	A-7
					60-80	SM-SC	A-3, A-2-4
				-	0-4	PT	
	NITTAW	0-1.0	Jun-Nov	D	4-9		A-3, A-2-4
22					9-80		A-7
25	Okeelanta	0-1.0	Jan-Dec	D	<u> </u>		A-8
					0_22	CD	A-3, A-2-4
	Basinger	0-1.0	Jun-Nov	D	22-80	SP SP-SM	Δ-3 Δ-2-4
					0-3	SP SP	Δ-3
		+6.0-0		Δ	3-25	SP	A-3
24	Paola				25-80	SP	A-3
					0-2	SP	A-3
	St. Lucie	+6.0-0		A	2-80	SP	A-3
					0-1	SP, SP-SM	A-3
25	D : 1			D (D	1-26	SP, SP-SM	A-3
25	Pineda	0-1.0	Jun-Nov	B/D	26-68	SC, SM-SC, SM	A-2-4, A-2-6
					68-80	SP-SM, SM, SP	A-3, A-2-4
26	Undorthents						
					0-31	SP, SP-SM	A-3
27	Pomello	2.0-3.5	Jul-Nov	С	31-40	SP-SM, SM	A-3, A-2-4
					40-80	SP, SP-SM	Á-3

Soil	USDA Soil	Seaso Grou	onal High ndwater	цсс		Soil Classifica	tion
No.	Name	Depth (feet)	Duration (months)	пзс	Depth (inches)	Unified	AASHTO
					0-12	SP, SP-SM	A-3
	St Johns	0-1.0	Jun-Anr	B/D	12-22	SP, SP-SM	A-3
	St. Johns	0-1.0	Juli-Api	ЪJD	22-54	SP-SM, SM	A-3, A-2-4
					54-80	SP, SP-SM	A-3
29					0-16	SP, SP-SM	A-3
					16-35	SP-SM, SM	A-3, A-2-4
	EauGallie	0-1.0	Jun-Oct	B/D	35-38	SP, SP-SM	A-3, A-2-4
					38-72	SM, SM-SC,SC	A-2-4, A-2-6
					72-80	SP-SM, SM	A-3, A-2-4
	Tavaras	2560	Jul Dec	۸	0-6	SP, SP-SM	A-3
21	Tavales	5.5-0.0	Jui-Dec	A	6-80	SP, SP-SM	A-3
51	Millhonnor	2560		•	0-45	SP-SM, SM	A-3, A-2-4
	Millinopper	3.5-0.0	Jui-Dec	А	45-80	SM, SM-SC, SC	A-2-4, A-4
34	Urban land	+2.0-0		D			
					0-4	SP, SP-SM	A-3
					4-18	SP, SP-SM	A-3
25	Mahaaaa	010	lun Oct	D/D	18-25	SP-SM, SM	A-3, A-2-4
35	Wabasso	0-1.0	Jun-Oct	Β/D	25-27	SP, SP-SM	A-3
					27-70	SC, SM-SC	A-2-4, A-2-6
					70-80	SP-SM, SM	A-3, A-2-4

4.3.3 Existing Conservation Areas

Data from the SJRWMD Geospatial Open Data platform, Seminole County Property Appraiser, and Florida Forever Conservation and Recreation Land Acquisition Program indicate the presence of several Regulatory Conservation Easements and protected land areas within the study area. **Table 4.3.3** provides a summary of the existing conservation easements and protected lands within the study area, and illustrated in **Figure 4.3.3**.

Easement Type	Parcel Number	Permit Number
SJRWMD Regulatory Conservation Easement	1320305090N000000	96997-1
SJRWMD Regulatory Conservation Easement	1820315070L000000, 1820315070I000000, 820315070H000000, 1820315060D000000, 0720315VZO1000000, 1820315070K000000	71069-1
SJRWMD Regulatory Conservation Easement	1820315060E000000, 1820315060B000000, 1820315060C000000, 1820315060C000000, 1820315060D000000	65100-1
SJRWMD Regulatory Conservation Easement	0720315VZ0C000000, 0720315VZ0D100000, 0720315VZ0O100000, 0720315VZ0D000000, 0720315VZ0G000000	22290-1
SJRWMD Regulatory Conservation Easement	172031300004M0000	21900-9
SJRWMD Conservation Area (Lake Jesup)	172031300004J0000, 20203130000100000	N/A

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Figure 4.3.3: Existing Conservation Land with the SR 417 Study Area

Section 5 Project Alternatives

The alternatives considered for the eastern extension of SR 417 include the No Build Alternative and several Build Alternatives. A multiphase alternative development evaluation and selection process was employed to properly assess all alternatives considered for the proposed SR 417 Sanford Airport Connector.

5.2 Build Alternatives

Several alternative corridors (alignments 1, 2, 2A, 3A, 3D, and 4) were developed based on recommendations from the CF&M Study team and the current PD&E Study team. Each alternative corridor was evaluated for its ability to satisfy the purpose and need, and effect with respect to traffic, physical impacts, cultural impacts, natural environment impacts, social impacts and estimated costs.

The results obtained from the alternative corridor evaluation showed that Alignments 1, 3A, 3D, and 4 were clearly inferior and thus eliminated from further consideration in the Study. It was then determined that Alignment 2 should be refined to move the interchange with SR 417 farther south, but still north of the Lake Jesup Conservation Area, and would provide a more direct connection from SR 417 to Red Cleveland Boulevard. This change was considered significant enough that it was considered to be a new alternative, designated as Alignment 2A.

The results from the evaluation of Alignments 2 and 2A indicated that Alignment 2A is the best choice to fulfill the project objectives. Although Alternative Corridor 2A is overall a more costly corridor alignment and will impact more residential parcels, it has fewer wetland impacts and less mitigation costs. Alignment 2A was determined to be the better corridor alternative from a roadway geometry standpoint with fewer curves, improved sight distance through the curves, and would ultimately be safer than Alignment 2.

In summary, results indicate that Alignment 2A is the most effective to fulfill the project objectives.

5.1 No Build Alternative

The No Build Alternative would result in the retainage of the existing SR 417 facility without providing a connector to the Sanford Airport. The only existing principal arterial facility (i.e., East Lake Mary Blvd) within the project confines is inadequate in terms of meeting future capacity needs, and failure to provide a SR 417 Sanford Airport connector would not address any of the stated project goals. Although the No Build Alternative does not address any of the project deficiencies, it does provide a baseline condition by which other project alternatives can be compared throughout the project alternative selection process.

5.3 Preferred Alternative

After a comprehensive evaluation process, one alternative (Alternative 2A) was selected as the most effective option. In general, the Preferred Alternative resulted from evaluating engineering, cost, socio-economic, and environmental issues.
5.3.1 Pond Alternatives

Alternative pond sites have been identified along the project corridor. The recommended sites balance the avoidance of wetland/surface water impacts, damages to businesses, impacts to wildlife habitat, cultural resources, and contamination risks, while considering the number of property owners affected by the pond site location. The Pond Siting Report (under separate cover) can be found in the project file and provides detailed information about the proposed drainage. Table 5.1 details the pond alternatives.

Pond Site	Preferred Pond	Wetland Impact	Wildlife Habitat	Contamination Risk	Archaeological Resources Impact	Cultural Resources Impacts	Assess Issues	Number of Parcels/ Property Owners	Pond Right-of- Way Area (ac)
Pond 417-1A (Option 1)		0	Low	None	Low	High	None	3/2	1.71
Pond 417-1B (Option 2)	\checkmark	0	Low	None	Low	Low	None	1/1	1.71
Pond 417-1C1, Pond 417-1C2 (Dry Swales)	\checkmark	0.34	Low	None	Low	Low	None	N/A*	1.60
Pond 417-2A (Option 1)	\checkmark	0.10	Low	None	Low	Low	None	1/1	1.45
Pond 417-2B (Option 2)		0	Low	None	Low	Low	None	2/2	1.45
Pond 417-3A (Option 1)		1.58	High	None	Low	Low	None	1/1	3.44
Pond 417-3B (Option 2)	\checkmark	2.98	High-Eagle Nest onsite	None	Low	Low	None	1/1	3.44
Pond 417-4A (Option 1)	\checkmark	0	High	None	Low	Low	None	1/1	4.70
Pond 417-4B (Option 2)		1.35	Low	High	Low	Low	None	1/1	1.35
* These ponds a	re within the p	roposed right-	of-way footpr	int, and therefore, ow	vnership is not a facto	r for the pond lo	ocation.		

Table 5.1: Pond Option Matrix

Section 6 Methodology

An environmental assessment was conducted to (1) identify the location and extent of wetlands and surface waters in and adjacent to the study area; (2) determine if those wetlands and surface waters, or other habitats, support or have the potential to support protected resources, including listed species managed by the USFWS and FWC; and (3) calculate the potential impacts to wetlands. The environmental assessment first consisted of a desktop review followed by field surveys.

6.1 Preliminary Data Collection

Prior to the field survey, a desktop analysis was conducted to identify the existing site conditions. Land use, soils, and other natural features were identified to determine what resources occur or have the potential to occur within the study area. This information included land use maps provided by the SJRWMD. The land use descriptions are based on the Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT, 1999). Other information included but was not limited to:

- US Geographic Survey (USGS) Topographic Maps
- Natural Resources Conservation Service (NRCS) Soil Maps
- Florida Natural Areas Inventory (FNAI) Cooperative Land Cover Maps
- USFWS Consultation Area and Critical Habitats Maps
- USFWS Environmental Conservation Online System (ECOS)
- USFWS Information for Planning and Consultation (IPaC)
- USFWS National Wetlands Inventory (NWI) Maps
- USFWS Wood Stork Nesting Colonies and Core Foraging Areas Maps
- FWC Scrub-Jay Observation Maps
- Audubon Florida EagleWatch Nest Website
- FWC Red-Cockaded Woodpecker Observation Maps
- FWC Wildlife Occurrence Maps
- FWC Species Action Plans

6.1 Field Surveys

A field investigation was conducted on November 26, 2024, to evaluate and identify the presence of wetlands and surface waters and conduct general pedestrian wildlife surveys within the study area. Ecologists collected various field notes, photographs, and data points during the field investigation. Field

observations, notes, and data were collected with regards to habitat resources that may support listed species, evidence of current or recent listed species utilization such as nests or burrows, and verification of land cover classification and habitat vegetation.

6.1 Wetlands and Other Surface Waters

The wetland evaluation included GIS analysis, agency database search, and a field review. Section 4.3, Existing Environmental Conditions section, lists the data sources utilized for review. Ecologists familiar with Florida's natural plant communities performed an assessment of the study area to identify wetland vegetation, wetland hydrology, and hydric indicators to determine the presence of wetlands and other surface waters within the study area. The field review was conducted November 26, 2024. A formal wetland delineation to determine jurisdictional boundaries was not performed; however, the general limits of wetlands and other surface waters were identified in the field using the criteria established in Rule 62-340, F.A.C. The wetland limits have not been reviewed by the regulatory agencies. Wetlands and other surface waters were classified per the FLUCFCS (FDOT 1999), and the classification of Wetlands and Deepwater Habitats of the US (NWI) (Cowardin et al. 1979). The Uniform Mitigation Method (UMAM) was utilized, per Chapter 62-345, F.A.C, for the functional assessment of wetlands within the Preferred Alternative.

