STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TECHNICAL REPORT COVERSHEET

NATURAL RESOURCES EVALUATION

Florida Department of Transportation

District Seven

US 98 (US 98 Bypass)

Design Change & Right of Way Re-evaluation

Limits of Project: From US 301 South to US 301 North

Pasco County, Florida

Financial Management Number: 256423-3

ETDM Number: N/A

Date:August 2021

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

Natural Resources Evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)
Design Change and Right of Way Re-evaluation
Work Program Item Segment #256423-3

Pasco County, Florida

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August 2021

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is proposing improvements to US Highway 98 (US 98 Bypass) from the US 301 South intersection to the US 301 North intersection in Dade City, Pasco County, Florida (Work Program Item Segment (WPIS) Number (No.) 256423-3). The proposed improvements consist of widening the existing rural two-lane roadway to an urban four-lane divided highway for a distance of approximately 1.6 miles.

For the purpose of this report, the area evaluated within the proposed and existing right-of-way (ROW) where impacts from construction may occur, including stormwater management facilities (SMFs) and floodplain compensation (FPC) sites, is referred to as the "proposed improvement". The area consisting of US 98 with a 500-foot buffer from the roadway centerline on both sides of the road and a 50-foot minimum buffer around SMFs and FPC site is referred to as the "study area".

A Project Development and Environment (PD&E) Study was previously prepared to evaluate the proposed improvement. A Type II Categorical Exclusion (CE) was approved by the Federal Highway Administration (FHWA) on April 30, 2002 to upgrade the US 98 Bypass to a four-lane divided urban facility. A Wetland Evaluation Report (WER) and an Endangered Species Evaluation were prepared in 2000 in support of the Type II CE evaluation.

The FDOT is currently preparing a Design Change and ROW Re-evaluation (2021) to evaluate design changes to the proposed improvement since the 2002 Type II CE. The currently proposed improvement consists of widening the existing rural two-lane roadway to an urban four-lane highway, milling and resurfacing existing lanes, reconstructing shoulders to provide bike lanes, and constructing sidewalks. Changes to the approved 2002 typical section include:

- reduction of the 22-foot median to widths ranging from 6 feet to 14 feet on the corridor;
- the modification of bike lanes to be included on the shoulder rather than as separate 4-foot bike lanes:
- widening sidewalks from a 5-foot width in each direction to a 6-foot width on the west side and a 10-foot on the east side;
- modification of the lane widths from two 12-foot lanes in each direction to one 11-foot lane and one 10-foot lane in each direction;
- modification of the signalized intersection at 7th Street and US 301/US 98 Bypass to a roundabout;
- modification of the "T" intersection at US 301 and CR 35A/Old Lakeland Highway to a roundabout; and
- revised SMFs and FPC sites.

The revised stormwater management and floodplain compensation design consists of six off-site ponds (SMFs) and one FPC Site. The proposed ponds evaluated include Environmental Look Around (ELA) sites: ELA 100A-SMF 1, ELA 200A-SMF 1, ELA 200A- SMF 2, ELA 300A-SMF 1, ELA 300A-SMF-2, ELA 300A-SMF 3 and ELA FPC. There is also one access easement required for ELA 300A-SMF 3.

This Natural Resources Evaluation (NRE) documents the proposed improvement's involvement with protected species, wetland and other surface water (OSWs), and Essential Fish Habitat (EFH).

Protected Species

The study area was assessed for the presence of suitable habitat for federal and state protected species in accordance with 50 Code of Federal Regulations (CFR) Part 402 of the Endangered Species Act (ESA) of 1973, as amended; Chapter 5B-40: *Preservation of Native Flora of Florida*, Florida Administrative Code (FAC); Chapter

68A-27: *Rules Relating to Endangered or Threatened Species* (FAC); and *Part 2, Chapter 16-Protected Species and Habitat* of the FDOT PD&E Manual.

No federally listed plant species were determined to have the potential to occur in the proposed improvement based on a review of the Florida Natural Areas Inventory (FNAI) and the US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) databases. Additionally, no federal plant species were observed during field reviews in June 2021. Therefore, the proposed improvement is anticipated to have ***"no effect"*** on federally protected plant species. Five state-listed plant species that potentially occur in the vicinity of the proposed improvement in Pasco County were evaluated. State-listed plant species were determined to have no potential to occur in the proposed improvement due to a lack of suitable habitat. Therefore, there is ***no effect anticipated*** for state-listed plant species by the proposed improvement.

Table ES-1 below provides a summary of federal and state protected species that have the potential to occur in the study area with an effect determination for the proposed improvement.

Table ES-1 Protected Species Potentially Occurring in the Proposed Improvement with Effect Determinations

Scientific Name	Common Name	Federal Status	State Status	2002 Type II CE Effect Determination	2021 Re-evaluation Effect Determination
Laterallus jamaicensis jamaicensis	Eastern Black Rail	FT	FT	--*	No Effect
Aphelocoma coerulescens	Florida Scrub-Jay	FT	FT	--*	No Effect
Mycteria americana	Wood Stork	FT	FT	No Effect	MANLAA
Egretta caerulea	Little Blue Heron	_	ST	--*	No Adverse Effect Anticipated
Egretta tricolor	Tricolored Heron	_	ST	--*	No Adverse Effect Anticipated
Grus canadensis pratensis	Florida Sandhill Crane	-	ST	--*	No Adverse Effect Anticipated
Athene cunicularia floridana	Florida Burrowing Owl	_	ST	--*	No Adverse Effect Anticipated
Haliaeetus leucocephalus	Bald Eagle	MBTA+	-	--*	-
Drymarchon couperi	Eastern Indigo Snake	FT	FT	No Effect	MANLAA
Pituophis melanoleucas mugitus	Florida Pine Snake	-	ST	--*	No Effect Anticipated
Gopherus polyphemus	Gopher Tortoise	C	ST	No Effect Anticipated	No Adverse Effect Anticipated
Ursus americanus floridanus	Florida Black Bear	-	*	--*	-
Agimonia incisa	Incised Groove-Bur	-	ST	--*	No Effect Anticipated
Calapogon multiflorus	Many-Flowered Grass Pink	-	ST	--*	No Effect Anticipated
Lechea cernua	Nodding Pinweed	-	ST	--*	No Effect Anticipated
Litsea aestivalis	Pondspice	-	SE	--*	No Effect Anticipated
Monotropsis reynoldsiae	Pygmy Pipes	-	SE	--*	No Effect Anticipated

Legend: FE - Federally-Designated Endangered; FT-Federally-Designated Threatened; ST – State Threatened; C-Candidate; MBTA- Migratory Bird Treaty Act; MANLAA-may affect, not likely to adversely affect; +-Also protected under the-Bald and Golden Eagle Protection Act (BGEPA); *protected under the Florida Black Bear Conservation Rule (Rule 68A-1.004, FAC); --* - species was not considered in the 2002 Type II CE

The eastern black rail is found in freshwater, brackish, and saltwater marsh habitat, typically with dense emergent vegetation. There is no suitable foraging or nesting habitat within the proposed improvement. Therefore, the proposed improvement will have "***no effect"*** on the eastern black rail.

The proposed improvement is within the US Fish and Wildlife Service (USFWS) Consultation Area for the Florida scrub-jay. However, there is no habitat suitable for or documented occurrences of the Florida scrub-jay within the proposed improvement. Therefore, the proposed improvement will have "***no effect"*** on the Florida scrub-jay.

The USFWS *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* was used to determine that the proposed improvement "***may affect, but not likely to adversely affect"*** the wood stork. The USFWS *Eastern Indigo Snake Programmatic Effect Determination Key* (revised August 2013) was used to determine that the proposed improvement "***may affect, but not likely to adversely affect"*** the eastern indigo snake. The effect determinations keys are provided in **Appendix G**.

There is no USFWS Critical Habitat designated within the study area.

Wetlands and OSWs

Pursuant to Presidential Executive Order 11990 entitled *Protection of Wetlands*, (May 1977), the USDOT has developed a policy, *Preservation of the Nation's Wetlands* (USDOT Order 5660.1A), dated August 24, 1978, which requires all federally-funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, as well as *Part 2, Chapter 9 – Wetlands and Other Surface Waters* of the FDOT PD&E Manual, the proposed improvement was evaluated for potential impacts to wetlands and surface waters.

Database and field reviews were conducted to determine if wetlands and OSWs were within the existing or proposed ROW of the proposed improvement, including SMFs and the FPC site. No wetlands were identified within the proposed improvements. Eight OSWs, including seven roadside ditches and an existing SMF, were identified in the proposed improvement, totaling 1.32 acres. Impacts to the OSWs are estimated at 1.19 acre.

The OSWs are not jurisdictional under the federal or state Section 404 programs. As SMFs and a FPC site will be constructed that will replace the functions of these OSWs, no mitigation is proposed.

Essential Fish Habitat

The proposed improvement was evaluated for EFH in accordance *with Part 2, Chapter 17- Essential Fish Habitat* of the FDOT PD&E Manual and the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1996. The EFH analysis assesses waters and substrate necessary to fish for spawning, breeding, feeding, and development to maturity. There are no estuarine or marine waters in the study area that provide EFH. Therefore, there will be no involvement with EFH for the proposed improvement.

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Acronyms

BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
CA	Consultation Area
CFA	Core Foraging Area
CFR	Code of Federal Regulations
CR	County Road
EFH	Essential Fish Habitat
ELA	Environmental Look Around
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FAC	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FNAI	Florida Natural Areas Inventory
FPC	Floodplain Compensation Site
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information Systems
MANLAA	May Affect, Not Likely to Adversely Affect
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRE	Natural Resources Evaluation
NWI	National Wetlands Inventory
OSW	Other Surface Waters
PD&E	Project Development and Environment
ROW	Right-of-Way
SFH	Suitable Foraging Habitat
SMF	Stormwater Management Facility
SSURGO	Soil Survey Geographic
SWFWMD	Southwest Florida Water Management District
UMAM	Uniform Mitigation Assessment Methodology
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WER	Wetland Evaluation Report

1 INTRODUCTION

1.1 Project Description

The Florida Department of Transportation (FDOT) is proposing improvements to US Highway 98 (US 98 Bypass) from the US 301 South intersection to the US 301 North intersection in Dade City, Pasco County, Florida (Work Program Item Segment (WPIS) Number (No.) 256423-3). A Project Location Map is provided below, with an aerial view of the Project Location Map found in **Appendix A, Figure 1**. The FDOT is currently preparing a Design Change and Right of Way (ROW) Re-evaluation (2021) for this proposed reconstruction.

Throughout the report, the area within the existing and/or proposed ROW where construction impacts will occur is referred to as the "proposed improvement". The "study area" is defined as the area within a 500-foot buffer extending from the centerline of US 98 on both sides of the roadway and a minimum 50-foot buffer around the stormwater management facilities (SMFs) and the floodplain compensation (FPC) site.

Although it varies throughout the length of the project, the existing roadway is typically an undivided rural facility consisting of two 12-foot lanes in both directions and two 8-foot shoulders (4-foot paved) in both directions. Left turn lanes are provided in the median at certain intersections. The currently proposed improvement consists of widening the existing two-lane rural roadway to an urban four-lane highway, milling and resurfacing existing lanes, reconstructing shoulders to provide bike lanes, and constructing sidewalks. Construction of six off-site ponds (SMFs) is also included in the proposed improvement as well as one FPC site. The pond sites include Environmental Look Around (ELA) 100A-SMF 1, ELA 200A-SMF 1, ELA 200A- SMF 2, ELA 300A-SMF 1, ELA 300A-SMF-2, ELA 300A-SMF 3 and ELA FPC. There is also one access easement required for ELA 300A-SMF 3.

1.2 Project History

A Project Development and Environment (PD&E) Study was prepared to evaluate the proposed improvements to the US 98 Dade City Bypass from the vicinity of the US 301 South intersection to the vicinity of the US 301 North intersection in Dade City, Pasco County, a distance of about 1.6 miles. The proposed improvements consisted of widening the existing two-lane rural roadway to an urban four-lane divided highway.

A Type II Categorical Exclusion (CE) was prepared for the PD&E Study and approved by the Federal Highway Administration (FHWA) on April 30, 2002 to upgrade the US 98 Bypass to a four-lane divided urban facility. The proposed 2002 Type II CE typical section consisted of two 12-foot lanes, 4-foot bike lanes, and 5-foot sidewalks in each direction. Left turn lanes were accommodated within a 22-foot median. The improvements required a minimum of 102 feet of ROW. The existing ROW varies from 60 feet to 115 feet wide; therefore, some mainline ROW acquisition would be required. The Type II CE also proposed improvements to traffic operations at the skewed intersections of US 301 South, County Road (CR) 35A and US 301 North with improved pedestrian crossings proposed at Whitehouse Avenue, Martin Luther King Boulevard, Meridian Avenue, and Tuskeegee Avenue. An optional intersection concept was provided that would bring US 301 North, River Road and the US 98 Bypass together at one location.

The currently proposed improvement consists of widening the existing rural two-lane roadway to an urban four-lane highway, milling and resurfacing existing lanes, reconstructing shoulders to provide bike lanes, and constructing sidewalks. Design changes to the 2002 Type II CE concept include, but are not limited to, the following:

- reduction of the 22-foot median to widths ranging from 6 feet to 14 feet on the corridor;
- the modification of bike lanes to be included on the shoulder rather than as separate 4-foot bike lanes:
- widening sidewalks from a 5-foot width in each direction to a 6-foot width on the west side and a 10-foot width on the east side;
- modification of the lane widths from two 12-foot lanes in each direction to one 11-foot lane and one 10-foot lane in each direction;
- modification of the signalized intersection at 7th Street and US 301/US 98 Bypass to a roundabout;
- modification of the "T" intersection at US 301 and CR 35A/Old Lakeland Highway to a roundabout; and
- revised SMFs and a FPC site.