Section 7 Natural Resources

7.1 Protected Species and Habitat

Ecologists used online resources and field surveys to determine whether protected species occur or have the potential to occur in the Preferred Alternative corridor. The term protected species refers to those species that are protected by law, regulation, or rule. Specifically, the term protected species refers to those species listed under the Endangered Species Act (ESA) of 1973, as amended; those species listed under Florida's Endangered and Threatened Species List, Chapter 68A-27, F.A.C.; or those species listed under the Preservation of Native Flora of Florida, Chapter 5B-40, F.A.C. Florida also affords protection to federally-listed species, thus all federally-listed species are also state listed, pursuant to Chapter 68A-27.003(1)(b). The study area was also evaluated for the occurrence of Critical Habitat as defined by the ESA of 1973, as amended and 50 CFR Part 424.

According to the information obtained during the preliminary data collection, shown in **Table 7.1**, twentyeight (28) protected species have the potential to occur in the Preferred Alternative corridor. Potentially occurring state and federally listed species or listed species that were observed during the field investigation are also shown in **Figure 7.1**.



Figure 7.1: Listed Species within the SR 417 Study Area

Ecologists determined a species' potential occurrence based on its habitat preference and distributions, existing site conditions, historical data, and field survey results. The likelihood of occurrence was rated as no, low, moderate, high, or observed. Definitions for the likelihood of occurrence are provided below.

- None Species with a no likelihood of occurrence are those species that are known to occur in Seminole County but have specialized habitat requirements that do not occur in the corridor.
- Low Species with a low likelihood of occurrence are those species that are known to occur in Seminole County, limited habitat occurs within the project site, but there are no known adjacent populations, limited dispersal abilities, and the species has not been observed or documented within the corridor.
- Moderate Species with a moderate likelihood of occurrence are those species that are known to occur in Seminole County, for which suitable habitat occurs within the project site, but there are no positive indications to verify presence, and the species has not been observed in or documented within the corridor.
- High Species with a high likelihood of occurrence are those species that are known to occur in Seminole County, are suspected in the project area based on the existence of suitable habitat within the project site, are known to occur adjacent to the site, or have been previously documented in the project vicinity.

Scientific Name	Common Name	Status	Effect Determination
Birds			
Aphelocoma coerulescens	Florida scrub-jay	FT	Low
Athene cunicularia floridana	Florida burrowing owl	ST	Low
Caracara plancus audubonii	Audubon's Crested caracara	FT	Moderate
Falco sparverius paulus	Southeastern American kestrel	ST	Observed
Egretta caerulea	Little blue heron	ST	High
Egretta rufescens	Reddish egret	ST	Low
Egretta tricolor	Tricolored heron	ST	Moderate
Grus canadensis	Florida sandhill crane	ST	High
Haliaeetus leucocephalus	Bald eagle	BGEPA/MBTA	Observed
Laterallus jamaicensis jamaicensis	Eastern black rail	FT	Low
Mycteria americana	Wood stork	FT	Observed
Platalea ajaj	Roseate spoonbill	ST	Moderate
Rostrhamus sociabilis	Everglade Snail kite	FE	Low
Insects			
Danaus plexippus	Monarch butterfly	Р	High
Mammals			
Ursus americanus floridanus	Florida black bear	М	Moderate
Perimyotis subflavus	Tricolored bat	Р	High
Reptiles			
Drymarchon couperi	Eastern indigo snake	FT	Medium
Gopherus polyphemus	Gopher tortoise	ST	High
Pituophis melanoleucus	Pine snake	ST	Low
Plants			
Carex chapmannii	Chapman's sedge	ST	Moderate
Centrosema arenicola	Sand butterfly pea	SE	Low

Table 7.1: Protected Species with Potential to Occur in the SR 417 Study Area

• Observed – the species has been observed during this evaluation.

Scientific Name	Common Name	Status	Effect Determination				
Chionanthus pygmaeus	Pygmy fringe-tree	FE	Low				
Coelorachis tuberculosa	Piedmont jointgrass	ST	Low				
Cucurbita okeechobeensis ssp.	Okeechobee Gourd	FE	Moderate				
Hartwrightia floridana	Hartwrightia	ST	Moderate				
Illicium parviflorum	Star anise	SE	Moderate				
Lechea cernua	Nodding pinweed	ST	Low				
Nemastylis floridana	Celestial lily	SE	Moderate				
Nolina atopocarpa	Florida beargrass	ST	Moderate				
Pteroglossaspis ecristata	Giant orchid	ST	Low				
Salix floridana	Florida willow	SE	Moderate				
FE = Federally Endangered FT = Federally Threatened M = Managed SE = State Endangered P = Proposed ST = State Threatened BGEPA = Bald and Golden Eagle Protection A MBTA = Migratory Bird Treaty Act							

7.2 Federally Listed Species and Designated Critical Habitat 7.2.1 Audubon's Crested Caracara

The Audubon's crested caracara is listed as threatened by the USFWS. It is a resident, non-migratory species in Florida that prefers grasslands and pastures in the south-central region of the state, particularly in Glades, DeSoto, Highlands, Okeechobee, and Osceola Counties (USFWS 1999). Historically, caracara inhabited dry or wet prairies with scattered cabbage palms (*Sabal palmetto*) and occasionally used lightly wooded areas next to prairies. Many of those areas were converted and frequently replaced by pastures with non-native sod-forming grasses that still support caracaras.

The project is located within the USFWS Audubon's Crested Caracara Consultation Area. During field reviews, no caracara or their nests were observed. No suitable habitat occurs within the Preferred Alternative.

Based on the lack of suitable habitat within the Preferred Alternative, and in accordance with the Standard Local Operating Procedures for Endangered Species (SLOPES) for Audubon's Crested Caracara, it has been determined that the proposed project will have "**no effect" on** Audubon's crested caracara.

7.2.2 Eastern Black Rail

The eastern black rail is listed by the USFWS as threatened due to habitat loss, destruction, and modification, sea level rise and tidal flooding, and incompatible land management. They are wetland-dependent birds and are primarily associated with herbaceous, persistent emergent plant cover (USFWS, 2020). They require dense overhead perennial herbaceous cover with underlying moist to saturated soils with or adjacent to very shallow water (Flores and Eddelman 1995; Legare and Eddleman 2001; Haverland 2019).

The project is located within the consultation area for the eastern black rail, additionally, there is potential for suitable habitat to occur along the edge of Lake Jesup. However, impacts to suitable marsh habitat are not anticipated from the proposed construction of the Preferred Alternative. According to FNAI, no

individuals have been documented in the project area. Based on this information, the proposed project is anticipated to have "**no effect**" on the eastern black rail.

7.2.3 Everglade Snail Kite

The Everglade snail kite is classified as endangered due to a "very small population and increasingly limited amount of fresh marsh with sufficient water to ensure an adequate supply of snails" (Bureau of Sport Fisheries and Wildlife 1973, p. 120). It is a non-migratory subspecies only found in Florida, particularly near large watersheds and the shallow vegetated edges of lakes that support apple snails, the primary component of the snail kite's diet. The USFWS has designated critical habitat for the snail kite, which consists of marshes in south Florida.

The project is located within the consultation area for the Everglade snail kite but outside of critical habitat. Suitable habitat was observed for the eastern black rail within the study area along the edge of Lake Jesup. However, impacts to suitable habitat are not anticipated from the proposed construction of the Preferred Alternative. No eastern black rails were observed during the field reviews. Based on this information, the proposed project is anticipated to have "**no effect**" on the eastern black rail.

7.2.4 Eastern Indigo Snake

The eastern indigo snake is listed by the USFWS as threatened and is a habitat generalist, using a variety of habitats from mangrove swamps to xeric uplands. These snakes are cold-sensitive and require gopher tortoise burrows, other animal burrows/dens, or stumps for protection during winter months. They require large tracts of natural, undisturbed habitat, and prefer to forage in and around wetlands for their preferred prey (i.e., other snakes).

The Eastern indigo snake was designated as having a high potential for occurrence based on the presence of suitable habitat within the Preferred Alternative corridor. To minimize potential adverse impacts to the eastern indigo snake, CFX will implement the USFWS-approved Standard Protection Measures for the Eastern Indigo Snake (USFWS 2024) (**Appendix A**) during the proposed roadway improvements. According to the *Eastern Indigo Snake Effect Determination Key* (USFWS 2013) (**Appendix B**), the proposed project will result in the following sequential determination: **A>B>C>D>E** = "**may affect**, **not likely to adversely affect**" the eastern indigo snake. This determination and any permit would be conditioned on the excavation of all gopher tortoise burrows. Concurrence from the USFWS will be necessary for any USACE wetland permitting.

7.2.5 Florida Scrub-Jay

The scrub-jay is classified by the USFWS as threatened due to habitat loss, degradation, and fragmentation (USFWS, 1987). They only occur on ancient dune ecosystems and scrub habitats of peninsular Florida, with optimal habitat consisting of fire-dominated, low-growing oak scrub found on well-drained sandy soils with patches of bare sandy soil.

Although the Preferred Alternative occurs within the USFWS Florida scrub-jay consultation area, it does not occur within the service area. Additionally, no suitable habitat for this species is found within the Preferred Alternative and none was observed during the field investigation. The Preferred Alternative consists mostly of urban and built-up land uses. The natural areas present within the study area consist largely of wetland and some agricultural areas, none of the habitats contain the xeric scrub required by the Florida scrub-jay. According to FNAI and FWC's statewide occurrence data, there are no documented occurrences within the study area. No individuals or suitable scrub-jay habitat was observed within the project area. Due to the lack of suitable habitat, the proposed project will have "**no effect**" the Florida scrub-jay.

7.2.6 Tricolored Bat

The tricolored bat is a proposed endangered for federal listing by the USFWS. This wide-ranging species is found throughout the central and eastern United States, and portions of Canada, Mexico, and Central America. Typically hibernating in caves and mines during the winter, tricolored bats in the southern U.S. have an increased utilization of culverts as hibernacula, with shorter hibernation durations and increased winter activity. The tricolored bat is mostly associated with forested habitats and requires habitat suitable for roosting, foraging, and commuting between winter and summer habitats. Roosting singly or in small groups, the tricolored bat prefers to roost in caves, tree foliage, tree cavities, Spanish moss, and manmade structures such as buildings and culverts. They form summer colonies in forested habitats, utilizing cavities, bark, and foliage. They forage most commonly over watercourses and along forest edges.

The project is located within the consultation area for the tricolored bat. Additionally, suitable roosting and foraging habitats are present within the study area. Consultation with USFWS under section 7 of the ESA is not required for proposed species, like the tri-colored bat. At this time, CFX is dedicated to observing the regulations under the ESA in coordination with USFWS.