The revised stormwater management and floodplain compensation design consists of six off-site ponds (SMFs) and one FPC Site. The proposed ponds evaluated include Environmental Look Around (ELA) sites: ELA 100A-SMF 1, ELA 200A-SMF 1, ELA 200A- SMF 2, ELA 300A-SMF 1, ELA 300A-SMF-2, ELA 300A-SMF 3 and ELA FPC. There is also one access easement required for ELA 300A-SMF 3.

1.3 Project Purpose and Need

The recommended concept from the PD&E Study (approved by FHWA in 2002) was developed based on the following purpose and need. The FDOT strives for the continuous movement of people and goods with increased safety and efficiency. The proposed improvement is needed to accommodate anticipated traffic projections, to improve traffic circulation, and to enhance safety conditions. During the PD&E Study, a comparison of the traffic volumes used for the existing design with the current traffic projections through design year 2025 demonstrated the need to increase capacity in the corridor.

The PD&E Study evaluated ways to improve vehicular and pedestrian/bicycle safety along the corridor. Enhancements to aid in the safe access between the neighborhoods to the east of the project and the businesses and services to the west are also considered. Improvements in traffic operations have been analyzed at all the major intersections along the US 98 Bypass including US 301 South, CR 35A, Tuskegee/Buford Avenues, Meridian Avenue, Martin Luther King Boulevard, River Road, and US 301 North.

The Traffic Report prepared for this project during the PD&E Study recommended that the US 98 Bypass be widened from a two-lane to a four-lane divided arterial for the entire study limits.

1.4 Purpose of Report

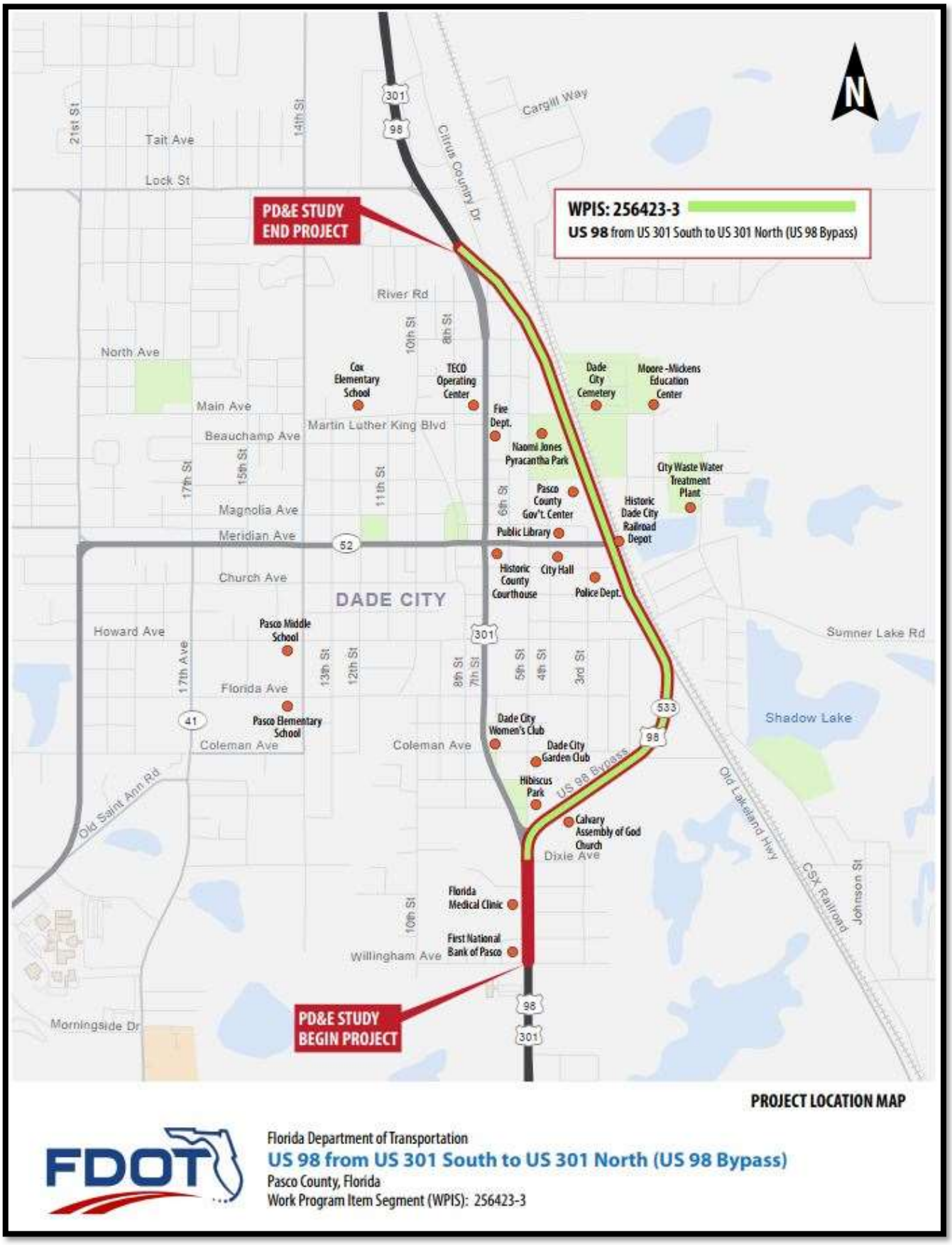
This Natural Resources Evaluation (NRE) documents existing wildlife resources and habitat types found within the proposed improvement for potential occurrences of and effects to federally and state-protected plant and animal species and their suitable habitat in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended; the Fish and Wildlife Conservation Act; the Migratory Bird Treaty Act (MBTA); Chapter 5B-40: *Preservation of Native Flora of Florida*, Florida Administrative Code (FAC); Chapter 68A-27: *Rules Relating to Endangered or Threatened Species* (FAC); and Part 2, Chapter 16—*Protected Species and Habitat* of the FDOT *PD&E Manual*.

This report also documents the potential impacts to wetlands and other surface waters (OSWs) from the proposed improvements in accordance with Presidential Executive Order (EO) 11990 entitled "Protection of Wetlands," United States Department of Transportation (USDOT) Order 5660.1A, "Preservation of the Nation's Wetlands," and Part 2, Chapter 9—*Wetlands and Other Surface Waters* of the FDOT *PD&E Manual*.

The proposed improvement was evaluated for Essential Fish Habitat (EFH) in accordance with Part 2, Chapter 17—*Essential Fish Habitat* of the FDOT *PD&E Manual* and the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1996. The analysis of EFH assesses waters and substrate necessary to fish for spawning, breeding, feeding, and development to maturity. There are no estuarine or marine waters in the study area that would provide EFH. Therefore, there will be no involvement with EFH for the proposed improvement.

1.5 Project Location

The proposed improvement is located in Dade City, Pasco County, Florida. The project is within Township 24S, Range 21 East, Sections 26, 27, 34, and 35 (**Project Quadrangle Map, Appendix A, Figure 2**) and comprises approximately 1.6 miles of US 98 from US 301 South to US 301 North, referred to as the US 98 Bypass. The project corridor begins approximately at latitude 28.3533 and longitude -82.18755 and ends at latitude 28.3741 and longitude -82.1900. A project location map is provided below and as an aerial view in **Appendix A, Figure 1.**



PROJECT LOCATION MAP

Florida Department of Transportation

US 98 from US 301 South to US 301 North (US 98 Bypass)

Pasco County, Florida

Work Program Item Segment (WPIS): 256423-3

2 EXISTING ENVIRONMENTAL CONDITIONS

2.1 Existing Land Use

Desktop and document reviews were conducted for the entire study area using the Southwest Florida Water Management District (SWFWMD) land use database and current aerial images. For evaluating the existing land use, a 500-foot buffer was created from the centerline of US 98, as well as a 50-foot buffer surrounding SMFs and the FPC site. The FDOT Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map is provided in **Appendix B, Figure 3**. Throughout the document, the proposed improvement with the additional buffer areas included is referred to as the study area. The area within the existing and proposed ROW that is to be reconstructed without the buffer included, with the associated SMFs and the FPC site, is referred to as the proposed improvement.

Field evaluations were conducted for the area within the proposed improvement on June 2 and June 8, 2021 to better define wetland and OSW boundaries in these areas using the FLUCFCS. No wetlands were identified in the proposed improvement although there were wetlands identified in the surrounding study area. OSW boundaries located within the proposed improvement are provided on the OSW Location Map in **Appendix C, Figure 6**.

Table 2-1 provides a summary of the existing land use within the study area.

Table 2-1 Existing Land Use within the Study Area for the US 98 Bypass

Land Use Type	FLUCFCS Code	Acreage within NRE Study Area	Percent of Total Acreage
Residential (Medium Density)	120	92.69	34.17
Residential (High Density)	130	5.37	1.98
Commercial Properties	140	72.09	26.59
Industrial	150	16.10	5.94
Institutional	170	11.40	4.21
Open Land	190	19.24	7.11
Cropland and Pastureland*	210	0.85	0.31
Lakes*	520	3.12	1.15
Reservoir (Pond)	530	0.60	0.22
Streams and Waterways (Ditches)	510	1.32	0.48
Freshwater Marsh*	641	5.23	1.93
Wet Prairies*	643	1.33	0.49
Emergent Aquatic Vegetation*	644	2.52	0.93
Transportation	810	39.28	14.49
TOTAL		**271.14**	**100**

*Only in 500-foot buffer; not within proposed improvement

The land use within the study area consists of approximately 87.38 percent developed lands (Residential, Commercial, Industrial, Institutional, Transportation), 7.11 percent open, undeveloped land (Open Land), 5.20 percent wetland and surface water habitats (Lakes, Reservoirs, Ditches, Freshwater Marsh, Wet Prairies Emergent Aquatic Vegetation), and 0.31 percent rural land use (Cropland and Pastureland).

2.2 Natural and Biological Features

A variety of resources—including the SWFWMD FLUCFCS data **(Appendix B, Figure 3**), National Wetlands Inventory (NWI) maps (**Appendix B, Figure 4)**, Natural Resources Conservation Service (NRCS) Soil Surveys for Pasco County (**Appendix B, Figure 5**), U.S. Geological Survey (USGS) topographical maps, and aerial photographs—were used to identify the wetland and upland communities that occur within the study area and within the proposed improvement. Field reviews were conducted on June 2 and June 8, 2021, to verify potential habitat and land use types within the proposed improvement. The descriptions of the natural communities within the proposed improvement are provided below.

2.2.1 Upland Communities

There were no natural upland communities identified in the study area or the proposed improvement. Developed upland areas in the study area that are also considered suitable for wildlife use included Open Land (FLUCFCS 190) and Cropland and Pastureland (FLUCFCS 210), with only Open Land (FLUCFCS 190) within the proposed improvement. Cropland and Pastureland will not be impacted by the proposed improvement.

2.2.1.1 Open Land (FLUCFCS 190)

Open land includes undeveloped land within urban areas that is inactive and without structures or any indication of intended use. Open land is often in a transitional state and planned for future development. Although habitat use by wildlife is limited in this category, it may be utilized by species that are adapted to an urban setting such as gopher tortoises or burrowing owls.

2.2.2 Wetland and Other Surface Water Communities

Although wetlands were identified within the study area, wetlands are not located within or immediately adjacent to the proposed improvement. There will be no involvement with the wetlands located within the 500-foot buffer. Therefore, there will be no further discussion of wetlands in this report. OSWs identified within the proposed improvement included roadside ditches and an existing SMF. The OSWs were delineated in the field on June 2 and June 8, 2021 and are described below.

2.2.2.1 Descriptions of Other Surface Waters

The existing conditions of the OSWs within the study area were assessed using Geographic Information System (GIS) data resources and field verification. A total of eight OSWs occur within the study area. These systems all occur within the Withlacoochee River basin. These OSWs are further described in Section 2.2.2.1.1 below.

The locations of the OSWs are shown on the NRCS Soils Map (**Appendix B, Figure 5**) and the OSW Location Map provided in **Appendix C, Figure 6.** Photographs of the OSWs are provided in **Appendix E**.

Eight OSWs were identified during field reviews. Seven of the OSWs are stormwater conveyance ditches, classified as FLUCFCS 510x (Streams and Waterways, excavated). One of the OSWs is an existing SMF which is classified a FLUCFCS 530 (Reservoir).

2.2.2.1.1 **Streams and Waterways (FLUCFCS 510)**
R4UBx-Riverine, Intermittent, Unconsolidated Bottom, Excavated

Streams and Waterways occur as roadside ditches in the proposed improvement. The OSWs identified in the project area are described below. OSWs that were also identified in a Wetland Evaluation conducted in 2000 for the 2002 CE Type II document are noted in the descriptions below.

OSW 1

OSW 1 is a partially maintained stormwater conveyance ditch that connects to a culvert under US 98. The ditch continues south of the proposed improvement ROW and appears to connect to an off-site wetland. OSW 1 is within soils mapped as Lake fine sand, 0 to 5 percent slopes (non-hydric). The ditch is vegetated with Carolina willow (*Salix caroliniana*), primrose willow (*Ludwigia peruviana*), wax myrtle (*Morella cerifera*), bushy bluestem (*Androgpogon glomeratus*), sedges (*Carex spp*.), flat sedges (*Cyperus spp*.), marsh pennywort (*Hydrocotyle umbellata*), maidencane (*Panicum hemitomon*), paragrass (*Urochloa mutica*) and Virginia chain fern (*Woodwardia virginica*). Because of the density of the vegetation, the ditch is not considered suitable foraging habitat for wading birds, wood storks, or the sandhill crane. This site was identified as Wetland 1B in the 2000 Wetland Evaluation.

OSW 5

OSW 5 is a densely vegetated, shrub type conveyance stormwater ditch with culverts under US 98 and the adjacent CSX railroad. This ditch is located along the east side of US 98 and west of the CSX railroad. OSW 5 is within soils mapped as Urban land, 0 to 2 percent slopes (hydric). Vegetation observed includes saltbush (*Baccharis halimifolia*), Carolina willow, elderberry (*Sambucus nigra*) and common ragweed (*Ambrosia artemisiifolia*). Because of the density of the vegetation, the ditch is not considered suitable foraging habitat for wading birds, wood storks, or the sandhill crane.

OSW 6

OSW 6 is an open water pond system and is vegetated along the shoreline. This pond is located along the west side of US 98 and receives run off from surrounding roadway and commercial parking lots. The majority of OSW 6 is within soils mapped as Quartzipsamments, shaped, 0 to 5 percent (non-hydric). Vegetation observed includes saltbush, primrose willow, barnyard grass (*Echinochloa muricata)* and flat sedges. There is potential foraging habitat for wading birds, wood storks, and sandhill cranes along the shoreline of the pond. This site was identified as Wetland 2 in the 2000 Wetland Evaluation Report.

OSW 7

OSW 7 is a densely vegetated, shrub type conveyance stormwater ditch with culverts under US 98 and the CSX railroad. This ditch is located along the east side of US 98 and west of the CSX railroad and receives stormwater runoff from the surrounding roadway and commercial parking lots. OSW 7 is within soils mapped as Urban land, 0 to 2 percent slopes (hydric). Vegetation observed includes saltbush, primrose willow, red mulberry (*Morus rubra*), elderberry, fig (*Ficus sp*.), dog fennel (*Eupatorium capillifolium*), and flat sedges. Because of the density of the vegetation, the ditch is not considered suitable foraging habitat for wading birds, wood storks, or the sandhill crane. This OSW was identified as Wetland 4 in the 2000 Wetland Evaluation Report

OSW 8

OSW 8 is a partially maintained stormwater conveyance ditch with culverts under US 98. This ditch runs parallel along the west side of US 98 and has a boardwalk structure above the system. This ditch receives stormwater runoff from surrounding roadway and commercial parking lots. OSW 8 is within soils mapped as Urban land, 0 to 2 percent slopes (hydric). Vegetation observed includes Carolina willow, primrose willow, flat sedges, pickerelweed (*Pontederia cordata*), knotweed (*Polygonum punctatum*), red ludwigia (*Ludwigia repens*), alligator weed (*Alternanthera philoxeroides*), and paragrass. There is potential foraging habitat for wading birds, wood storks, and sandhill cranes along the edge of the OSW. This OSW was identified as Wetland 3 in the 2000 Wetland Evaluation.

OSW 9

OSW 9 is a maintained, upland-cut stormwater conveyance ditch with drainage culvert and concrete structure present. This ditch is parallel to US 98 and receives stormwater runoff from the surrounding roadway. OSW 9 is within soils mapped as Tavares fine sand-Urban land complex, 0 to 5 percent (non-hydric). There is no vegetation present. The ditch is not considered suitable foraging habitat for wading birds, wood storks, or the sandhill crane.

OSW 10

OSW 10 is a maintained, steeply-sloped stormwater conveyance ditch with drainage culverts present. This ditch is located north of US 98 and US 301 and receives stormwater runoff from the surrounding roadway and commercial/industrial areas. OSW 10 is within soils mapped as Urban land, 0 to 2 percent slopes (hydric). Vegetation observed includes Bermuda grass and alligator weed. The ditch is not considered suitable foraging habitat for wading birds, wood storks, or the sandhill crane. This OSW was identified as Wetland 5 in the Wetland Evaluation Report.

2.2.2.1.2 **Reservoirs (FLUCFCS 530)**
PUBHx (Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated)

Reservoirs are described as water impoundments that are used for irrigation, flood control, municipal and rural water supplies, recreation and hydro-electric power generation. There is an existing SMF identified as F1 in the proposed improvement area. This existing SMF will be utilized as part of proposed ELA 300A-SMF-3. It will be reconfigured but will not be filled or removed. Existing SMF F1 is within soils mapped as Urban land, 0 to 2 percent slopes (hydric). Vegetation observed includes Carolina willow, primrose willow, cattail (*Typha sp.*) and flat sedges. The shoreline of the existing SMF is considered suitable foraging habitat for wading birds, wood storks, and the sandhill crane.

2.3 Soils

Soils within the proposed improvement were evaluated using the NRCS *Soil Survey of Pasco County* and the GIS data. The soil types found within the proposed improvement are provided below in **Table 2-3.** A soils map can be found in **Appendix B, Figure 5.** The prevalent soil types in the proposed improvement are Urban land , 0 to 2 percent slopes (54.33%), Tavares fine sand-Urban-land complex, 0 to 5% slopes (19.94%), and Lake fine sand, 0 to 5 percent slopes (16.63%).

Table 2-3 Soils in the Proposed Improvement

Map Soil Unit	Soil Description	Hydric	Acreage in Proposed Improvement	Percent of Total Acreage
11	Adamsville fine sand, 0-2% slopes	YES	4.09	8.17
15	Tavares fine sand-urban land complex	NO	9.98	19.94
24	Quartzipsamments, shaped slopes	NO	0.34	0.67
32	Lake fine sands, 0-5% slopes	NO	8.32	16.63
38	Urban land, 0-5% slopes	YES	27.20	54.33
70	Placid fine sand	YES	0.13	0.26
TOTAL			**50.06**	**100**

3 PROTECTED SPECIES AND HABITAT

3.1 Methodology

The study area was assessed for the presence of suitable habitat for federally-listed and state-listed species and US Fish and Wildlife Service (USFWS) Critical Habitat in accordance with 50 Code of Federal Regulations (CFR) Part 402 of the ESA of 1973, as amended; Chapter 5B-40: *Preservation of Native Flora of Florida*, (FAC); Chapter 68A-27: *Rules Relating to Endangered or Threatened Species* (FAC), the MBTA of 1918, and *Part 2, Chapter 16 - Protected Species and Habitat* of the FDOT PD&E Manual.

The study area was evaluated for potential federally-listed and state-listed species as well as other protected species that may exist within the study area. The following resources were utilized for this assessment:

- USFWS GIS Databases
- FDOT FLUCFCS, 3rd edition 1999
- SWFWMD Land Use Data (2020)
- Aerial derived photographs (2021)
- Florida Natural Areas Inventory (FNAI), Pasco County, Florida
- Wood Stork Colony Location Database (USFWS)
- USFWS Information for Planning and Consultation (IPaC)

The evaluated species for the study area are discussed below. The list of potential species was preliminarily identified with a data search of the FNAI biodiversity matrix and the USFWS IPaC database. A review of both databases was conducted in July 2021. The species with the potential to occur in the study area based on habitat types present are listed in **Table 3-1** below with the likelihood of occurrence rated as low, moderate, high, or none.

The ratings are defined as follows:

- **NONE –** indicates that the species is known to occur in Pasco County, no suitable habitat is present in the proposed improvement and/or immediately adjacent areas, and/or the species is precluded from the area based on its habits or life history.
- **LOW -** indicates that the species is known to occur in Pasco County, suitable habitat is not present or is limited in the proposed improvement and/or immediately adjacent areas, and/or the species is unlikely based on what is known about its habits or life history.

- **MODERATE**- indicates the species is known to occur in Pasco County, suitable habitat for that species is present in the proposed improvement and/or immediately adjacent areas, but the species has not been observed in past studies, past or current field surveys, or documented on the database. Species with a moderate rating may require Standard Construction Precautions during construction or additional surveys in design or construction. Standard Construction Precautions anticipated to be implemented for the project are provided in **Appendix F.**
- **HIGH -** indicates the species occurs in Pasco County, is suspected within the study area based on known ranges and existence of sufficient preferred habitat in the proposed improvement and/or immediately adjacent areas, and has been previously observed or documented in the vicinity.

Table 3-1 Potentially Occurring Listed Wildlife Species in US 98 Proposed Improvement

SPECIES	COMMON NAME	FEDERAL LISTING (USFWS)	STATE LISTING (FWC)	HABITAT	PROBABILITY OF PRESENCE OR OCCURRENCE
BIRDS					
Laterallus jamaicensis jamaicensis	Eastern Black Rail	FT	FT	Freshwater or saltwater marshes with dense vegetative cover	None
Aphelocoma coerulescens	Florida Scrub-Jay	FT	FT	Scattered, often small and isolated patches of sand pine scrub, xeric oak scrub, and scrubby flatwoods	None
Mycteria americana	Wood Stork	FT	FT	Estuarine tidal swamps/marshes, lacustrine, seepage stream, ditches, ruderal	Low
Egretta caerulea	Little Blue Heron	--	ST	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Low
Egretta tricolor	Tricolored Heron	--	ST	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Low
Grus canadensis pratensis	Florida Sandhill Crane	--	ST	Dry prairies, freshwater marshes, wet prairies	High
Athene cunicularia floridana	Florida Burrowing Owl	--	ST	Dry prairies, open grassland	Low
Haliaeetus leucocephalus	Bald Eagle	MBTA+	--	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	High
REPTILES					
Drymarchon couperi	Eastern Indigo Snake	FT	FT	Various upland and some wetland habitats, associated with gopher tortoise burrows	Low
Pituophis melanoleucas mugitus	Florida Pine Snake	-	ST	Sandhill, scrubby flatwoods, xeric hammock, pine flatwoods, ruderal	None
Gopherus polyphemus	Gopher Tortoise	C	ST	Xeric upland habitats, roadside grassed areas adjacent to natural habitats	High
MAMMALS					
Ursus americanus floridanus	Florida Black Bear	-	*	Terrestrial, pine flatwoods, sand pine scrub, cypress swamps	Low

FE - Federally-Designated Endangered; FT-Federally-Designated Threatened; ST – State-Designated Threatened; C-Candidate Species; MBTA- Migratory Bird Treaty Act; +- also protected under the Bald and Golden Eagle Protection Act (BGEPA); *protected under the Florida Black Bear Conservation Rule (Rule 68A-1.004, FAC); FWC – Florida Fish and Wildlife Conservation Commission

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3.2 Previous Agency Coordination

An Endangered Species Evaluation was conducted as part of the Type II CE approved by the FHWA on April 30, 2002. Species considered in the evaluation included the American alligator (*Alligator mississippiensis*), red-cockaded woodpecker (*Picoides borealis*), eastern indigo snake (*Drymarchon corais couperi*), and the wood stork (*Mycteria americana*). The Endangered Species Evaluation concluded that no habitat existed within the study corridor that would exhibit listed species. A request for concurrence with the findings was initiated with the USFWS on March 28, 2000. On April 14, 2000, the USFWS indicated that "the Proposed Action is not likely to adversely affect the resources protected by the ESA of 1974, as amended" and that the project will have "***no effect***" on federally protected, threatened, or endangered species.

The Florida Fish and Wildlife Conservation Commission (FWC) provided a letter dated March 27,2000, that stated "No records from the Office of Environmental Service's database were located within the project area." Two state-listed species, the gopher tortoise (*Gopherus polyphemus*) and Sherman's fox squirrel (*Sciurus niger shermani*), were identified as potentially occurring in the study area. The Sherman's fox squirrel has been delisted since the 2002 Type II CE. This NRE updates the findings of the 2002 Type II CE based on the current design, recent field reviews, and current rules and regulations.

3.3 Federally-Listed Faunal Species

In November 2010, the FWC established an imperiled species rule which states that all species listed by the USFWS and National Marine Fisheries Service (NMFS) that occur in Florida are also included on the Florida Endangered and Threatened Species List as Federally-designated Endangered, Federally-designated Threatened, Federally-designated Due to Similarity of Appearance, or Federally-designated Non-Essential Experimental population species. Thus, all federally-listed species evaluated below are also state-listed species protected by the FWC. The federally listed species that were indicated by the USFWS or FNAI databases to potentially occur in the area are evaluated below.

3.3.1 Eastern Black Rail

The eastern black rail (*Laterallus jamaicensis jamaicensis*) is federally listed as threatened. This species can be found in salt and brackish marshes as well as densely vegetated upper tidal marshes along the Gulf coast from Florida to Texas. The eastern black rail has been documented in inland marshes of the Florida peninsula. The eastern black rail is a small, cryptic bird that is approximately four to six inches long, mostly gray to black with white spots on their wing feathers, a black bill, and red eyes. The eastern black rail's preferred habitat is within grasses of marshes that have dense, emergent cover.

A review of the eBird database (https://ebird.org/home) indicated no observations of the eastern black rail in the proposed improvement, and none were observed during field reviews. The proposed improvement does not have areas of marsh with dense, emergent grasses that would provide suitable habitat for the rail. Because the proposed improvement lack suitable habitat for the species, the probability of occurrence of the species is consider "none". Therefore, the proposed improvements will have ***"no effect"*** on the eastern black rail.