7.2.7 Monarch Butterfly

The monarch butterfly is proposed threatened for federal listing by the USFWS. During the breeding season they lay their eggs on their obligate milkweed host plant (primarily *Asclepias* spp.). Milkweed and flowering plants are needed for monarch habitat. No monarchs or milkweed were observed during the field reviews, however flowering plants and habitat suitable to support milkweed species was observed.

Consultation with USFWS under section 7 of the ESA is not required for proposed species, like the monarch. At this time, CFX is dedicated to observing the regulations under the ESA in coordination with USFWS.

7.2.8 Wood stork

The wood stork is listed by the USFWS as threatened due to a reduction in food attributed in the loss of suitable foraging habitat (SFH). Wood storks are associated with freshwater and estuarine wetlands that are used for nesting, roosting, and foraging. Nesting typically occurs in medium to tall trees that occur in stands located in swamps or islands surrounded by open water (Ogden 1991; Rodgers et al. 1996). Because of their specialized feeding behavior, they forage most effectively in shallow water with highly concentrated prey. The USFWS defines SFH as shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between two to fifteen inches. SFH includes freshwater marshes, swamps, lagoons, tidal creeks and pools, ponds, ditches, and flooded pastures. No critical habitat has been designated for wood storks.

According to the USFWS Central Florida Ecological Service Office, the habitats within 15 miles of a wood stork breeding colony are considered to be wood stork core foraging areas (CFAs). The proposed project site is not within the CFA of any wood stork colonies; however, a single wood stork was observed perched on a tree branch overhanging one of the drainage ditches within the study area during the field review. SFH is located within the Preferred Alternative corridor. According to the USACE and USFWS Effect Determination Key for the Wood Stork in Central and North Peninsular Florida (USFWS 2008) (Appendix C), the proposed project will result in the following sequential determination: A>B>C>D = "may affect, not likely to adversely affect" the wood stork.

7.2.9 Federally Listed Plants

According to FNAI and USFWS, two (2) federally protected plants have the potential to occur within the study area. These species include the Okeechobee gourd and the pygmy fringe tree, both are federally endangered. The Okeechobee gourd is found in pond apple swamps and mucky soils on Lake Okeechobee shores and islands and within floodplain forests along the St. Johns River. The pygmy fringe tree is restricted to dry sandy habitats, including scrub, sandhills, ridges, and xeric hammocks. Both species are endemic to central Florida but can be found in South Florida.

Limited suitable habitat occurs within the study area for the Okeechobee gourd; however, there is no suitable habitat for the pygmy fringe tree. Ecologists did not observe federally protected plants during field reviews. The FNAI database listed no Elemental Occurrences of protected plants within the study area. Due to these reasons mentioned above, a determination that the project **"may affect, not likely to adversely affect"** has been made for the Okeechobee gourd and a **"no effect"** for the pygmy fringe tree. Updated surveys are recommended during design and permitting for the Preferred Alternative.

7.3 State Listed Species

7.3.1 Gopher Tortoise

The gopher tortoise is listed as threatened by the FWC. They occur in the southeastern Coastal Plain from Louisiana to South Carolina; the largest portion of the population is located in Florida (FWC 2012). Gopher tortoises require well-drained, sandy soils for burrowing and nest construction, with a generally open canopy and an abundance of herbaceous groundcover, particularly broadleaf grasses, wiregrass (*Aristida stricta*), legumes and fruits for foraging. Gopher tortoises can be found in most types of upland communities, including disturbed areas and pastures.

Suitable gopher tortoise habitat was observed throughout the study corridor. No gopher tortoises or burrows were observed during field reviews. A 100% gopher tortoise survey was not conducted. Due to the presence of suitable habitat, 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. Based on the information provided above, a "**no adverse effect is anticipated**" for the gopher tortoise is expected to result from the proposed project.

7.3.2 Burrowing Owl

The FWC listed the Florida burrowing owl as threatened due to loss of native habitat, dependence on altered habitat, and lack of regulatory protections (FWC 2013a). The burrowing owl is a non-migratory, year-round breeding resident of Florida, and maintains home ranges and territories while nesting. Burrowing owls inhabit upland areas that are sparsely vegetated. Natural habitats include dry prairie and sandhill, but they will make use of ruderal areas such as pastures, airports, parks, and road right-of-way because much of their native habitat has been altered or converted to other uses.

Suitable habitat was observed throughout the study area. No burrowing owls were observed during field reviews. Burrowing owls usually dig their own burrows but are known to utilize gopher tortoise burrows and armadillo burrows. Gopher tortoise and mammal burrows were not observed within the study area. Pre-construction surveys will be conducted to adhere to the components of the Imperiled Species Management Plan (ISMP) (FWC, 2016) and permitting guidelines and the necessary FWC coordination and permitting will be required if burrows are found prior to construction; therefore, "**no adverse effect is anticipated**" for the burrowing owl is expected to result from the proposed project.

7.3.3 Florida Pine Snake

The Florida pine snake is listed by the FWC as threatened due to habitat loss, fragmentation, and degradation to upland habitats from development and fire suppression (FWC, 2013b). They inhabit areas that feature well-drained sandy soils with a moderate to open canopy (Franz, 1992; Ernst and Ernst, 2003). Preferred habitats include sandhill and former sandhill, including old fields and pastures, sand pine scrub, and scrubby flatwoods. The pine snake often coexists with gopher tortoises and pocket gophers, spending the majority of its time underground.

Suitable habitat is present for the pine snake within the study area. No pine snakes were observed during the field reviews. Suitable habitat for the gopher tortoise was also observed within the study area, although no gopher tortoise burrows or individuals were observed. Any potentially occupied gopher tortoise burrows within the limits of construction will be excavated. Current FWC guidelines for the relocation of the Florida pine snake state that any incidentally captured pine snake should be released on-site or allowed to escape unharmed if habitat will remain post-development; therefore, "**no adverse effect is anticipated**" for the Florida pine snake is expected to result from the proposed project.

7.3.4 Sandhill Crane

The FWC listed the Florida sandhill crane as threatened due to the loss and degradation to nesting and foraging habitat from development and hydrologic alteration to their potential nesting habitat (FWC 2013c). It is widely distributed throughout most of peninsular Florida. Sandhill cranes rely on shallow marshes for roosting and nesting and open upland and wetland habitats for foraging (Wood and Nesbitt 2001).

Nesting habitat, consisting of freshwater marsh and wet prairie, for the sandhill crane occurs within the Preferred Alternative corridor. In addition to the freshwater marsh and wet prairie habitats, the pastures and other open uplands provide foraging habitat. However, no sandhill cranes or nests were observed during the field survey. A nest survey should be conducted during design and permitting to determine if

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; therefore, "**no adverse effect is anticipated**" for the Florida sandhill crane is expected to result from the proposed project.

7.3.5 Southeastern American Kestrel

The southeastern American kestrel is listed by the FWC as threatened due to habitat loss, degradation, fragmentation, as well as lack of regulatory protection (FWC 2013d). The southeastern American kestrel is the only non-migratory, permanent resident kestrel in Florida. However, the seasonal occurrence of a migratory subspecies of the northern American kestrel (*Falco sparverius sparverius*) occurs from September through March in Florida. Confident identification of southeastern American kestrels can only be made during the portion of the breeding season when migratory species are not present (FWC 2013d). Preferred habitat consists of fire-maintained sandhill and open pine savannah. They utilize open pine habitats, woodland edges, prairies, pastures, and other agricultural lands. The southeastern American kestrel is a secondary cavity nester, typically nesting in tall trees or utility poles.

Suitable nesting habitat and foraging habitat were observed at the northern portion of the Preferred Alternative corridor. During the initial field survey, an individual was observed on a power line located adjacent to the airport. However, the migratory species of kestrel (*Falco sparverius paulus*) were present in Florida when the field investigation was conducted. Pre-construction surveys will be conducted to adhere to the components of the ISMP and permitting guidelines; therefore, "**no adverse effect is anticipated**" for the southeastern American kestrel is expected to result from the proposed project

7.3.6 Wading Birds

Three (3) wading birds have the potential to occur in the study. These species include the little blue heron, tricolored heron, and Roseate spoonbill. These birds are listed by the FWC as threatened due to loss of wetland habitat and degradation, particularly from hydrologic alterations to their essential foraging areas (FWC 2013e). These species are widely distributed throughout peninsular Florida. Wading birds depend on healthy wetlands and vegetated areas suitable for resting and breeding, which are near foraging areas (FWC 2013e). They forage in freshwater, brackish, and saltwater habitats. They tend to nest in multi-species colonies of a variety of woody vegetation types, including cypress, willow, maple, black mangrove, and cabbage palm (FNAI 2001).

Ecologists observed suitable foraging and nesting habitat for wading birds within the Preferred Alternative corridor. During the field survey, a little blue heron was observed foraging in a ditch within the study area; however, no other wading birds or nests were observed. Any impacts to wetlands or other surface waters will be mitigated for as appropriate. Based on the information provided, "**no adverse effect is anticipated**" for wading birds is expected to result from the proposed project.

7.3.7 State Listed Plants

Through regulation by the FDACS Division of Plant Industry, Florida protects plant species native to the state that are endangered, threatened, or commercially exploited. The Florida Regulated Plant Index includes all plants listed as endangered, threatened, or commercially exploited as defined in Chapter 5B-

40.0055, F.A.C. According to the FNAI and FDACS, twelve (12) state protected species have the potential to occur in the project area. However, FNAI listed no occurrences of protected plants within the study area.

There is the potential for suitable habitat to occur within the Preferred Alternative corridor for state listed plants that can be found in the wetland habitats. Ecologist did not observe any state protected plants during field reviews. The FNAI database listed no Elemental Occurrences of protected plants within the study area. Due to these reasons mentioned above, a "**no adverse effect is anticipated**" determination has been made for the chapman's sedge, sand butterfly pea, Piedmont jointgrass, hartwrightia, star anise, celestial lily, Florida beargrass, and Florida willow. A "**no effect anticipated**" determination has been made for nodding pinweed. Updated surveys are recommended during design and permitting for the Preferred Alternative.

7.4 Other Protected Species or Habitats

7.4.1 Bald Eagle

The bald eagle was removed from the ESA in 2007 and Florida's Endangered and Threatened Species list in 2008; however, it remains protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Bald eagles tend to nest in the tops of very tall trees that provide unobstructed lines of sight to nearby habitats, particularly lakes and other open waters. Bald eagles are piscivorous (fish-eating) raptors, nearly all eagles' nests occur within 1.8 miles of water (Wood et al. 1989).