3.3.2 Florida Scrub-Jay

The Florida scrub-jay (*Aphelocoma coerulescens)* is an endemic species to Florida and federally listed as threatened. The project is within the USFWS Florida Scrub-jay Consultation Area. Scrub-jays are limited to

patches of sand pine scrub, xeric oak scrub, and scrubby flatwoods occurring along well-drained, sandy ridges. There is no suitable habitat that is located within the proposed improvement. No scrub-jays were observed in field reviews conducted in June 2021 nor have scrub-jays been observed or recorded in or immediately adjacent to the proposed improvement or broader study area. Because a there is no suitable habitat or observations of the species in the proposed improvement or study area, the probability of occurrence of the species is considered "none". Therefore, the project will have "***no effect*"** on the Florida scrub-jay.

3.3.3 Wood Stork

Wood storks (*Mycteria americana*) are federally-listed as threatened. Wood storks utilize freshwater and estuarine habitats for nesting, foraging, and roosting. Wood storks are typically colonial nesters and construct their nests in medium to tall trees located within inundated forested wetlands including cypress swamps, mixed hardwood swamps, mangroves, and sloughs. No rookeries or breeding colonies are located in the study area or within 2500 feet of an active colony site. However, 15.0 miles is the Core Foraging Area (CFA) radius for wood stork colonies in north and central Florida. The project is located within the CFA of four active wood stork colonies [Devil's Creek (ID 611021), Little Gator Creek (ID 611024), Croom (ID 611304)), Saddlebrook Resort (No ID assigned)]. Therefore, the project improvement area was reviewed for potential suitable foraging habitat (SFH) for wood storks. As defined by the USFWS, SFH for wood storks includes wetlands and surface waters which have areas of water that are relatively calm, uncluttered by dense thickets of aquatic vegetation, and have permanent or seasonal depths between 2 and 15 inches.

Potential foraging habitat was identified in OSW 6, OSW 8, and the existing SMF F1. Because the existing SMF will remain and additional SMFs and a FPC site will be created that should provide foraging habitat for wood storks and other wading birds, there is not anticipated to be a net loss to SFH for the wood stork. There were no wood storks observed during the field reviews conducted in July 2021. The probability of occurrence of the wood stork is considered "low". When applying the project species to the USFWS *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* (**Appendix G**), the proposed improvements "***may affect, not likely to adversely affect***" the wood stork. (**A->B->C->MANLAA)**

3.3.4 Eastern Indigo Snake

Eastern indigo snakes (*Drymarchon couperi)* are federally-listed as threatened. The eastern indigo snake was not included on the IPaC list of potentially occurring federally listed species for the proposed improvement area, but it was included on the FNAI biodiversity matrix. The eastern indigo snake occurs in a wide variety of habitats, including forested uplands, dry prairies, and wetlands. They are known to use gopher tortoise burrows or other holes and cavities as refugia.

No eastern indigo snakes were observed during field surveys. However, limited suitable habitat for this species occurs within and adjacent to the study area. The proposed improvement is mostly within developed uplands with less than 25 acres of xeric habitat and supporting less than 25 potentially occupied tortoise burrows (there was one potentially occupied gopher tortoise burrow identified within the proposed improvement). To assure the protection of this species during construction, the FDOT will implement the most recent USFWS *Standard Protection Measures for the Eastern Indigo Snake* (**Appendix F**). If an indigo snake is encountered, the snake will be allowed to vacate the area prior to additional manipulation in the area. Holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned manipulation of the site, and no work will commence until the snake has vacated the vicinity of the proposed work. The probability of occurrence for the eastern indigo snake is considered to be "low". The *Eastern Indigo Snake Programmatic Effect Determination Key* (revised August 2013) **(Appendix G)** was utilized to make the effect determination for this

species. Based on the key, the proposed improvements, including the associated SMFs and FPC site, "***may affect, but not likely to adversely affect***" the eastern indigo snake. (**A->B->C->D->E->MANLAA)**

3.4 State-Listed Faunal Species

All federally designated species are considered protected by State. Faunal species which are not federally-listed but are state-listed with the potential to occur in the study area are described below.

3.4.1 Wetland-Dependent Avian Species

State-listed species which were identified in the vicinity of the study area or which have the potential to occur include a variety of wetland-dependent avian species including the little blue heron (*Egretta caerulea*) and tricolored heron (*Egretta tricolor*). These species are all state-listed as threatened. Nesting occurs in a variety of habitats from freshwater forested wetlands to mangrove islands, with the majority of the listed species utilizing larger trees.

Wetlands and surface waters that provide foraging potential for these species include freshwater marshes, wet prairie, herbaceous ditches/swales, ponds, and riverine systems. Potential foraging habitat was identified in OSW 6, OSW 8, and the existing SMF F1. There is no suitable nesting habitat within the proposed improvement. While foraging areas utilized by these species may be temporarily affected by this project, the construction of the additional proposed SMFs and a FPC site will replace the foraging area potentially lost. There will be no permanent impacts to nesting areas or rookeries as they are not located within the proposed improvement or study area. There is **no adverse effect anticipated** to the wetland-dependent avian species as a result of the proposed improvement, including associated SMFs and the FPC site.

3.4.2 Florida Sandhill Crane

The Florida sandhill crane (*Grus canadensis pratensis*) is listed as threatened by the FWC. This species is commonly found in wet prairies, marshy lake regions, low-lying pastures (including improved pastures), and shallow water open areas. Foraging areas for the sandhill crane include hydric pine flatwoods, pastures and prairies, as well as upland grassed areas.

Limited suitable foraging habitat for the sandhill crane exists within the proposed improvement within OSW 6, OSW 8, and the existing SMF F1. A sandhill crane was observed foraging along the shoreline of the existing SMF during the June 2021 field reviews **(Appendix D, Figure 7**). No sandhill cranes nesting locations or suitable habitat for nesting were observed during field observations. Any loss of foraging habitat due to the filling of OSW 6 and OSW 8 will be replaced by the construction of proposed additional SMFs and the FPC site. The existing SMF is proposed to remain and to be expanded. The probability of occurrence for the Florida sandhill crane is considered to be "high" due to the observation of the species during the field review. However, because any temporary loss of foraging habitat will be replaced by the proposed additional SMFs and FPC site, there is **no adverse effect anticipated** to the Florida sandhill crane as a result of the proposed improvement, including the associated SMFs and FPC site.

3.4.3 Florida Burrowing Owl

The Florida burrowing owl (*Athene cunicularia floridana*) is a state-listed threatened species. Burrowing owls live in open treeless areas such as native prairies, golf courses, agricultural fields, and vacant lots. Although they typically dig their own burrows, they may also use armadillo or gopher tortoise burrows. No burrowing owls are documented in the vicinity of the study area and none were observed during the June 2021 field reviews. Limited, suboptimal habitat for this species may exist within the open land identified in the proposed improvement for this

species. More extensive surveys are recommended during design to determine if this species is within the areas to be impacted as a result of this project. The probability of occurrence for the Florida burrowing owl is considered to be "low". With the provision to conduct surveys for the Florida burrowing owl prior to construction, there is **no adverse effect anticipated** to the Florida burrowing owl as a result of the proposed improvement, including the associated SMFs and FPC site.

3.4.4 Florida Pine Snake

The Florida pine snake (*Pituophis melanoleucus mugitus*) is a state-listed threatened species. The Florida pine snake primarily inhabits areas of scrub or open longleaf pine communities. There is no suitable habitat for the Florida pine snake present in the study area and the probability of occurrence is considered to be "none". Therefore, there is **no effect anticipated** to the Florida pine snake as a result of result of the proposed improvement, including the associated SMFs and FPC site.

3.4.5 Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is a state-listed threatened species and is currently a candidate for federal listing. The gopher tortoise prefers xeric areas with sandy soils and open canopy with low groundcover. They are also found in grassed or unvegetated roadsides.

A potential gopher tortoise burrow was observed along the west side of the proposed ELA FPC site (**Appendix D, Figure 7)**. The probability of occurrence is considered to be "high". No other burrows were observed in the proposed improvement area. However, a 100% gopher tortoise survey was not conducted. Prior to construction, the FDOT will conduct the appropriate gopher tortoise survey, coordinate with the FWC to permit and relocate gopher tortoises located in the proposed improvement if needed, and provide compensation as required through that permitting process. With the appropriate permitting and relocation effort, there is **no adverse effect anticipated** to the gopher tortoise as a result of result of the proposed improvement, including the associated SMFs and FPC site.

3.5 Other Protected Faunal Species

3.5.1 Bald Eagle

Although the bald eagle (*Haliaeetus leucocephalus*) is no longer federally-listed and afforded protection by the ESA of 1973; protection for the species is provided through the Migratory Birds Program per the MBTA and Bald and Golden Eagle Protection Act (BGEPA). Bald eagles are also no longer state-listed. Bald eagles most commonly inhabit areas near the coast, bays, rivers, lakes or other open bodies of water. They nest in tall trees, typically live pines, which usually have open views to their surroundings. Eagles are also known to utilize artificial structures and other types of tall trees for nesting. There are no documented nests within 660 feet of the study area according to the FWC eagle nest locator, Audubon Florida Eagle Watch database or the eBird database. No nests were identified within the proposed improvement during field reviews. However, suitable nesting trees are within 660 feet of the proposed improvement, and nests have been documented in the vicinity. Therefore, surveys should be conducted for the bald eagle to assure that none have moved into the project area prior to construction.

The USFWS determined that bald eagle nesting activities are not adversely affected by construction activities greater than 660 feet away from the nest. As outlined in the USFWS's Bald Eagle Monitoring Guidelines (2007), monitoring of construction and nesting activities is therefore no longer warranted for projects involving construction beyond 660 feet of an active bald eagle nest during nesting season. Nesting season in Florida is

from October 1 through May 15, although nesting may occur earlier or later than this period, especially in areas of south Florida. The USFWS Monitoring Guidelines will be followed if any nests are observed within the project's limits of construction; however, currently, no nesting trees or other potential nesting sites are located within 660 feet of the project study limits.

3.5.2 Florida Black Bear

The Florida black bear (*Ursus americanus floridanus*) was delisted from the State Endangered and Threatened Species List on August 23, 2012. However, the species remains protected under the FWC's *Florida Black Bear Conservation Rule* (Rule 68A-1.004, FAC) which makes it illegal to possess, injure, shoot, wound, trap, collect or sell Florida black bears or their parts except as authorized by Commission rule or permit.

The FWC Interactive Public Bear Map (/https://myfwc.maps.arcgis.com) was reviewed in July 2021. No roadway mortality, nuisance bears or telemetry data was found within the project study area. The closest record of a bear in the vicinity of the proposed improvement was a nuisance bear incident in 2019 more than four miles from the nearest point of the project. The study area of the proposed improvement is indicated as an area where bears occur occasionally. Based on the developed nature of the study area, the lack of documented occurrence of the Florida black bear in the study area, and the distance to the nearest recorded bear incident being more than four miles away, the Florida black bear is not anticipated to occur in or be affected by the proposed improvement.

3.6 Protected Plant Species

No federally listed plant species are anticipated to occur based on the FNAI biodiversity matrix, USFWS IPaC database, and USFWS distribution and range data. The proposed improvements will have ***"no effect"*** on federally listed plant species. Five state-listed plant species, listed by the Florida Department of Agricultural and Consumer Services (FDACS), were identified on the FNAI biodiversity matrix with the potential to occur within Pasco County. The plant species potentially occurring in the vicinity of the proposed improvement with their associated habitat requirements are provided in **Table 3-2** below.

Table 3-2 Potentially Occurring Listed Plant Species in Vicinity of Proposed Improvement

Plant Species	State Status*	Habitat	Suitable Habitat in Proposed Improvement
Incised Groove-Bur (*Agimonia incisa*)	ST	fire-maintained longleaf pine-scrub oak, open pine woods edge of mesic habitats	No
Many-Flowered Grass Pink (*Calapogon multiflorus*)	ST	dry to moist flatwoods with longleaf pine, wiregrass, saw palmetto (fire-dependent)	No
Nodding Pinweed (*Lechea cernua*)	ST	dry sandy areas, sand pine, scrub	No
Pondspice (*Litsea aestivalis*)	SE	peaty soils in edges of baygalls, flatwood ponds, cypress domes	No
Pygmy Pipes (*Monotropsis reynoldsiae*)	SE	upland mixed hardwood forests, mesic & xeric hammocks, sand pine, oak	No

SE= State-Listed Endangered; ST = State-Listed Threatened

The proposed improvement does not have habitat that would support any of the state-listed plant species identified as potentially occurring in vicinity of the project. Additionally, no listed plant species were observed in the field reviews conducted for the project in June 2021. Therefore, there is **no effect anticipated** to state-listed plant species as a result of the proposed improvements.

3.7 Critical Habitat

The study area was assessed for Critical Habitat designated by Congress in 50 CFR 424.12. Review of the USFWS's available GIS data indicates there is no Critical Habitat within the project limits or surrounding areas; therefore, the proposed project will **have no involvement** with Critical Habitat.