Suitable nesting and foraging habitat for the bald eagle was observed within the Preferred Alternative corridor. Several adult bald eagles were observed flying, as well as one pair flying into a pine tree and perching next to a nest (Nest SE078a) during the field review of the study area. According to FWC's Eagle Nest Locator and the Audubon Florida Eagle Watch Nest website (EagleWatch), there are two (2) recorded active eagle nests (SE078a and SE026) and one (1) destroyed eagle nest (SE078) within the Preferred Alternative corridor. For projects or activities within 660 ft of a bald eagle's nest, a USFWS eagle take permit may be necessary. The Preferred Alternative is within both the 330 ft and 660 ft protection zones of the two active nests. Consultation regarding the bald eagle will occur during the design phase.

7.4.2 Florida Black Bear

The Florida black bear was removed from Florida's Endangered and Threatened Species list in 2012; however, it remains protected under Chapter 68A-4.009 F.A.C., the Florida Black Bear Conservation Plan. The Preferred Alternative is within the occasional range of the Central Bear Management Unit (BMU).

The black bear requires large amounts of space for its home range and a variety of forested habitats, including flatwoods, swamps, scrub oak ridges, bayheads, and hammocks. Self-sustaining populations of bears are generally found on large tracts of contiguous forests with understories of berry-producing shrubs or trees. The Preferred Alternative consists primarily of wetland habitats, low density residential homes, agriculture land, and existing roadways. The most current FWC data for the Florida black bear was reviewed and showed no documents of historical mortality or captures. No impacts to the Florida black bear are anticipated as a result of the lack of bear utilization within the Preferred Alternative.

7.5 Wetland and Other Surface Waters

Ecologists performed a limited wetland evaluation of the study area. The wetland evaluation relied on literature reviews and a field survey to identify the location, extent, and functional value of wetlands in the study area; the potential direct, indirect, or cumulative effects of the project's actions to those wetlands; and available mitigation options to satisfy permit requirements from regulatory agencies. This wetland evaluation was performed in accordance with the Presidential Executive Order (EO) 11990 ("Protection of Wetlands"); U.S. Department of Transportation Order 5660.1A ("Preservation of the Nation's Wetlands"); Federal Highway Administration Technical Advisory T6640.8A regarding the preparation of environmental documents; the *Wetlands and Other Surface Waters* chapter of the FDOT's PD&E Manual.

Wetlands and other surface waters with potential to be affected by the proposed project were identified within the Preferred Alternative and are shown in Figures 7.5-1 and 7.5-2. The following section includes a brief description of the typical wetland type and other surface water found within the study area. Table 4.3.1 in section 4.3.1, Land Use provides details identifying each wetland habitat type, including the FLUCFCS classification, a brief description, and approximate acreage.



Figure 7.5-1: Wetlands and Other Surface Waters Within the Northern Region of the Preferred Alternative



Figure 7.5-2: Wetlands and Other Surface Waters Within the Southern Region of the Preferred Alternative

7.6.1 Streams and Waterways (FLUCFCS 510)

These other surface water systems consist of rivers, creeks, roadside drainage ditches, canals, and other linear water bodies.

7.6.2 Reservoirs (FLUCFCS 530)

Reservoirs are artificial impoundments of water. They are used for irrigation, flood control, municipal and rural water supplies, recreation and hydro-electric power generation.

7.6.3 Mixed Wetland Hardwoods (FLUCFCS 617)

Portions of Wetlands 2 and 4, and the entirety of Wetlands 5 and 6, consist of a mixed wetland hardwood habitat. This wetland community is composed of a large variety of hardwoods species tolerant of hydric conditions. The observed common vegetive species for this habitat type within the study area include camphor tree (*cinnamomum camphora*), Brazilian pepper (*schinus terebinthifolia*), Chinese tallow tree (*Triadica sebifera*), laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), cabbage palm (*Sabal palmetto*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), and bald cypress (*Taxodium distichum*).

7.6.5 Hydric Pine Flatwoods (FLUCFCS 625)

Portions of Wetlands 2 and 8, and the entirety of Wetland 3, consist of a hydric pine flatwood habitat. Hydric pine flatwoods are forested wetlands with a sparse to moderate canopy of slash pine (*Pinus elliottii*). The understory in hydric pine flatwoods generally consists of wiregrass (*Aristida stricta*), sedges (*Carex* spp.), and sparse saw palmetto (*Serenoa repens*).

7.6.6 Wetland Forested Mixed (FLUCFCS 630)

Wetland 3 consists of a wetland forested mixed habitat. This wetland system type includes mixed wetland forest communities in which neither hardwoods nor conifers achieve a 66 percent dominance of the crown canopy composition.

7.6.7 Wetland Scrub (FLUCFCS 631)

Portions of Wetland 6 and 7 consist of wetland scrub. This wetland habitat is associated with topographic depressions and poorly drained soil. Associated species include pond cypress (*Taxodium ascendens*), swamp tupelo (*Nyssa biflora*), willows, and other low scrub with no dominant species. The observed vegetative species for this habitat type within the study area include camphor tree, pond cypress, cabbage palm, red maple, Carolina willow (*Salix caroliniana*), wax myrtle (*Myrica cerifera*), and saltbush (*Baccharis halimifolia*).

7.6.8 Freshwater Marshes (FLUCFCS 641)

Wetland 1 consists of a freshwater marsh habitat. Freshwater marsh communities are characterized by having common emergent vegetation including: sawgrass (*Cladium jamaicensis*), cordgrass (*Spartina bakeri*), bulrush (*Scirpus* spp.), needlerush (*Juncus effusus*), cattail (*Typha latifolia*), arrowhead (*Sagittaria lancifolia*), pickerel weed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), and arrowroot (*Thalia*)

geniuclata). The fringes of the marshes are generally vegetated with wax myrtle (*Myrica cerifera*) and buttonbush (*Cephalanthus occidentalis*).

7.6.9 Wet Prairies (FLUCFCS 643)

Portions of Wetland 7 consist of a wet prairie habitat. This wetland type is composed predominantly of grassy vegetation on hydric soils and is usually distinguished from marshes by having less water and shorter herbage.

Section 8 Impact Analysis

8.1 Wetland and Other Surface Water Impacts

Data collected during the literature review, previous permit history, and field survey were used to evaluate the potential adverse direct and indirect impacts to wetlands and the potential cumulative impacts to those wetlands and other surface waters in the project limits. Impacts were not assessed on the other surface waters within the preferred corridor, as they consisted of existing permitted stormwater ponds. Practicable measures to avoid or minimize impacts to wetlands and surface waters were considered during the SR 417 Study. Any unavoidable adverse impacts will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and U.SC §1344. **Table 8.1.5** details the proposed wetland and surface water impacts.

8.1.1 Potential Direct Impacts on Wetlands and Conservation Areas

It is anticipated that the Preferred Alternative, including the preferred pond sites, will result in approximately 20.1 acres of direct impacts to wetlands and 4.1 acres of surface waters, most of which will likely not require mitigation. Final direct impacts will be determined during design and permitting and assessed accordingly.

SJRWMD conservation areas in the project area were located using GIS data layers from the SJRWMD Data and Tools website and by searching the SJRWMD Environmental Resource Permit (ERP) database for existing ERPs. Florida Conservation Lands were also analyzed using Florida Natural Areas Inventory (FNAI) data. Of the five (5) SJRWMD regulatory conservation easements found within the study area, discussed in Section 4.3.3, two (2) of the SJRWMD regulatory conservation easements would be directly impacted by the Preferred Alternative, with a total of approximately 12 acres of direct impacts. These existing easements are associated with SJRWMD permit 22290-1 and were originally established as mitigation and identified as Tract D and Tract G. **Table 8.1.1** summarizes the proposed impacts to SJRWMD regulatory conservation easement impacts from the Preferred Alternative.

Impacts to properties under a SJRWMD Regulatory Easement will require a vote by the SJRWMD governing board to release the easements, along with compensatory mitigation, and regulatory action. The governing board typically requires equal compensation at the highest wetland value (either current or when the easement was established) for the impacted easements. To vote on release of easements,

the governing board requires a request for release of the easement from the property owner, a sketch of the property, the original easement documents, and a proposal for establishing another easement or a plan to purchase mitigation credits.

Wetland ID	FLUCFCS Code	LUCFCS Easement Type Parcel No.'s		Permit No.	Approximate Acres of Impact			
WL 2	625,617	SJRWMD Regulatory Conservation Easement	0720315VZ0D000000	22290-1	11			
WL 3	630 SJRWMD Regulatory Conservation Easement		0720315VZ0G000000	22290-1	1.0			
Total Direct Impacts								

Table 8.1.1: Proposed Impacts to SJRWMD Easements from the Preferred Alternative

8.1.2 Potential Indirect Impacts

Pursuant to the Clean Water Act, determination of the potential short and long-term effects, including secondary effects, of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment, must use these determinations in making findings of compliance or non-compliance with the section 404 (b)(1) guidelines of 40 CFR 230.11(h).

Secondary impacts are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill materials (direct impact). Secondary impacts from construction may include light and noise disturbance, wildlife-vehicle collisions, an increase in the "edge effect" (an increase of exotic/invasive plant species along the edges of the wetland habitat) and impacts to water quality.

Secondary impacts associated with the proposed project will be evaluated during the design phase to ensure the proposed hydroperiod of the stormwater management system does not adversely affect the hydrology of adjacent wetland systems.

Secondary wetland impacts will be evaluated during the permitting process when final design and direct wetland impacts have been determined.

8.1.3 Cumulative Impacts

According to Section 10.2.8 of the Environmental Resource Permit, Applicant's Handbook, Volume 1, an applicant must provide reasonable assurance that a regulated activity will not cause unacceptable cumulative impacts to wetlands and other surface waters within the same drainage basin as the proposed impacts associated with a project.

If an applicant proposes to mitigate these adverse impacts within the same drainage basin as the impacts, and if mitigation fully offsets these impacts, then the proposed construction will not result in adverse cumulative impacts to wetlands and other surface waters. Adverse impacts to wetland habitats that will result from the construction on this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and U.S.C. §1344.

8.1.4 Avoidance and Minimization

The project was designed to avoid and minimize impacts to wetlands, other surface waters, and protected species habitat to the greatest extent practicable. This was accomplished by analyzing and evaluating six (6) potential Alternative Corridors and a No-Build Alternative. Complete avoidance and minimization were not considered feasible due to the nature of the project and the occurrence of wetland habitats and other surface waters immediately within the study area.

8.1.5 Wetland Assessment

Wetlands and other surface waters with the potential to be affected by the Preferred Alternative were identified. The wetland assessment was conducted in accordance with the UMAM, as described in Chapter 62-345, F.A.C. The UMAM is the state-wide methodology for determining the functional value provided by wetlands and other surface waters and the amount of mitigation required to offset adverse impacts to those areas for regulatory permits. The majority of impacts to other surface waters are existing permitted stormwater pond systems or upland-cut ditch systems; therefore, UMAM scores for these other surface waters were not included in the wetland assessment as mitigation is not anticipated. The results of the preliminary UMAM assessment are provided in **Table 8.1.5**.

Wetland ID	FLUCFCS Code	Wetland Type	LLS	WE	CS	Delta	Approximate Acres of Impact	Functional Loss	
WL 1	641	Herbaceous	5	5	5	0.50	0.1	0.05	
WL 2 (ROW)	WL 2 (ROW) 625/617		6	7	5	0.60	10.2 (ROW)	7.92	
WL 2 (Pond 3B)							3.0 (Pond) Total 13.2		
WL 3	630	Forested	6	7	5	0.60	1.3	0.78	
WL 4 (Pond 2A)	617	Forested	4	5	5	0.47	0.1	0.05	
WL 5	617	Forested	5	5	5	0.50	1.0	0.50	
WL 6	617	Forested	6	5	6	0.57	2.1	1.20	
WL 7*	643	Herbaceous	7	5 6 0.60 0.9		0.9	0.55		
WL 8	625/630	Forested	6	7	5	0.60	1.4	0.84	
		Tota	al Wetla	and Di	rect I	mpacts	20.1	11.89	
SW 4 Wetland- cut	SW 4 Wetland- 510 Forested 6 5 5 cut		5	0.53	0.01	0.005			
Total	Wetland-Cu	it Other Surfa	ice Wat	ters Di	rect I	mpacts	0.01	0.005	
SW 1	530						0.72		
SW 2	530						2.91		
SW 3	530						0.31		
SW 4 Upland-cut	510						0.10		
SW 5 Upland-cut	510						0.04		

 Table 8.1.5: Preliminary UMAM Summary for Wetland Impacts Associated with the Preferred

 Alternative and Preferred Pond Site Alternatives

Wetland ID	FLUCFCS Code	Wetland Type	LLS	WE	CS	Delta	Approximate Acres of Impact	Functional Loss
Tota	Total Upland-Cut Other Surface Waters Direct Impacts 4.1							
	Total Direct Herbaceous Impacts 1.0 0.60							0.60
	Total Direct Forested Impacts 19.1 11.29							
			Т	otal Di	rect I	mpacts	20.1	11.89
LLS = Location and Landscape Support WE = Water Environment CS = Community Structure *WL7 impacts include Pond 1C1, as the footprint of the pond is within the proposed ROW. <u>Note</u> : Impact totals are rounded to a tenth of an acre. Wetland and other surface water impacts were approximated using aerial interpretation and limited ground-truth activities.								

8.1.6 Conservation Easement Assessment

Conservation easements were identified within the project corridor. These existing easements are associated with SJRMD permit 22290-1 and were originally established as mitigation. UMAM was utilized to evaluate the functional loss resulting from the proposed impacts to these conservation easements. Preliminary UMAM scores were derived using the same criteria and baseline scores established in the previous permit sequences. The results of the preliminary UMAM assessment are provided in **Table 8.1.6**.

Table 8.1.6: Preliminary UMAM Summary for Conservation Easement Impacts Associated with the
Preferred Alternative

Assessment Area		Location and Landscape Support		Wa [:] Enviro	ter nment	Comm Struc	unity ture	Delta	Acres	PAF	Loss in Ecological
		With CE	w/o CE	With CE	w/o CE	With CE	w/o CE				Value
1	Tract D Wetland	6	6	7	7	7	5	0.07	10.0	0.60	0.42
2	Tract D Upland	6	6	-	-	6	3	0.15	1.00	0.40	0.06
3	Tract G Wetland	6	6	7	7	7	5	0.07	1.00	0.60	0.04
TOTAL 12.00 0.52									0.52		

8.1.7 Conceptual Mitigation

The project study area is located within the service areas of the Lake Jesup Basin. Mitigation is anticipated to be required for adverse impacts to wetlands and a portion of SW4 that is wetland-cut. Mitigation is not anticipated for impacts to the remaining other surface waters.

Preliminary UMAM scores and functional losses by representative system type are summarized in **Table 8.1.5**. All preliminary UMAM scores, preliminary UMAM calculations, preliminary wetland and surface water boundaries and determinations discussed are subject to revisions and approval by regulatory

agencies during the permitting process. The exact type of mitigation to offset impacts will be coordinated with the regulatory agencies during the permitting phase(s) of this project.

As proposed, it is anticipated that the construction of the Preferred Alternative, including preferred pond sites, will directly impact 20.1 acres of wetlands and 4.1 acres of surface waters, most of which will likely not require mitigation. The proposed direct wetland impacts result in an approximate functional loss of 11.89 UMAM units. The proposed impacts to existing conservation easements will result in a functional loss of approximately 0.52 UMAM units. Mitigation will be addressed pursuant to Chapter 373.4137, FS in order to satisfy all mitigation requirements of Part IV, Chapter 373, FS and 33 U.S.C. 1344.

Currently, this basin has no mitigation banks. Consultation regarding other mitigation options will be discussed during the design phase.

8.2 Essential Fish Habitat

The National Marine Fisheries Service (NMFS) is the regulatory agency responsible for the nation's living marine resources and their habitats, including the essential fish habitat (EFH). This authority is designated by the Mangnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended. The MSFCMA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. § 1802(10)).

In accordance with the MSFCMA, Section 7 of the ESA, and Part 2, Chapter 17, Essential Fish Habitat, of the FDOT's PD&E Manual, the SR 417 study area was evaluated for potential EFH. The study area is located within the central portion of the state of Florida and the impacts associated with this project will not affect marine or estuarine environments. Therefore, no potential impacts to EFH are proposed or expected.

Section 9 Anticipated Permits

CFX construction and maintenance activities are regulated by numerous environmental laws and regulations administered by state and federal agencies. These agencies have established environmental programs to conserve, protect, manage, and control the air, land, water and natural resources of the state or U.S. The following is a list of anticipated permits needed from the state and federal agencies for the proposed project.

9.1 Federal 404 Permit

The USACE regulates the discharge of dredge and fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899. Section 404 requires issuance of a permit before dredge or fill material may be discharged into waters of the United States, unless the activity is exempt from this regulation (e.g., certain farming and silviculture activities). The issuance of a Water Quality Certification under Section 401 of the CWA is required prior to the issuance of a Section 404 Dredge and Fill Permit. This Water Quality Certification is obtained with the issuance of a state Environmental Resource Permit issued by the FDEP or a Water

Management District. A Federal dredge and fill permit would be required for impacts to jurisdictional wetlands within the project area.

9.2 National Pollutant Discharge Elimination System Permit

As authorized by the CWA, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The Environmental Protection Agency (EPA) delegated its authority to implement the NPDES program to the FDEP. This permit is required because the proposed project will disturb more than one acre of land, and the stormwater runoff will discharge to waters of the state. A Stormwater Pollution Prevention Plan (SWPPP) is required to be developed as part of the NPDES and implemented during construction. The objectives of the SWPPP are to prevent erosion where construction activities occur, prevent pollutants from mixing with stormwater, and prevent pollutants from being discharged by trapping them on-site, before they can affect the receiving waters. The Contractor will be responsible for obtaining the NPDES permit. The applicant must submit a Notice of Intent with the FDEP at least two days prior to the commencement of construction.

9.3 Environmental Resource Permit

FDEP and Florida's five Water Management Districts implemented Chapter 62-330, F.A.C, Environmental Resource Permitting (ERP) to govern certain regulated activities, such as works in waters of the state, including wetlands, and construction of stormwater management systems. The proposed project is located within the jurisdiction of the SJRWMD. The proposed project is expected to require an ERP for a stormwater management plan and impacts to wetlands and other surface waters.

9.4 Gopher Tortoise Relocation Permit

Gopher tortoises and their burrows are protected by Chapter 68A-27.003, F.A.C. A gopher tortoise relocation permit must be obtained from FWC before disturbing burrows and construction activities within 25 feet of a gopher tortoise burrow. The number of gopher tortoise burrows located within 25 feet of the project footprint will determine the type of gopher tortoise relocation permit that is needed. A 100% gopher tortoise survey will be completed during the design of the project to finalize the type of permit needed. Surveys, permitting, excavation, and relocation must be performed by an FWC Authorized Gopher Tortoise Agent.

9.5 Bald Eagle Incidental Disturbance Take Permit

The Bald and Golden Eagle Protection Act affords protections to eagles including assuring they are not disturbed. FWS is the issuance agency of a bald eagle incidental disturbance take permit as defined in 50 CFR 22.6. "Take" can only be authorized when it is associated with, but not the purpose of, an activity, and the take cannot be practicably avoided. "Take" is applicable to those circumstances where activities must be conducted during the nesting season from 330-660 feet of the nest tree. As a general rule, all work activities within 660 feet of a nest tree should be completed during the non-nesting season. However, if it is not possible to complete work activities during the non-nesting season, a biological monitoring of the nest site will be needed during work activities and other human related actions during the nesting season (October 1 - May 15).

Section 10 Conclusion

The proposed project avoids and minimizes impacts to wetlands, other surface waters, protected species, and their habitats to the greatest extent practicable.

10.1 Listed Species

A determination of "**no effect**" was made for the following federally listed species as there is little to no probability of occurrence due to a lack of suitable habitat within the Preferred Alternative or due to the proposed project not impacting suitable habitat: Audubon's crested caracara, Florida scrub jay, eastern black rail, Everglade snail kite, and the Pygmy fringe-tree.

A determination of "**may affect, not likely to adversely affect**" was made for the following federally listed species as they were either observed within the study area during the site investigation or there is a moderate to high probability of occurrence due suitable habitat within the Preferred Alternative or due to the proposed project impacting suitable habitat: wood stork, eastern indigo snake, and Okeechobee gourd. Consultation regarding these species will occur during the design phase.

In addition to the six protected species listed as endangered or threatened by the USFWS, the USFWS lists the tri-colored bat as proposed endangered and the monarch butterfly as proposed threatened. At this time, CFX is dedicated to observing the regulations under the ESA in coordination with USFWS for the tri-colored bat and monarch butterfly.

A determination of "**no effect anticipated**" was made for the following state listed species as there is little to no probability of occurrence due to a lack of suitable habitat within the Preferred Alternative: nodding pinweed.

A determination of "**no adverse effect anticipated**" the following state listed species as they were either observed within the study area during the site investigation or there is a moderate to high probability of occurrence due to suitable habitat within the Preferred Alternative or due to the proposed project impacting suitable habitat: Florida burrowing owl, southeastern American kestrel, little blue heron, tricolored heron, Florida sandhill crane, roseate spoonbill, gopher tortoise, Florida pine snake, Chapman's sedge, Sand butterfly pea, piedmont jointgrass, hartwrightia, star anise, celestial lily, Florida beargrass, giant orchid, and the Florida willow.

The project is anticipated to have an effect on the bald eagle as the proposed project will be within the 330 ft protection zone of two active eagle nests. Consultation with the USFWS regarding the bald eagle will occur during the design phase. There is no adverse impact anticipated to the Florida black bear. These two species or groups of animals which may occur in the project vicinity are not listed as threatened or endangered but receive other legal protection.