3.8 Avoidance and Minimization

The proposed improvements include widening the two-lane facility to a four-lane facility with associated SMFs and a FPC site. The surrounding study area is primarily developed, comprised mostly of residential or commercial properties. Minimal habitat suitable for wildlife use or as habitat for protected plant species is present. For wood storks, state-listed wading birds, and the Florida sandhill crane, impacts to foraging habitat is limited to less than 0.5 acres; proposed SMFs and the FPC site are anticipated to replace foraging habitat impacted so impacts to the species will be temporary. Protective construction measures will be utilized for the Eastern indigo snake, and surveys with associated permitting and relocation as needed will avoid adverse effect to the gopher tortoise and its commensals.

4 WETLAND AND OSW EVALUATION

4.1 Methodology

Pursuant to Presidential Executive Order 11990 entitled *Protection of Wetlands*, (May 1977), the USDOT has developed a policy, *Preservation of the Nation's Wetlands* (USDOT Order 5660.1A), dated August 24, 1978, which requires all federally-funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, as well as *Part 2, Chapter 9 – Wetlands and Other Surface Waters* of the FDOT PD&E Manual, the proposed improvement was evaluated for potential impacts to wetlands and surface waters.

Wetland or OSW boundaries were approximated in both a desktop and field evaluation in conformance with the federal and state criteria promulgated in the *Corps of Engineers Wetlands Delineation Manual* [US Army Corps of Engineers (USACE) 1987], the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual:Atlantic and Gulf Coastal Plain Region, Version 2* (USACE 2010), and the *Florida Wetlands Delineation Manual* (Gilbert et. al 1995). Background research conducted to identify the wetland communities occurring within the study area included review of the USFWS *NWI* (USFWS 2020), FLUCFCS data from the SWFWMD (SWFWMD 2020), Soils Survey Geographic (SSURGO) Database for Florida (NRCS 2020), and aerial photography interpretation (2021). Data verification was conducted during field reconnaissance surveys performed on June 2 and June 8, 2021.

Dominant vegetative strata, plant species, hydrologic indicators, and soil characteristics were assessed and documented. No wetlands were identified in the proposed improvement. OSW features were given designation based upon their status, hydrology, and soils. Swales and other excavated linear features that do not maintain a hydrologic regime capable of supporting wetland vegetation were not recorded for the purposes of this report.

Maps depicting surface water features occurring within the proposed improvement are provided in **Appendix C, Figure 6,** and photos are available in **Appendix E**.

4.2 Impact Evaluation

A Wetland Evaluation was conducted in 2000 as part of the 2002 Type II CE. Six areas were identified as wetlands or OSWs as part of the 2000 Wetland Evaluation; the estimated impacts from the 2000 evaluation are included in **Table 4-1** below. Although the sites were given different identification numbers than they are currently assigned, the areas documented in the 2000 evaluation were in the same location as the OSWs identified in this NRE. The 2000 Wetland Evaluation identified these areas as wetlands, but the descriptions and the assigned FLUCFCS indicate that these areas would be considered OSW under current delineation criteria. One area (Wetland (WL) 1A) identified in the 2000 Wetland Evaluation is not considered under the current evaluation as a wetland or OSW as it is not within the footprint of the proposed improvement. WL 1A was originally described as a wet pasture and estimated at 0.44 acre of potential impact, although only 0.008 acre was identified in the ROW.

The current evaluation identified three additional OSWs in the proposed improvement that were not indicated in the 2000 Wetland Evaluation, for a total of eight OSWs. Of those, seven are roadside ditches that serve as stormwater conveyance, and one is an existing SMF. The OSWs, identified as roadside ditches, excavated (510x), are anticipated to be filled in order to accommodate the construction of the additional lanes. The OSW identified as existing SMF F1 will be altered and possibly made larger. Because it is not permanently impacted and remains as a SMF, it is indicated as having no impact in **Table 4-1** below.

A summary of the wetland and OSW permanent impacts for the proposed improvement, which includes associated SMFs and a FPC site, is provided in **Table 4-1** below along with the original 2002 Type 2 CE estimation.

Table 4-1 Potential OSW Impacts of the US 98 Bypass Proposed Improvements

OSW ID	Prior ID (2002)	FLUCFCS	2002 Type II CE Estimated Impacts (acre)	2021 Re-evaluation Estimated Impact (acre)
N/A	WL 1A	510	0.44	0.00
OSW 1	WL 1B	510x	0.01	0.01
OSW 5	N/A	510x	N/A	0.19
OSW 6	WL 2	510x	0.20	0.05
OSW 7	WL 4	510x	0.59	0.43
OSW 8	WL 3	510x	0.22	0.42
OSW 9	N/A	510x	N/A	0.03
OSW 10	WL 5	510x	0.06	0.06
SMF F1*	N/A	530	N/A	0.00*
TOTAL IMPACTS			1.52	1.19

*F1 is an existing SMF that will be reconfigured but not filled or removed. Any impacts will be temporary.

4.3 Avoidance, Minimization, and Mitigation

Pursuant to Executive Order 11990, *Protection of Wetlands*, federal actions should avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and avoid direct or indirect impacts in wetlands wherever there is a practicable alternative. There are no wetland impacts that will result from the proposed improvement. Unavoidable OSW impacts resulting from construction of the additional lanes will occur as a result of the improvements. Transportation safety standards for side slopes, additional lanes and widths, and stormwater treatment requirements necessitate these impacts. Impacts to OSWs are unavoidable for the proposed improvements due to the presence of the roadside ditches within the existing and proposed ROW.

Compensatory mitigation for the impacts to OSWs is not anticipated to be required. Additional SMFs and a FPC site are proposed which will replace the function of the OSWs to be impacted.

4.4 Wetland Functional Analysis

In February 2004, the FDEP adopted 373.414 (18) FS into rule via 62-345 (FAC) to develop and adopt a statewide Uniform Mitigation Assessment Methodology (UMAM) to determine the amount of mitigation required to offset impacts to wetlands and OSWs. UMAM is a standardized procedure for assessing the functions (expressed as a percentage compared to a natural, undisturbed wetland) provided by wetlands and OSWs, and the amount those functions are reduced or lost by a proposed impact. This amount the functions are reduced or lost is referred to as Functional Loss (FL). The UMAM methodology is also used to quantify the amount of mitigation necessary to offset the FL of the impact. This can be expressed in acres or as credits from a mitigation bank or regional mitigation provider.

UMAM is applied by the utilization of an assessment matrix, which analyzes three variables for wetlands and surface waters (i.e., indicators of wetland/OSWs function):

- Location and Landscape
- Water Environment
- Vegetative Community Structure

Each variable yields an overall UMAM score for a wetland ranging from 0 to 10, based on the level of functions to fish and wildlife. For purposes of providing guidance, descriptions are given for four general categories of scores: Optimal (10), Moderate (7), Minimal (4), and Not Present (0). Areas of open water habitat such as Streams and Waterways (5100) and ditches are considered Surface Waters or OSWs. Mitigation may be required for surface water impacts, but generally is not required to offset the loss of OSWs (ditches and SMFs) as these are typically replaced in-kind.

Because there are no wetland impacts and OSW impacts are limited to roadside ditches that will be replaced by additional SMFs and a FPC site, a UMAM analysis was not considered necessary and was not conducted.

4.5 Indirect and Cumulative Effects

Indirect impacts are caused by the action but occur later in time or farther removed in distance but are still reasonably foreseeable. The roadway network is well established. Therefore, the project is not anticipated to stimulate growth or other development in the area but will provide more efficient and safe transportation. There are no wetlands or OSWs adjacent to the proposed improvement that will be indirectly impacted. Best

Management Practices (BMPs) will be utilized to reduce or avoid indirect impacts from construction activities to offsite wetlands, OSWs, or properties.

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The project is an improvement to an existing road. The project will not impact wetlands in the study area. Cumulative impacts are therefore not anticipated.

5 ANTICIPATED PERMITS

The Florida Department of Environmental Protection (FDEP) and the SWFWMD regulate wetlands and surface waters within the study area. However, because the OSWs are stormwater conveyances, many of which are upland-cut, the OSWs are not considered jurisdictional under the State Section 404 permit which is administered by the FDEP. Other agencies, including the USFWS, NMFS, US Environmental Protection Agency (USEPA), and the FWC, review and comment on the wetland permit applications as appropriate. In addition, the FDEP, through a delegation from USEPA, regulates stormwater discharges from the construction sites. It is currently anticipated that the following permits will be required for this project.

PERMITS	ISSUING AGENCY
Environmental Resource Permit (ERP)	SWFWMD
National Pollutant Discharge Elimination System (NPDES) Permit	FDEP

6 CONCLUSIONS AND COMMITMENTS

6.1 Protected Species and Habitat

The study area was assessed for the presence of federally- and state-listed species as well as other protected species and USFWS Critical Habitat. The species considered to potentially occur in the study area are listed below with their probability of involvement and the effect determination for each.

Table 6-1 Potential Protected Species Status, Involvement, and Effect Determination Summary US 98 Proposed Improvements

Scientific Name	Common Name	Federal Status	State Status	Probability of Occurrence	2021 Re-evaluation Effect Determination
Laterallus jamaicensis jamaicensis	Eastern Black Rail	FT	FT	None	No Effect
Aphelocoma coerulescens	Florida Scrub-Jay	FT	FT	None	No Effect
Mycteria americana	Wood Stork	FT	FT	Low	MANLAA
Egretta caerulea	Little Blue Heron	-	ST	Low	No Adverse Effect Anticipated
Egretta tricolor	Tricolored Heron	-	ST	Low	No Adverse Effect Anticipated
Grus canadensis pratensis	Florida Sandhill Crane	-	ST	High	No Adverse Effect Anticipated
Athene cunicularia floridana	Florida Burrowing Owl	-	ST	Low	No Adverse Effect Anticipated

Scientific Name	Common Name	Federal Status	State Status	Probability of Occurrence	2021 Re-evaluation Effect Determination
Haliaeetus leucocephalus	Bald Eagle	MBTA+	--	High	-
Drymarchon couperi	Eastern Indigo Snake	FT	FT	Low	MANLAA
Pituophis melanoleucas mugitus	Florida Pine Snake	-	ST	None	No Effect Anticipated
Gopherus polyphemus	Gopher Tortoise	C	ST	High	No Adverse Effect Anticipated
Ursus americanus floridanus	Florida Black Bear	-	*	Low	-
Agimonia incisa	Incised Groove-Bur	-	ST	None	No Effect Anticipated
Calapogon multiflorus	Many-Flowered Grass Pink	-	ST	None	No Effect Anticipated
Lechea cernua	Nodding Pinweed	-	ST	None	No Effect Anticipated
Litsea aestivalis	Pondspice	-	ST	None	No Effect Anticipated
Monotropsis reynoldsiae	Pygmy Pipes	-	ST	None	No Effect Anticipated

Migratory Bird Treaty Act (MBTA); +Bald and Golden Eagle Protection Act (BGEPA); FE - Federally-Designated Endangered; FT-Federally-Designated Threatened; ST – State-Designated Threatened; C-Candidate Species; MANLAA-May Affect, Not Likely to Adversely Affect; *protected under the Florida Black Bear Conservation Rule (Rule 68A-1.004, FAC)

No federally or state-listed plant species are anticipated to potentially occur in the area due to a lack of appropriate habitat for protected plant species in the proposed improvement. The proposed improvement will have "***no effect***" on federally listed plant species. There is **no effect anticipated** to state-listed plant species.

6.2 Wetland and OSW

No wetlands were identified in the proposed improvement, including SMFs and the FPC site. Eight OSWs were identified, with seven of the eight being roadside ditches that are stormwater conveyance features. One OSW was identified as an existing SMF that will be altered but not permanently impacted. The anticipated impact to the OSWs is provided below as **Table 6-2.**

Table 6-2 OSW Impacts from Proposed Improvement

FLUCFCS Description	FLUCFCS Code	2002 Type II CE Estimated Impacts (acres)	2021 Re-evaluation Impacts (acres)
Streams & Waterways (Roadside Ditches)	510x	1.52	1.19
Reservoirs (SMF)	530	0.00	0.00
TOTAL IMPACTS (acres)		1.52	1.19

Because functions lost from the filling of the stormwater conveyance ditches will be replaced by proposed SMFs and the FPC site, there is no mitigation requirement anticipated.

6.3 Implementation Measures

- The FDOT will conduct a survey for gopher tortoises and coordinate with the FWC as appropriate based on the survey. Should gopher tortoise burrows be located within the proposed improvement, the FDOT will coordinate with the FWC to obtain necessary permits and to relocate tortoises as required.
- Erosion and sediment controls and other BMPs will be implemented prior to construction, and maintained during and after construction, to prevent adverse impacts to adjacent water resources and properties.

6.4 Commitments

- Surveys to update locations of bald eagle nest sites will be conducted prior to construction and proper coordination will occur with the USFWS if it is determined a bald eagle nest is within 660 feet or less of the proposed improvement.
- Surveys for the Florida burrowing owl will be conducted prior to construction. If it is determined individuals or nest areas could be impacted by the project, the FDOT will coordinate with FWC to determine appropriate avoidance and minimization measured during construction.
- The USFWS *Standard Protection Measures for the Eastern Indigo Snake* will be implemented to assure that the eastern indigo snake will not be adversely impacted by the project.