Multiple avenues of protection will be employed to negate and minimize any potential effects on these species. Some of the measures employed may include detailed surveys and agency coordination during the project design phase, including providing appropriate mitigation to offset impacts. During construction, best management practices (BMPs), adherence to FDOT's Standard Specifications for Road

and Bridge Construction, and use of preconstruction surveys are strategies that will be considered, as needed, for protection of listed species.

10.2 Wetlands and Conservation Easements

It is anticipated that the Preferred Alternative, including the preferred pond sites, will result in 17.8 acres of wetlands impacts and 4.11 acres of other surface water impacts, of which 4.10 acres of other surface water impacts will likely not require mitigation. Additionally, it is anticipated that the Preferred Alternative, including the preferred pond sites, will impact approximately 12 acres of existing conservation easements. These easements are associated with the SJRWMD permit 22290-1 and were originally established as mitigation and identified as Tract D and Tract G.

The proposed project would require authorization from the SJRWMD through the ERP process. A federal dredge and fill permit would be required for impacts to jurisdictional wetlands within the project area. These impacts are unavoidable adverse impacts and will require state and federal mitigation.

The total functional loss for wetlands and other surface waters are estimated to be approximately 11.89 units using the UMAM: approximately 11.29 units of functional loss for forested wetlands, value includes the 0.01 acres of impacts to the portion of other surface water 4 that is wetland-cut, and approximately 0.60 units of functional loss for herbaceous wetlands. Functional loss for the remaining surface waters is not applicable because these systems were previously permitted or are upland cut systems and will be replaced in-kind. The proposed impacts to existing conservation easements will result in a functional loss of approximately 0.52 UMAM units.

All preliminary UMAM scores, preliminary UMAM calculations, preliminary wetland and surface water boundaries and determinations discussed are subject to revisions and approval by regulatory agencies during the permitting process. The exact type of mitigation to offset impacts will be coordinated with the regulatory agencies during the permitting phase(s) of this project. The CFX will address wetland and/or surface water impacts and provide appropriate wetland mitigation in future phases of this project.

10.3 Commitments

CFX commits to the following:

1. The most recent version of the USFWS *Standard Protection Measures for the Eastern Indigo Snake* will be adhered to during construction of the proposed project (**Appendix A**).

2. 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.

3. Any species-specific surveys will first be coordinated with USFWS and FWC, then conducted as agreed upon with USFWS and FWC during the permitting phase.

4. Surveys for gopher tortoise burrows, as well as commensal species, will be conducted during the design phase, and permits to relocate tortoises and commensals as appropriate will be obtained from the FWC.

5. BMPs to control erosion and sedimentation in accordance with Standard Specifications for Road and Bridge Construction will be implemented.

Section 8 References

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Appendix A

USFWS Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE U.S. Fish and Wildlife Service

May 2024

The Standard Protection Measures for the Eastern Indigo Snake (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida and Georgia for use by project proponents and their construction personnel help minimize adverse impacts to eastern indigo snakes. However, implementation of this Plan does not replace any state of federal consultation or regulatory requirements. At least 30 days prior to any land disturbance activities, the project proponent shall notify the appropriate USFWS Field Office (see Field Office contact information) via e-mail that the Plan will be implemented as described below.

As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the approved poster and pamphlet (<u>USFWS Eastern Indigo Snake Conservation</u> <u>webpage</u>), no further written confirmation or approval from the USFWS is needed regarding use of this Plan as a component of the project.

If the project proponent 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. The project proponent 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.

STANDARD PROTECTION MEASURES

BEFORE AND DURING CONSTRUCTION ACTIVITIES:

- All Project personnel shall be notified about the potential presence and appearance of the federally protected eastern indigo snake (*Drymarchon couperi*).
- All personnel shall be advised that there are civil and criminal penalties for harassing, harming, pursuing, hunting, shooting, wounding, killing, capturing, or collecting the species, in knowing violation of the Endangered Species Act of 1973.
- The project proponent or designated agent will post educational posters in the construction office and throughout the construction site. The posters must be clearly visible to all construction staff and shall be posted in a conspicuous location in the

Project field office until such time that Project construction has been completed and time charges have stopped.

- Prior to the onset of construction activities, the project proponent or 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 pamphlet 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. Photos of eastern indigo snakes may be accessed on USFWS, Florida Fish and Wildlife Conservation Commission and/or Georgia Department of Natural Resources websites.
- Each day, prior to the commencement of maintenance or construction activities, the Contractor shall perform a thorough inspection for the species of all worksite equipment.
- If an eastern indigo snake (alive, dead or skin shed) 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 Office. The contact information for the USFWS is provided below and on the referenced posters and pamphlets.
- During initial site clearing activities, an onsite observer is recommended 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).
- Periodically during construction activities, the project area should be visited 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.
- For erosion control use biodegradable, 100% natural fiber, net-free rolled erosion control blankets to avoid wildlife entanglement.

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 (See USFWS Field Office Contact Information).

USFWS FIELD OFFICE CONTACT INFORMATION

Georgia Field Office: Phone: (706) 613-9493, email: gaes_assistance@fws.gov Florida Field Office: Phone: (352) 448-9151, email: fw4flesregs@fws.gov

POSTER & PAMPHLET INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (final posters for Plan compliance are available on our website in English and Spanish and should be printed on 11 x 17in or larger paper and laminated (<u>USFWS Eastern Indigo Snake Conservation webpage</u>). Pamphlets are also available on our webpage and should be printed on 8.5 x 11in paper and folded, and available and distributed to staff working on the site.

POSTER CONTENT (ENGLISH):

ATTENTION

Federally-Threatened Eastern Indigo Snakes may be present on this site!

Killing, harming, or harassing eastern indigo snakes is strictly prohibited and punishable under State and Federal Law.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

• Stop land disturbing activities and allow the snake time to move away from the site without interference. Do NOT attempt to touch or handle the snake.

• Take photographs of the snake, if possible, for identification and documentation purposes.

• Immediately notify supervisor/agent, and a U.S. Fish and Wildlife Service (USFWS) Ecological Services Field Office, with the location information and condition of the snake.

• If the snake is located near clearing or construction activities that will cause harm to the snake, the activities must pause until a representative of the USFWS returns the call (within one day) with further guidance.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

• Stop land disturbing activities and immediately notify supervisor/applicant, and a USFWS Ecological Services Field 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.

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, reaching up to 8 ft long. Named for the glossy, blue-black scales above and slate blue below, they often have orange to reddish color (cream color in some cases) in the throat area. They are not typically aggressive.

SIMILAR SPECIES: The black racer resembles the eastern indigo snake. However, black racers have a white or cream chin, and thinner bodies.

LIFE HISTORY: Eastern indigo snakes live in a variety of terrestrial habitat types. Although they prefer uplands, they also use wetlands and agricultural areas. They will shelter inside gopher tortoise burrows, other animal burrows, stumps, roots, and debris piles. Females may lay from 4 to 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTED STATUS: The eastern indigo snake is protected by the USFWS, Florida Fish and Wildlife Conservation Commission, and Georgia Department of Natural Resources. Any attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage eastern indigo snakes is prohibited by the U.S. Endangered Species Act. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses. Only authorized individuals with a permit (or an Incidental Take Statement associated with a USFWS Biological Opinion) may handle an eastern indigo snake.

Please contact your nearest USFWS Ecological Services Field Office if a live or dead eastern indigo snake is encountered:

Florida Office: (352) 448-9151 Georgia Office: (706) 613-9493

POSTER CONTENT (SPANISH):

ATENCIÓN

¡Especie amenazada, la culebra Índigo del Este, puede ocupar el área!

Matar, herir o hostigar culebras Índigo del Este es estrictamente prohibido bajo la Ley Federal.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE O UNA CULEBRA NEGRA VIVA EN EL ÁREA:

• Pare excavación y permite el movimiento de la culebra fuera del área sin interferir. NO atentes tocar o recoger la culebra.

• Fotografié la culebra si es posible para identificación y documentación.

• Notifique supervisor/agente, y la Oficina de Campo de Servicios Ecológicos del Servicio Federal de Pesca y Vida Silvestre (USFWS) apropiada con información acerca del sitio y condición de la culebra. • Si la culebra está cerca de un área de construcción que le pueda causar daño, las actividades deben parar hasta un representante del USFWS regrese la llamada (dentro de un día) con más orientación.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE MUERTA EN EL ÁREA:

• Pare excavación. Notifique supervisor/aplicante, y la Oficina de Campo de Servicios Ecológicos apropiada con información acerca del sitio y condición de la culebra.

• Fotografié la culebra si es posible para identificación y documentación.

• Emerge completamente la culebra en agua y congele la especie hasta que personal apropiado de la agencia de vida silvestre la recoja.

DESCRIPCIÓN. La culebra Índigo del Este es una de las serpientes sin veneno más grande en Norte América, alcanzando hasta 8 pies de largo. Su nombre proviene del color azul-negro brilloso de sus escamas, pero pueden tener un color anaranjado-rojizo (color crema en algunos casos) en su mandíbula inferior. No tienden a ser agresivas.

SERPIENTES PARECIDAS. La corredora negra, que es de color negro sólido, es la única otra serpiente que se asemeja a la Índigo del Este. La corredora negra se diferencia por una mandíbula inferior color blanca o crema y un cuerpo más delgado.

HÁBITATS Y ECOLOGÍA. La culebra Índigo del Este vive en una variedad de hábitats, incluyendo tierras secas, humedales, y áreas de agricultura. Ellas buscan refugio en agujeros o huecos de tierra, en especial madrigueras de tortugas de tierra. Las hembras ponen 4 hasta 12 huevos blancos entre abril y junio, y la cría emergen entre julio y octubre.

PROTECCIÓN LEGAL. La culebra Índigo del Este es clasificada como especie amenazada por el USFWS, la Comisión de Conservación de Pesca y Vida Silvestre de Florida y el Departamento de Recursos Naturales de Georgia. Intento de matar, hostigar, herir, lastimar, perseguir, cazar, disparar, capturar, colectar o conducta parecida hacia las culebras Índigo del Este es prohibido por la Ley Federal de Especies en Peligro de Extinción. Penalidades incluyen un máximo de \$25,000 por violaciones civiles y \$50,000 y/o encarcelamiento por actos criminales. Solos individuales autorizados con un permiso o Determinación de toma incidental (Incidental Take Statement) asociado con una Opinión Biológico del USFWS pueden recoger una Índigo del Este.