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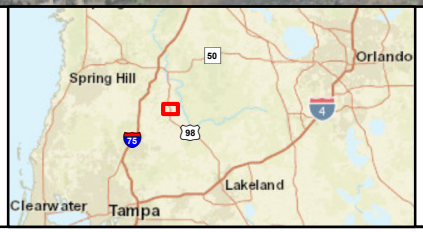
Appendix A

PROJECT LOCATION MAPS



US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Figure 1
Project Location Map

0 1,000 2,000
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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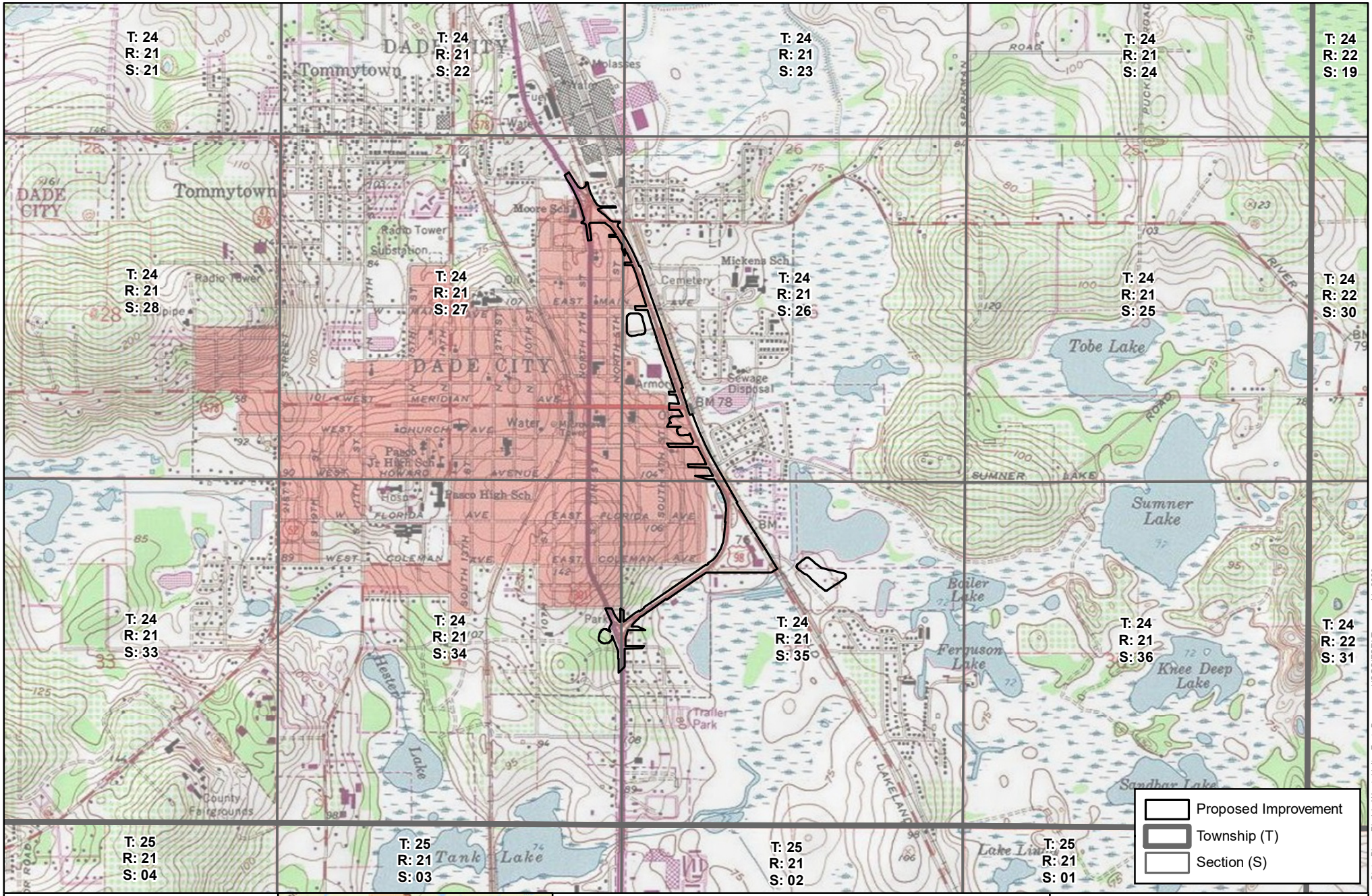

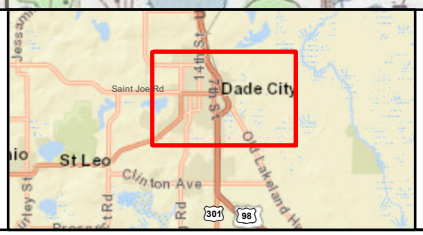

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Figure 2
Project Quadrangle Map

0 1,000 2,000 Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: USGS/ESRI Topographic 2020

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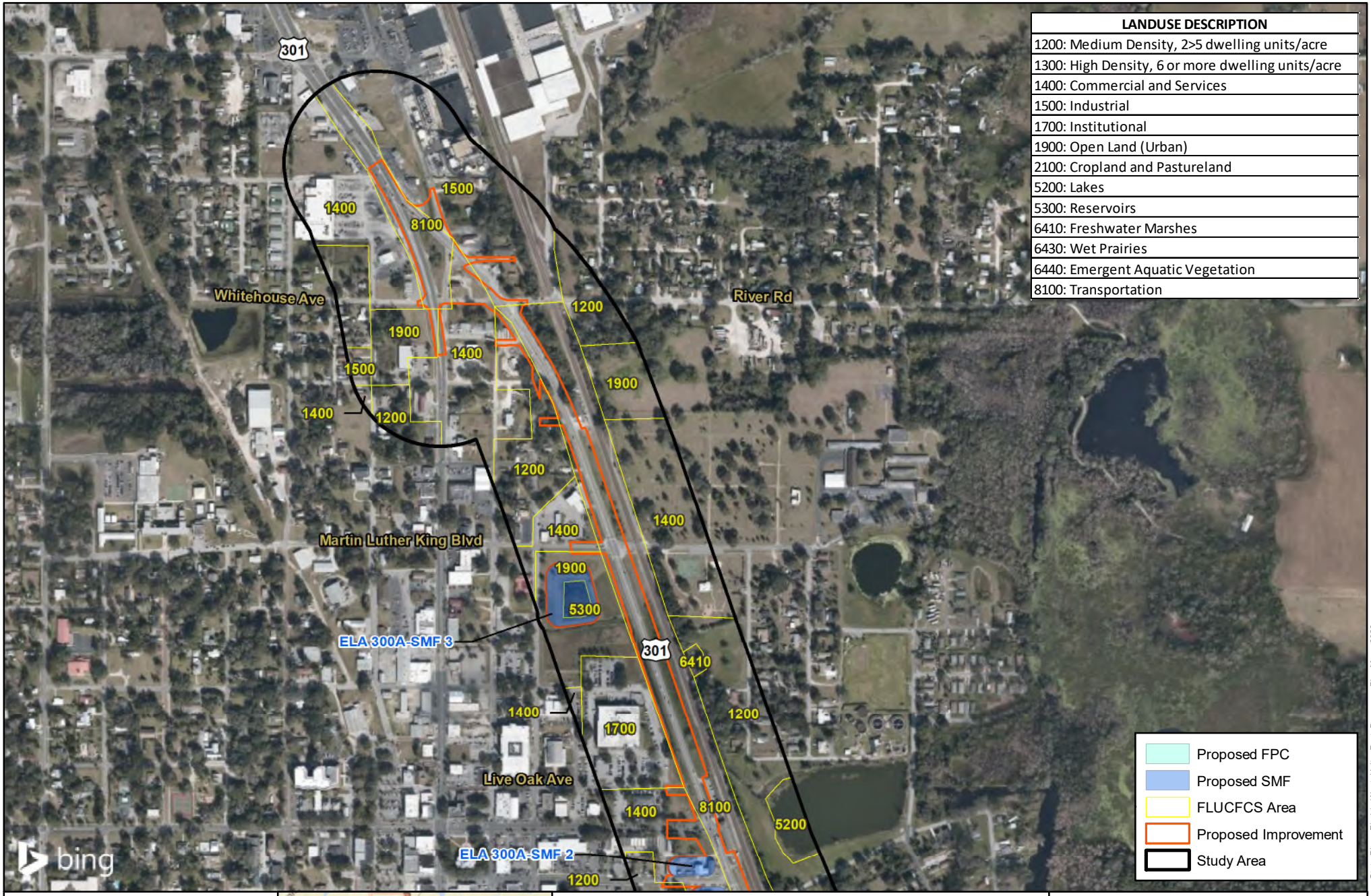
USGS, National Geographic, i-cubed. USA Topo Maps. March 2019. 1:24,000; generated by Atkins; using ArcMap. <http://services.arcgisonline.com/ArcGIS/rest/services/USA_Topo_Maps/MapServer> (19 July 2021)

Appendix B

Resource Maps:

Land Use Map, NWI Map, and Soils Map



LANDUSE DESCRIPTION
1200: Medium Density, 2>5 dwelling units/acre
1300: High Density, 6 or more dwelling units/acre
1400: Commercial and Services
1500: Industrial
1700: Institutional
1900: Open Land (Urban)
2100: Cropland and Pastureland
5200: Lakes
5300: Reservoirs
6410: Freshwater Marshes
6430: Wet Prairies
6440: Emergent Aquatic Vegetation
8100: Transportation

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

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Pasco County, Florida

Land Use: SWFWMD (Southwest Florida Water Management District) 2020

Figure 3
FLUCFCS Map

(Florida Land Use, Cover and Forms Classification System)

Page 1

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Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Land Use: SWFWMD (Southwest Florida Water Management District) 2020

Figure 3
FLUCFCS Map

(Florida Land Use, Cover and Forms Classification System)

Page 2

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Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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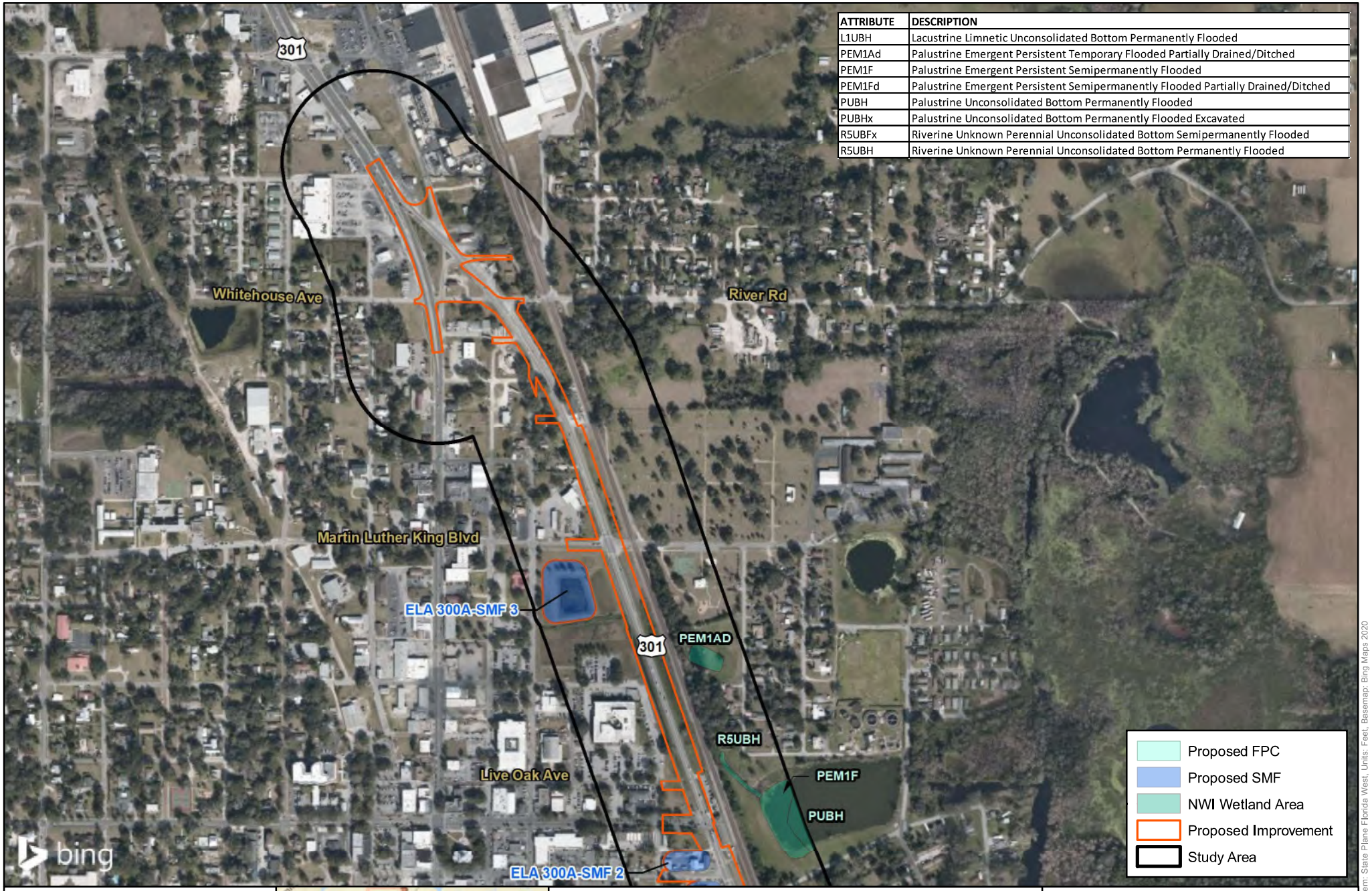
Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2020. 1:8,400; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (19 July 2021)