Por favor de contactar tu Oficina de Campo de Servicios Ecológicos más cercana si encuentras una culebra Índigo del Este viva o muerta:

Oficina de Florida: (352) 448-9151

Oficina de Georgia: (706) 613-9493

Appendix B

Eastern Indigo Snake Effect Determination Key



United States Department of the Interior

FISH AND WILDLIFE SERVICE South Florida Ecological Services Office 1339 20th Street Vero Beach, Florida 32960



August 1, 2017

Donnie Kinard U.S. Army Corps of Engineers Post Office Box 4970 Jacksonville, Florida 32232-0019

Subject: Consultation Key for the Eastern Indigo Snake - Revised

Dear Mr. Kinard:

This letter revises and replaces the January 25, 2010, and August 13, 2013, letters to the U.S. Army Corps of Engineers (Corps) regarding the use of the eastern indigo snake programmatic effect determination key (Key) for projects occurring within the South Florida Ecological Service's Office (SFESO) jurisdiction. This revision supersedes all prior versions of the Key in the SFESO area. The purpose of this revision is to clarify portions of the previous keys based on questions we have been asked, specifically related to habitat and refugia used by eastern indigo snakes (*Drymarchon corais couperi*), in the southern portion of their range and within the jurisdiction of the SFESO. This Key is provided pursuant to the Service's authorities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*). This Key revision has been assigned Service Consultation Code: 41420-2009-I-0467-R001.

The purpose of this Key is to assist the Corps (or other Federal action agency) in making appropriate effects determinations for the eastern indigo snake under section 7 of the Act, and streamline informal consultation with the SFESO for the eastern indigo snake when the proposed action can be walked through the Key. The Key is a tool available to the Corps (or other Federal action agency) for the purposes of expediting section 7 consultations. There is no requirement to use the Key. There will be cases when the use of the Key is not appropriate. These include, but are not limited to: where project specific information is outside of the scope of the Key or instances where there is new biological information about the species. In these cases, we recommend the Corps (or other Federal action agency) initiates traditional consultation pursuant to section 7 of the Act, and identify that consultation is being requested outside of the Key.

This Key uses project size and home ranges of eastern indigo snakes as the basis for making determinations of "may affect, but is not likely to adversely affect" (NLAA) and "may affect. and is likely to adversely affect" (may affect). Suitable habitat for the eastern indigo snake consists of a mosaic of habitats types, most of which occur throughout South Florida. Information on home ranges for individuals is not available in specific habitats in South Florida. Therefore, the SFESO uses the information from a 26-year study conducted by Layne and Steiner (1996) at Archbold Biological Station, Lake Placid, Florida, as the best available
information. Layne and Steiner (1996) determined the average home range size for a female eastern indigo snake was 46 acres and 184 acres for a male.

Projects that would remove/destroy less than 25 acres of eastern indigo snake habitat are expected to result in the loss of a portion of an eastern indigo snakes home range that would not impair the ability of the individual to feed, breed, and shelter. Therefore, the Service finds that take would not be reasonably certain to occur due to habitat loss. However, these projects have the potential to injure or kill an eastern indigo snake if the individual is crushed by equipment during site preparation or other project aspects. The Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and the excavation of underground refugia (where a snake could be buried, trapped and/or injured), when implemented, are designed to avoid these forms of take. Consequently, projects less than 25 acres that include the Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and a commitment to excavate underground refugia as part of the proposed action would be expected to avoid take and thus, may affect, but are not likely to adversely affect the species.

If a proposed project would impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, the Key should not be used. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range.

Projects that would remove 25 acres or more of eastern indigo snake habitat could remove more than half of a female eastern indigo snakes home range. This loss of habitat within a home range would be expected to significantly impair the ability of that individual to feed, breed, and shelter. Therefore, the Service finds take through habitat loss would be reasonably certain to occur and formal consultation is appropriate. Furthermore, these projects have the potential to injure or kill an eastern indigo snake if the individual is crushed by equipment during site preparation or other project aspects. The Service's *Standard Protection Measures* for the *Eastern Indigo Snake* (Service 2013 or most current version) and the excavation of underground refugia (where a snake could be buried, trapped and/or injured), when implemented, are designed to avoid these forms of take.

Eastern indigo snakes use a variety of habitat and are difficult to detect. Therefore, site specific information on the land use, observations of eastern indigo snakes within the vicinity, as well as other factors, as appropriate, will all be considered by the Service when making a final recommendation on the appropriate effects determination and whether it is appropriate to conclude consultation with the Corps (or other Federal action agency) formally or informally for projects that will impact 25 acres or more of habitat. Accordingly, when the use of the Key results in a determination of "may affect," the Corps (or other Federal action agency) is advised that consultation may be concluded informally or formally, depending on the project specific effects to eastern indigo snakes. Technical assistance from the Service can assist you in making a determination prior to submitting a request for consultation. In circumstances where the Corps (or other Federal action agency) desires to proceed with a consultation request prior to receiving

additional technical assistance from the Service, we recommend the agency documents the biological rationale for their determination and proceed with a request accordingly.

If the use of the Key results in a determination of "no effect," no further consultation is necessary with the SFESO. If the use of the Key results in a determination of "NLAA," the SFESO concurs with this determination based on the rationale provide above, and no further consultation is necessary for the effects of the proposed action on the eastern indigo snake. For "no effect" or "NLAA" determinations, the Service recommends that the Corps (or other Federal action agency) documents the pathway used to reach your no effect or NLAA determination in the project record and proceed with other species analysis as warranted.

Eastern Indigo Snake Programmatic Effect Determination Key Revised July 2017 South Florida Ecological Service Office

Scope of the Key

This Key should be used only in the review of permit applications for effects determinations for the eastern indigo snake (*Drymarchon corais couperi*) within the South Florida Ecological Service's Office (SFESO) area (Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, and St. Lucie Counties). There is no designated critical habitat for the eastern indigo snake.

This Key is subject to revision as the Corps (or other Federal action agency) and Service deem necessary and in particular whenever there is new information on eastern indigo snake biology and effects of proposed projects.

The Key is a tool available to the Corps (or other Federal action agency) for the purposes of expediting section 7 consultations. There is no requirement to use the Key. There will be cases when the use of the Key is not appropriate. These include, but are not limited to: where project specific information is outside of the scope of the Key or instances where there is new biological information about the species. In these cases, we recommend the Corps (or other Federal action agency) initiates traditional consultation pursuant to section 7 of the Act, and identify that consultation is being requested outside of the Key.

<u>Habitat</u>

Habitat use varies seasonally between upland and wetland areas, especially in the more northern parts of the species' range. In southern parts of their range eastern indigo snakes are habitat generalists which use most available habitat types. Movements between habitat types in northern areas of their range may relate to the need for thermal refugia (protection from cold and/or heat).

In northern areas of their range eastern indigo snakes prefer an interspersion of tortoise-inhabited sandhills and wetlands (Landers and Speake 1980). In these northern regions eastern indigo

snakes most often use forested areas rich with gopher tortoise burrows, hollowed root channels, hollow logs, or the burrows of rodents, armadillos, or land crabs as thermal refugia during cooler seasons (Lawler 1977; Moler 1985a; Layne and Steiner 1996). The eastern indigo snake in the northern region is typically classified as a longleaf pine savanna specialist because here, in the northern four-fifths of its range, the eastern indigo snake is typically only found in vicinity of xeric longleaf pine-turkey oak sandhills inhabited by the gopher tortoise (Means 2006).

In the milder climates of central and southern Florida, comprising the remaining one fifth of its range, thermal refugia such as those provided by gopher tortoise burrows may not be as critical to survival of indigo snakes. Consequently, eastern indigo snakes in these regions use a more diverse assemblage of habitats such as pine flatwoods, scrubby flatwoods, floodplain edges, sand ridges, dry glades, tropical hammocks, edges of freshwater marshes, muckland fields, coastal dunes, and xeric sandhill communities; with highest population concentrations of eastern indigo snakes occurring in the sandhill and pineland regions of northern and central Florida (Service 1999). Eastern indigo snakes have also been found on agricultural lands with close proximity to wetlands (Zeigler 2006).

In south Florida, agricultural sites (e.g., sugar cane fields and citrus groves) are occupied by eastern indigo snakes. The use of sugarcane fields by eastern indigo snakes was first documented by Layne and Steiner in 1996. In these areas there is typically an abundance of wetland and upland ecotones (due to the presence of many ditches and canals), which support a diverse prey base for foraging. In fact, some speculate agricultural areas may actually have a higher density of eastern indigo snakes than natural communities due to the increased availability of prey. Gopher tortoise burrows are absent at these locations but there is an abundance of both natural and artificial refugia. Enge and Endries (2009) reporting on the status of the eastern indigo snake included sugarcane fields and citrus groves in a Global Information Systems (GIS)base map of potential eastern indigo snake habitat. Numerous sightings of eastern indigo snakes within sugarcane fields have been reported within south Florida (Florida Fish and Wildlife Conservation Commission Indigo Snake Database [Enge 2017]). A recent study associated with the Comprehensive Everglades Restoration Plan (CERP) (A-1 FEB Project formerly A-1 Reservoir; Service code: 41420-2006-F-0477) documented eastern indigo snakes within sugarcane fields. The snakes used artificial habitats such as piles of limerock, construction debris, and pump stations. Recent studies also associated with the CERP at the C-44 Project (Service code: 41420-2009-FA-0314), and C-43 Project (Service code: 41420-2007-F-0589) documented eastern indigo snakes within citrus groves. The snakes used artificial habitats such as boards, sheets of tin, construction debris, pipes, drain pipes in abandoned buildings and septic tanks.

In extreme south Florida (*i.e.*, the Everglades and Florida Keys), eastern indigo snakes also utilize tropical hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats. Though eastern indigo snakes have been found in all available habitats of south Florida it is thought they prefer hammocks and pine forests since most observations occur there and use of these areas is disproportionate compared to the relatively small total area of these habitats (Steiner *et al.* 1983).

Even though thermal stress may not be a limiting factor throughout the year in south Florida, eastern indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigo snakes use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner 1996). Other underground refugia used include armadillo (*Dasypus novemcinctus*) burrows near citrus groves, cotton rat (*Sigmodon hispidus*) burrows, and land crab (*Cardisoma guanhumi*) burrows in coastal areas (Layne and Steiner 1996; Wilson and Porras 1983). Natural ground holes, hollows at the base of trees or shrubs, ground litter, trash piles, and crevices of rock-lined ditch walls are also used (Layne and Steiner 1996). These refugia are used most frequently where tortoise burrows are not available, principally in low-lying areas off the central and coastal ridges.

Minimization Measures

The Service developed protection measures for the eastern indigo snake "Standard Protection Measures for the Eastern Indigo Snake" (Service 2013) located at: <u>https://www.fws.gov/verobeach/ReptilesPDFs/20130812_EIS%20Standard%20Protection%20M</u> <u>easures_final.pdf</u>. These protections measures (or the most updated version) are considered a minimization measure for projects proposed within eastern indigo snake habitat.

Determinations

If the use of this Key results in a determination of "**no effect**," no further consultation is necessary with the SFESO.

If the use of this Key results in a determination of "NLAA," the SFESO concurs with this determination and no further consultation is necessary for the effects of the proposed action on the eastern indigo snake.

For no effect or NLAA determinations, the Corps (or other Federal action agency) should make a note in the project file indicating the pathway used to reach your no effect or NLAA determination.

If a proposed project would impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, the subsequent Key should not be used. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range.