ATTRIBUTE	DESCRIPTION
L1UBH	Lacustrine Limnetic Unconsolidated Bottom Permanently Flooded
PEM1Ad	Palustrine Emergent Persistent Temporary Flooded Partially Drained/Ditched
PEM1F	Palustrine Emergent Persistent Semipermanently Flooded
PEM1Fd	Palustrine Emergent Persistent Semipermanently Flooded Partially Drained/Ditched
PUBH	Palustrine Unconsolidated Bottom Permanently Flooded
PUBHx	Palustrine Unconsolidated Bottom Permanently Flooded Excavated
R5UBFx	Riverine Unknown Perennial Unconsolidated Bottom Semipermanently Flooded
R5UBH	Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

NWI (National Wetlands Inventory): USFWS 2020

Figure 4
NWI Map
Page 1

0 350 700
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2020. 1:8,400; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (19 July 2021)

ATTRIBUTE	DESCRIPTION
L1UBH	Lacustrine Limnetic Unconsolidated Bottom Permanently Flooded
PEM1Ad	Palustrine Emergent Persistent Temporary Flooded Partially Drained/Ditched
PEM1F	Palustrine Emergent Persistent Semipermanently Flooded
PEM1Fd	Palustrine Emergent Persistent Semipermanently Flooded Partially Drained/Ditched
PUBH	Palustrine Unconsolidated Bottom Permanently Flooded
PUBHx	Palustrine Unconsolidated Bottom Permanently Flooded Excavated
R5UBFx	Riverine Unknown Perennial Unconsolidated Bottom Semipermanently Flooded
R5UBH	Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

NWI (National Wetlands Inventory): USFWS 2020

Figure 4
NWI Map
Page 2

0 350 700
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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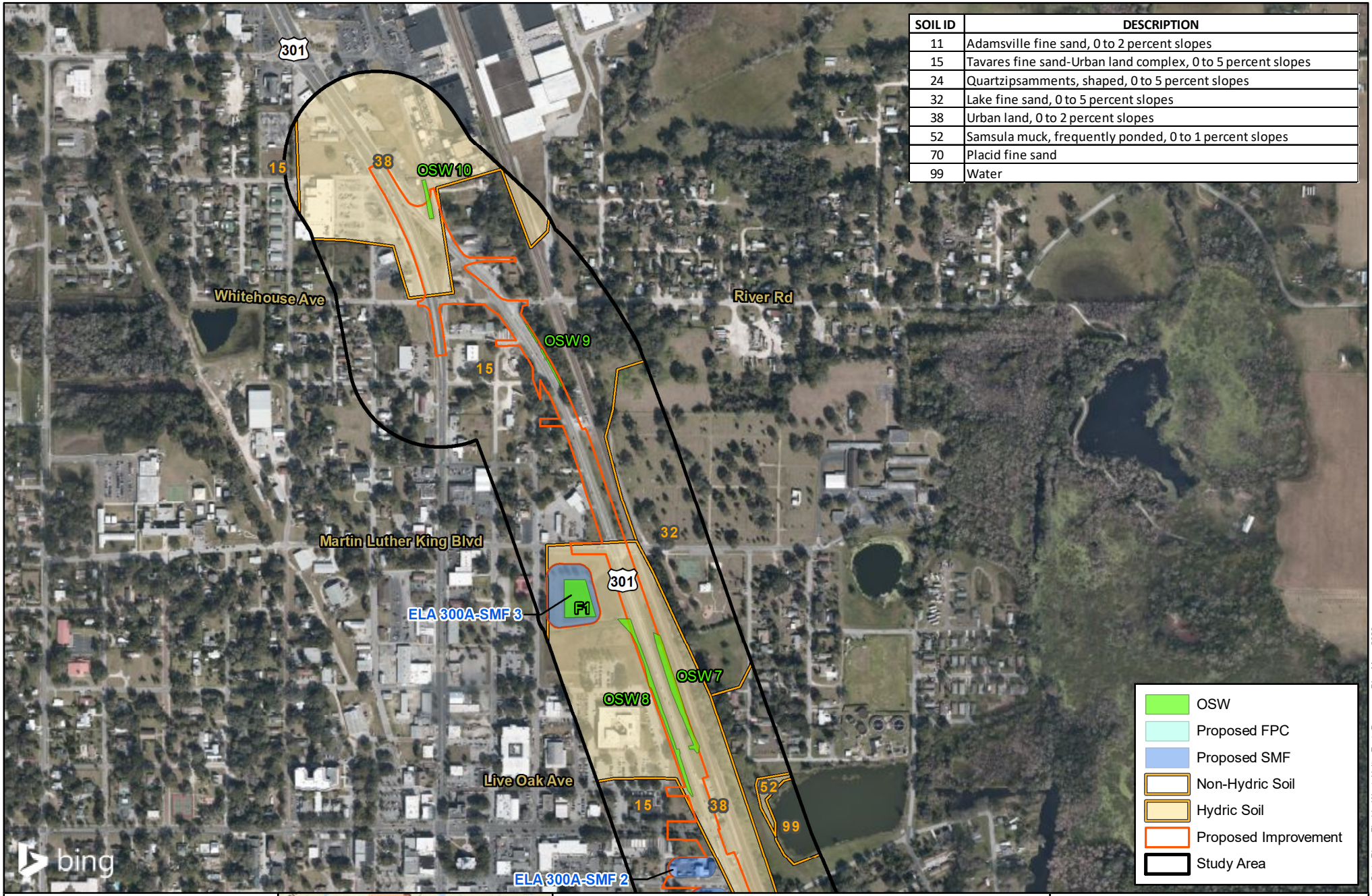
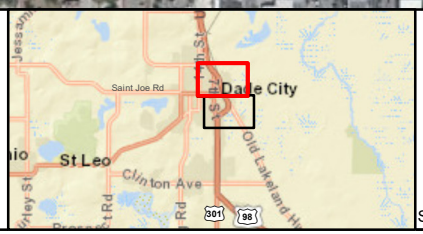


SOIL ID	DESCRIPTION
11	Adamsville fine sand, 0 to 2 percent slopes
15	Tavares fine sand-Urban land complex, 0 to 5 percent slopes
24	Quartzipsamments, shaped, 0 to 5 percent slopes
32	Lake fine sand, 0 to 5 percent slopes
38	Urban land, 0 to 2 percent slopes
52	Samsula muck, frequently ponded, 0 to 1 percent slopes
70	Placid fine sand
99	Water



US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Soils: NRCS (Natural Resources Conservation Service) 2020

Figure 5
NRCS Soils Map
Page 1

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Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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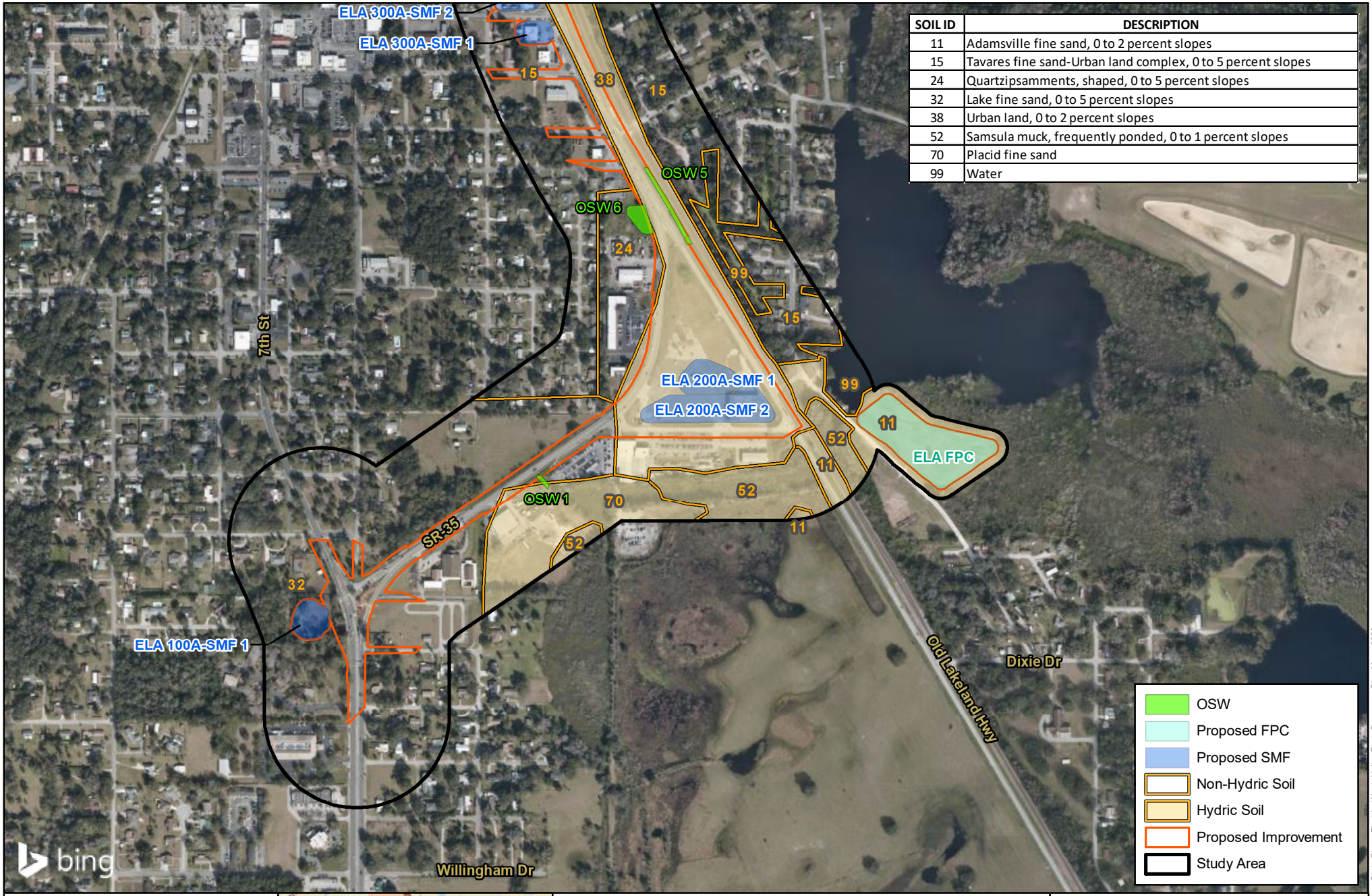
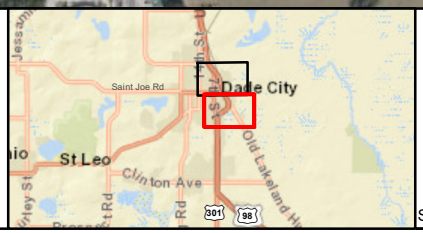


SOIL ID	DESCRIPTION
11	Adamsville fine sand, 0 to 2 percent slopes
15	Tavares fine sand-Urban land complex, 0 to 5 percent slopes
24	Quartzipsamments, shaped, 0 to 5 percent slopes
32	Lake fine sand, 0 to 5 percent slopes
38	Urban land, 0 to 2 percent slopes
52	Samsula muck, frequently ponded, 0 to 1 percent slopes
70	Placid fine sand
99	Water



US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Soils: NRCS (Natural Resources Conservation Service) 2020

Figure 5
NRCS Soils Map
Page 2

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Appendix C

OSW Location Map

FDOT

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

OSW delineations performed June 2021

Figure 6
OSW Location Map
Page 1 of 3

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Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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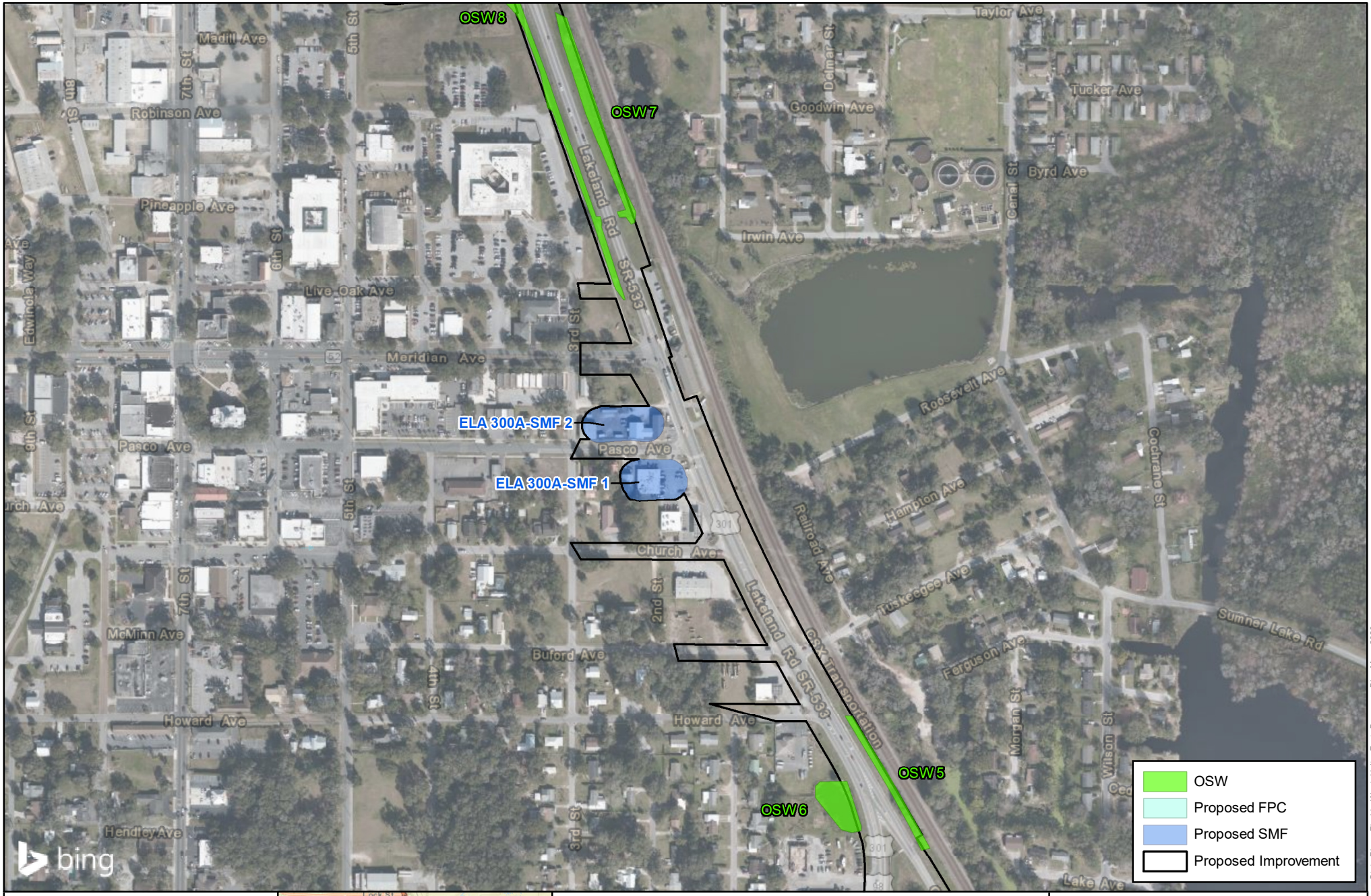

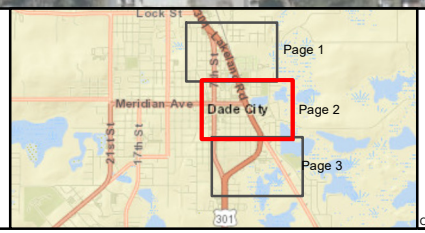

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

OSW delineations performed June 2021

Figure 6
OSW Location Map
Page 2 of 3

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Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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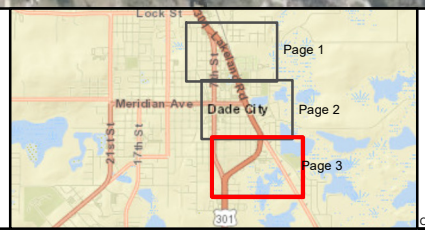

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

OSW delineations performed June 2021

Figure 6
OSW Location Map
Page 3 of 3

0 200 400
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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WHIT6392 7/29/2021

Appendix D

Observed Species Map

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Figure 7
Observed Species Map
Page 1 of 2

0 200 400
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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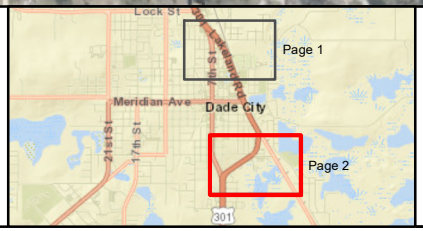

US 98 Bypass Design Change and Right of Way Re-evaluation

US 98 from US 301 South to US 301 North (US 98 Bypass)

WPIS: 256423-3

Pasco County, Florida

Figure 7
Observed Species Map
Page 2 of 2

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Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2020

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WHIT6392 7/29/2021

Appendix E

Photographs of OSWs

OSW 1: photo facing west

OSW 1: photo facing south

OSW 5: photo facing northeast

OSW 6: photo facing north

OSW 7: photo facing southeast

OSW 8: photo facing south

OSW 8: photo facing south

OSW 9: photo facing north

OSW 10: photo facing north

ELA 300A-SMF3/F1: photo facing east

ELA 300A-SMF3/F1: photo facing southeast

Appendix F

USFWS Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or "approval" from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11" x 17" or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A <u>LIVE</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A <u>DEAD</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.

2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.

3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).

2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.

3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

Appendix G

USFWS Effect Determination Keys

United States Department of the Interior
U. S. FISH AND WILDLIFE SERVICE
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:
August 13, 2013

Colonel Alan M. Dodd, District Engineer
Department of the Army
Jacksonville District Corps of Engineers
P.O Box 4970
Jacksonville, Florida 32232-0019
(Attn: Mr. David S. Hobbie)

RE: Update Addendum to USFWS Concurrence Letter to U.S. Army Corps of Engineers Regarding Use of the Attached Eastern Indigo Snake Programmatic Effect Determination Key

Dear Colonel Dodd:

This letter is to amend the January 25, 2010, letter to the U.S. Army Corps of Engineers regarding the use of the attached eastern indigo snake programmatic effect determination key (key). It supersedes the update addendum issued January 5, 2012.

We have evaluated the original programmatic concurrence and find it suitable and appropriate to extend its use to the remainder of Florida covered by the Panama City Ecological Services Office.

On Page 2

The following replaces the last paragraph above the signatures:

"Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to Annie Dziergowski (North Florida ESO) at 904-731-3089, Harold Mitchell (Panama City ESO) at 850-769-0552, or Victoria Foster (South Florida ESO) at 772-469-4269."

On Page 3

The following replaces both paragraphs under "Scope of the key":

"This key should be used only in the review of permit applications for effects determinations for the eastern indigo snake within the State of Florida, and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH)."

On Page 4

The following replaces the first paragraph under Conservation Measures:

"The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that

our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes.htm will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake."

On Page 4 and Page 5 (Couplet D)

The following replaces D. under Conservation Measures:

D. The project will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or less than 25 active and inactive gopher tortoise burrows.....*go to* E

The project will impact more than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2].....*"may affect"*

On Page 5

The following replaces footnote #3:

"[3]If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a FWC 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 ."

Thank you for making these amendments concerning the Eastern Indigo Snake Key. If you have any questions, please contact Jodie Smithem of my staff at the address on the letterhead, by email at jodie_smithem@fws.gov, or by calling (904)731-3134.

Sincerely,

Dawn Jennings
Acting Field Supervisor

cc:
Panama City Ecological Services Field Office, Panama City, FL
South Florida Ecological Services Field Office, Vero Beach, FL

United States Department of the Interior

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

January 25, 2010

David S. Hobbie
Chief, Regulatory Division
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 41420-2009-FA-0642
Service Consultation Code: 41420-2009-I-0467
41910-2010-I-0045
Subject: North and South Florida Ecological Services Field Offices Programmatic Concurrence for Use of Original Eastern Indigo Snake Key(s) Until Further Notice

Dear Mr. Hobbie:

The U.S. Fish and Wildlife Service's (Service) South and North Florida Ecological Services Field Offices (FO), through consultation with the U.S. Army Corps of Engineers Jacksonville District (Corps), propose revision to both Programmatic concurrence letters/keys for the federally threatened Eastern Indigo Snake (*Drymarchon corais couperi*), (indigo snake), and now provide one key for both FO's. The original programmatic key was issued by the South Florida FO on November 9, 2007. The North Florida FO issued a revised version of the original key on September 18, 2008. Both keys were similar in content, but reflected differences in geographic work areas between the two Field Offices. The enclosed key satisfies each office's responsibilities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*).

Footnote number 3 in the original keys indicated "A member of the excavation team should be authorized for Incidental Take during excavation through either a section 10(a)(1)(A) permit issued by the Service or an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission (FWC)." We have removed this reference to a Service issued Section 10(a)(1)(A) permit, as one is not necessary for this activity. We also referenced the FWC's revised April 2009 Gopher Tortoise Permitting Guidelines with a link to their website for updated excavation guidance, and have provided a website link to our Standard Protection Measures. All other conditions and criteria apply.

We believe the implementation of the attached key achieves our mutual goal for all users to make consistent effect determinations regarding this species. The use of this key for review of projects

located in all referenced counties in our respective geographic work areas leads the Service to concur with the Corps' determination of "may affect, not likely to adversely affect" (MANLAA) for the Eastern indigo snake. The biological rationale for the determinations is contained within the referenced documents and is submitted in accordance with section 7 of the Act.

Should circumstances change or new information become available regarding the eastern indigo snake or implementation of the key, the determinations may be reconsidered as deemed necessary.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to either Allen Webb (Vero Beach) at 772-562-3909, extension 246, or Jay Herrington (Jacksonville) at 904-731-3326.

Sincerely,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

David L. Hankla
Field Supervisor
North Florida Ecological Services Office

Enclosure

cc: electronic only
FWC, Tallahassee, Florida (Dr. Elsa Haubold)
Service, Jacksonville, Florida (Jay Herrington)
Service, Vero Beach, Florida (Sandra Sneckenberger)

Eastern Indigo Snake Programmatic Effect Determination Key

Scope of the key

This key should be used only in the review of permit applications for effects determinations within the North and South Florida Ecological Services Field Offices Geographic Areas of Responsibility (GAR), and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH). Counties within the **North** Florida 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.

Counties in the **South** Florida GAR include Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, St. Lucie.

Habitat

Over most of its range, the eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats (Service 1999). Eastern indigo snakes appear to need a mosaic of habitats to complete their life cycle. Wherever the eastern indigo snake occurs in xeric habitats, it is closely associated with the gopher tortoise *(Gopherus polyphemus),* the burrows of which provide shelter from winter cold and summer desiccation (Speake et al. 1978; Layne and Steiner 1996). Interspersion of tortoise-inhabited uplands and wetlands improves habitat quality for this species (Landers and Speake 1980; Auffenberg and Franz 1982).

In south Florida, agricultural sites, such as sugar cane fields, created in former wetland areas are occupied by eastern indigo snakes (Enge pers. comm. 2007). Formerly, indigo snakes would have only occupied higher elevation sites within the wetlands. The introduction of agriculture and its associated canal systems has resulted in an increase in rodents and other species of snakes that are prey for eastern indigo snakes. The result is that indigos occur at higher densities in these areas than they did historically.

Even though thermal stress may not be a limiting factor throughout the year in south Florida, indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigos 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 (Service 2006). 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. In extreme south Florida (the Everglades and Florida Keys), indigo snakes are found in tropical

hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats (Steiner et al. 1983). It is suspected that they prefer hammocks and pine forests, because most observations occur in these habitats disproportionately to their presence in the landscape (Steiner et al. 1983). Hammocks may be important breeding areas as juveniles are typically found there. The eastern indigo snake is a snake-eater so the presence of other snake species may be a good indicator of habitat quality.

Conservation Measures

The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2004) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing an Eastern Indigo Snake Effect Determination Key, similar in utility to the West Indian Manatee Effect Determination Key and the Wood Stork Effect Determination Keys presently being utilized by the Corps. If the use of this key results in a Corps' determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination and no additional correspondence will be necessary[1]. This key is subject to revisitation as the Corps and Service deem necessary.

A. Project is not located in open water or salt marsh.....*go to* B

Project is located solely in open water or salt marsh.....*"no effect"*

B. Permit will be conditioned for use of the Service's *Standard Protection Measures For The Eastern Indigo Snake* during site preparation and project construction.....*go to* C

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[2] .....*"may affect"*

C. There are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*go to* D

There are no gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*"NLAA"*

D. The project will impact less than 25 acres of xeric habitat supporting less than 25 active and inactive gopher tortoise burrows.....*go to* E

The project will impact more than 25 acres of xeric habitat or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2]..... *"may affect"*

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be evacuated prior to site manipulation in the vicinity of the burrow[3]. If an 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 indigo snake, no work will commence until the snake has vacated the vicinity of proposed work..... *"NLAA"*

Permit will not be conditioned as outlined above and consultation with the Service is requested[2] ..... *"may affect"*

---

[1]With an outcome of "no effect" or "NLAA" as outlined in this key, the requirements of section 7 of the Act are fulfilled for the eastern indigo snake and no further action is required.

[2]Consultation may be concluded informally or formally depending on project impacts.

[3] If burrow excavation is utilized, it should be performed by experienced personnel. The method used should minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the Florida Fish and Wildlife Conservation Commission's revised April 2009 Gopher Tortoise Permitting Guidelines located at **http://myfwc.com/License/Permits_ProtectedWildlife.htm#gophertortoise**. A member of the excavation team should be authorized for Incidental Take during excavation through an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission.

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 must be closely followed 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 short-hydroperiod 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……go to B

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]…….....*NLAA*[4]

Project impacts to SFH are greater than or equal to 0.5 acre..……..go 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…….....NLAA[4]

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 CFA ……..….go 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 *Wood Stork Foraging Habitat Assessment Procedure*[6] for guidance), is not contrary to the Service's *Habitat Management Guidelines For The Wood Stork In The Southeast Region* and in accordance with the CWA section 404(b)(1) guidelines……*NLAA*[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.

[6]This 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.

Literature Cited

Kahl, M.P., Jr. 1964. Food ecology of the wood stork (*Mycteria americana*) in Florida. Ecological Monographs 34:97-117.

Ogden, J.C. 1991. Nesting by wood storks in natural, altered, and artificial wetlands in central and northern Florida. Colonial Waterbirds 14:39-45.

Rodgers, J.A. Jr., A.S. Wenner, and S.T. Schwikert. 1987. Population dynamics of wood storks in northern and central Florida, USA. Colonial Waterbirds 10:151-156.

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U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Fish and Wildlife Service; Atlanta, Georgia. Available from: http://verobeach.fws.gov/Programs/Recovery/vbms5.html.