If the use of this Key results in a determination of "**may affect**," <u>consultation may be concluded</u> <u>informally or formally</u> depending on project effects to eastern indigo snakes. Technical assistance from the Service can assist you in making a determination prior to submitting a request for consultation. In circumstances where the Corps desires to proceed with a consultation request prior to receiving additional technical assistance from the Service, we recommend the Corps document the biological rationale for their determination and proceed with a request accordingly.

Α.	Project is not located in open water or salt marshgo to B
	Project is located solely in open water or salt marshno effect
В.	Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake (currently 2013) during site preparation and project construction
	Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested
C.	The project will impact less than 25 acres of eastern indigo snake habitat (<i>e.g.</i> , sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes)
D.	The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other <u>underground refugia</u> where a snake could be <u>buried</u> , <u>trapped and/or injured</u> during project activitiesNLAA The project has known holes, cavities, active or inactive gopher tortoise burrows, or other <u>underground refugia</u> where a snake could be buried, trapped and /or
	injured
E.	Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of the burrow ¹ . If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.
	Permit will not be conditioned as outlined abovemay affect
nd Kov	

End Key

¹ If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at http://myfwc.com/gophertortoise.

² Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range

Donnie Kinard

Working with the Fish and Wildlife Foundation of Florida, the Service has established a fund to support conservation and recovery for the eastern indigo snake. Any project that has the potential to affect the eastern indigo snake and/or its habitat is encouraged to make a voluntary contribution to this fund. If you would like additional information about how to make a contribution and how these monies are used to support eastern indigo snake recovery please contact Ashleigh Blackford, Connie Cassler, or José Rivera at 772-562-3559.

This revised Key is effective immediately upon receipt by the Corps. Should circumstances change or new information become available regarding the eastern indigo snake and/or implementation of the Key, the determinations herein may be reconsidered and this Key further revised or amended.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. If you have any questions or comments regarding this Key, please contact the SFESO at 772-562-3909.

Sincerely

Roxanna Hinzman Field Supervisor South Florida Ecological Services

Cc:

Corps, Jacksonville, Florida (Dale Beter, Muriel Blaisdell, Ingrid Gilbert, Angela Ryan, Irene Sadowski, Victoria White, Alisa Zarbo) Service, Athens, Georgia (Michelle Elmore) Service, Jacksonville, Florida (Annie Dziergowski) Service, Panama City, Florida (Sean Blomquist)

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Appendix C

Wood Stork Effect Determination Key for Central and North Peninsular Florida

THE CORPS OF ENGINEERS, JACKSONVILLE DISTRICT, U. S. FISH AND WILDLIFE SERVICE, JACKSONVILLE ECOLOGICAL SERVICES FIELD OFFICE AND STATE OF FLORIDA EFFECT DETERMINATION KEY FOR THE WOOD STORK IN CENTRAL AND NORTH PENINSULAR FLORIDA September 2008

Purpose and Background

The purpose of this document is to provide a tool to improve the timing and consistency of review of Federal and State permit applications and Federal civil works projects, for potential effects of these projects on the endangered wood stork (Mycteria americana) within the Jacksonville Ecological Services Field Office (JAFL) geographic area of responsibility (GAR see below). The key is designed primarily for Corps Project Managers in the Regulatory and Planning Divisions and the Florida Department of Environmental Protection or its authorized designee, or Water Management Districts. The tool consists of the following dichotomous key and reference material. The key is intended to be used to evaluate permit applications and Corps' civil works projects for impacts potentially affecting wood storks or their wetland habitats. At certain steps in the key, the user is referred to graphics depicting known wood stork nesting colonies and their core foraging areas (CFA), footnotes, and other support documents. The graphics and supporting documents may be downloaded from the Corps' web page at http://www.saj.usace.army.mil/permit or at the JAFL web site at http://www.fws.gov/northflorida/WoodStorks. We intend to utilize the most recent information for both the graphics and supporting information; so should this information be updated, we will modify it accordingly. Note: This information is provided as an aid to project review and analysis, and is not intended to substitute for a comprehensive biological assessment of potential project impacts. Such assessments are site-specific and usually generated by the project applicant or, in the case of civil works projects, by the Corps or project co-sponsor.

Explanatory footnotes provided in the key <u>must be closely followed</u> whenever encountered.

Scope of the key

This key should only be used in the review of permit applications for effects determinations on wood storks within the JAFL GAR, and not for other listed species. Counties within the JAFL GAR include Alachua, Baker, Bradford, Brevard, Citrus, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Hernando, Hillsborough, Lafayette, Lake, Levy, Madison, Manatee, Marion, Nassau, Orange, Pasco, Pinellas, Putnam, St. Johns, Seminole, Sumter, Suwannee, Taylor, Union, and Volusia.

The final effect determination will be based on project location and description, the potential effects to wood storks, and any measures (for example project components, special permit conditions) that avoid or minimize direct, indirect, and/or cumulative

impacts to wood storks and/or suitable wood stork foraging habitat. Projects that key to a "no effect" determination do not require additional consultation or coordination with the JAFL. Projects that key to "NLAA" also do not need further consultation; however, the JAFL staff will assist the Corps if requested, to answer questions regarding the appropriateness of mitigation options. Projects that key to a "may affect" determination equate to "likely to adversely affect" situations, and those projects should not be processed under the SPGP or any other programmatic general permit. For all "may affect" determinations, Corps Project Managers should request the JAFL to initiate formal consultation on the Wood stork.

Summary of General Wood Stork Nesting and Foraging Habitat Information

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically nest colonially in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden 1991; Rodgers et al. 1996). Successful breeding sites are those that have limited human disturbance and low exposure to land based predators. Nesting sites protected from land-based predators are characterized as those surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle. These colonies have water depths between 0.9 and 1.5 meters (3 and 5 feet) during the breeding season.

In addition to limited human disturbance and land-based predation, successful nesting depends on the availability of suitable foraging habitat. Such habitat generally results from a combination of average or above-average rainfall during the summer rainy season, and an absence of unusually rainy or cold weather during the winter-spring breeding season (Kahl 1964; Rodgers et al. 1987). This pattern produces widespread and prolonged flooding of summer marshes that tends to maximize production of freshwater fishes, followed by steady drying that concentrate fish during the season when storks nest (Kahl 1964). Successful nesting colonies are those that have a large number of foraging sites. To maintain a wide range of foraging opportunities, a variety of wetland habitats exhibiting short and long hydroperiods should be present. In terms of wood stork foraging, the Service (1999) describes a short hydroperiod as one where a wetland fluctuates between wet and dry in 1 to 5-month cycles, and a long hydroperiod where the wet period is greater than five consecutive months. Wood storks during the wet season generally feed in the shallow water of shorthydroperiod wetlands and in coastal habitats during low tide. During the dry season, foraging shifts to longer hydroperiod interior wetlands as they progressively dry down (though usually retaining some surface water throughout the dry season).

Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites for the wood stork include freshwater marshes, depressions in cypress heads, swamp sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Good foraging conditions are characterized by water that is relatively calm, open, and having water depths between 5 and 15 inches (5 and 38 cm). Preferred foraging habitat includes wetlands exhibiting a mosaic of submerged and/or emergent aquatic vegetation, and shallow, open-water areas subject to hydrologic

regimes ranging from dry to wet. The vegetative component provides nursery habitat for small fish, frogs, and other aquatic prey, and the shallow, open-water areas provide sites for concentration of the prey during daily or seasonal low water periods.

WOOD STORK KEY

Although designed primarily for use by Corps Project Managers in the Regulatory and Planning Divisions, and State Regulatory agencies or their designees, project permit applicants and co-sponsors of civil works projects may find this key and its supporting documents useful in identifying potential project impacts to wood storks, and planning how best to avoid, minimize, or compensate for any identified adverse effects.

A.	Project within 2,500 feet of an active colony site ¹ May affect
	Project more than 2,500 feet from a colony site
B.	Project does not affect suitable foraging habitat ² (SFH)no effect
	Project impacts SFH ² go to C
C.	Project impacts to SFH are less than or equal to 0.5 acre ³ <i>NLAA</i> ⁴
	Project impacts to SFH are greater than or equal to 0.5 acrego to D
D.	Project impacts to SFH not within a Core Foraging Area ⁵ (see attached map) of a colony site, and no wood storks have been documented foraging on site
	Project impacts to SFH are within the CFA of a colony site, or wood storks have been documented foraging on a project site outside the CFAgo to E
E.	Project provides SFH compensation within the Service Area of a Service-approved wetland mitigation bank or wood stork conservation bank preferably within the CFA, or consists of SFH compensation within the CFA consisting of enhancement, restoration or creation in a project phased approach that provides an amount of habitat and foraging function equivalent to that of impacted SFH (see <i>Wood Stork Foraging Habitat Assessment Procedure</i> ⁶ for guidance), is not contrary to the Service's <i>Habitat Management Guidelines For The Wood Stork In The Southeast Region</i> and in accordance with the CWA section 404(b)(1) guidelines <i>NLAA</i> ⁴

Project does not satisfy these elements......May affect

¹ An active nesting site is defined as a site currently supporting breeding pairs of wood storks, or has supported breeding wood storks at least once during the preceding 10-year period.

² Suitable foraging habitat (SFH) is described as any area containing patches of relatively open (< 25% aquatic vegetation), calm water, and having a permanent or seasonal water depth between 2 and 15 inches (5 to 38 cm). SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to, freshwater marshes and stock ponds, shallow, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. See above *Summary of General Wood Stork Nesting and Foraging Habitat Information*.

³ On an individual basis, projects that impact less than 0.5 acre of SFH generally will not have a measurable effect on wood storks, although we request the Corps to require mitigation for these losses when appropriate. Wood Storks are a wide ranging species, and individually, habitat change from impacts to less than 0.5 acre of SFH is not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

⁴ Upon Corps receipt of a general concurrence issued by the JAFL through the Programmatic Concurrence on this key, "NLAA" determinations for projects made pursuant to this key require no further consultation with the JAFL.

⁵ The U.S. Fish and Wildlife Service (Service) has identified core foraging area (CFA) around all known wood stork nesting colonies that is important for reproductive success. In Central Florida, CFAs include suitable foraging habitat (SFH) within a 15-mile radius of the nest colony; CFAs in North Florida include SFH within a 13-mile radius of a colony. The referenced map provides locations of known colonies and their CFAs throughout Florida documented as active within the last 10 years. The Service believes loss of suitable foraging wetlands within these CFAs may reduce foraging opportunities for the wood stork.

⁶This draft document, *Wood Stork Foraging Habitat Assessment Procedure*, by Passarella and Associates, Incorporated, may serve as further guidance in ascertaining wetland foraging value to wood storks and compensating for impacts to wood stork foraging habitat.

Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued that were determined "may affect, not likely to adversely affect." It is requested that information on date, Corps identification number, project acreage, project wetland acreage, and latitude and longitude in decimal degrees be sent to the Service quarterly.

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