Natural Resources Evaluation

State Road 869 / SW 10th Street Connector

Project Development and Environment (PD&E) Study

SW 10th Street from Florida's Turnpike / Sawgrass Expressway to I-95 (SR 869/Sawgrass Expressway MP 21.077 to MP 21.835 and SW 10th Street MP 0.00 to 1.427)

ETDM No.: 14291 / FAP No.: TBD

Financial Project ID No. 439891-1-22-02

Broward County, Florida

Prepared for:
FDOT District Four
3400 W. Commercial Blvd.
Ft. Lauderdale, FL 33309

September 2018

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

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September 2018

Executive Summary

In accordance with Presidential Executive Order 11990, Federal Highway Administration (FHWA) Technical Advisory T6640.8A, Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205) and the Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Manual, Part 2, Chapters 9 (June 14, 2017) and 16 (June 14, 2017), a Wetlands Evaluation and Protected Species and Habitat Assessment were conducted for the proposed widening of SW 10th Street. The project is in the City of Deerfield Beach, Broward County, Florida. See ***Location Map - Figure 1.1.1***. The following Natural Resource Evaluation (NRE) summarizes the results of these assessments. The project from Powerline Road to Military Trail was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published December 9, 2016 (ETDM #14291 -https://etdmpub.fla-etat.org/est/). The project from West of the Florida's Turnpike to Powerline Road was screened through ETDM EST and the programming screen was published March 25, 2017 (ETDM #14280).

The purpose of this report is to identify wetlands and other surface waters within the project area, evaluate potential wetland and surface water impacts, identify measures to avoid and minimize impacts, and identify conceptual mitigation options, if required. The purpose of this report is also to determine if the proposed project will adversely affect protected species and their habitats.

The proposed "action" under consideration is the widening of SW 10th Street. Several alternatives were evaluated and are discussed in Section 5.0.

This action does not occur in federal marine waters and no Essential Fish Habitat (EFH) exists within the study area. Therefore, an EFH Assessment was not required and is not included within this report.

Wetlands

The *Wetlands Evaluation* identified eight surface waters within the SW 10th Street study area. The following table summarizes those surface waters that have permanent impacts by

alternative. The No Action Alternative would result in no impacts to wetlands or surface waters.

Alternative	WL/SW Number	FLUCFCS Code	FLUCFCS Description	Impact Type	Impact (acres)
North Alignment	SW 4	510	Streams or Waterways	Fill	0.05
	SW 6	534	Reservoirs less than 10 acres	Fill	1.38
	SW 7	510	Streams or Waterways	Fill	0.10
	SW 8	534	Reservoirs less than 10 acres	Fill	0.78
North Alignment Total Surface Water Impacts (acres)					**2.31**
There are no proposed wetland impacts.					

A stormwater pond screening analysis was conducted for 6 potential ponds. There are no wetland impacts from the proposed pond sites. Ponds 3 and 6 would impact existing reservoirs. The remaining ponds have no wetlands or surface water impacts.

Protected Species and Habitat

The *Protected Species and Habitat Assessment* evaluated the effects of the project to five (5) federally listed species and seven (7) state listed species that may occur within the SW 10th Street study area. Surveys for state listed gopher tortoise burrows, Florida burrowing owl, and plants were conducted in September 2017. No adverse effects are anticipated for the state listed species. The project is not located within any US Fish and Wildlife Service (USFWS) designated critical habitat. The following effects determinations were made for the federally listed species evaluated:

Species	Effect Determination
Florida bonneted bat	No effect
West Indian manatee	No effect
Everglade snail kite	May affect, not likely to adversely affect
Wood stork	May affect, not likely to adversely affect
Eastern indigo snake	May affect, not likely to adversely affect

The Florida's Turnpike Enterprise (FTE) is conducting a separate PD&E Study along the Sawgrass Expressway which is at the western end of the project study area. As part of the Sawgrass study, FTE conducted bald eagle monitoring from October 2017 through May 2018

to determine the status of an existing eagle nest (Nest ID BO003). Nest BO003 was no longer remaining; however, an alternate nest (Alternate Nest 1) was identified and is located approximately 458 feet north of the Sawgrass Expressway/SW 10th Street interchange. Construction for SW 10th Street improvements would occur within 330 feet from the eagle's nest. A teleconference was conducted with USFWS on September 5, 2018 and USFWS indicated that based on the schedule it was pre-mature to make any definitive recommendations or determinations on permitting requirements. The eagle nest survey/monitoring should be updated the season prior to the start of construction. Technical assistance and possible permitting would occur following the updated survey, when the current condition of the nest is known.

Mitigation

There are no wetland impacts or adverse impacts to listed species. Mitigation is not required for surface water impacts; thus, no mitigation is proposed.

Natural Resources Evaluation
For the SR 869 / SW 10th Street Connector PD&E Study

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1.0 Introduction

In accordance with Presidential Executive Order 11990, Federal Highway Administration (FHWA) Technical Advisory T6640.8A, Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205) and the Florida Department of Transportation (FDOT) *Project Development and Environment (PD&E) Manual*, Part 2, Chapters 9 (June 14, 2017) and 16 (June 14, 2017), a Wetlands Evaluation and Protected Species and Habitat Assessment were conducted for the proposed widening of SR 869/SW 10th Street. The project is located in the City of Deerfield Beach, Broward County, Florida. See ***Location Map - Figure 1.1.1***. The following Natural Resource Evaluation (NRE) summarizes the results of these assessments. The project was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published December 9, 2016 (ETDM #14291 -https://etdmpub.fla-etat.org/est/).

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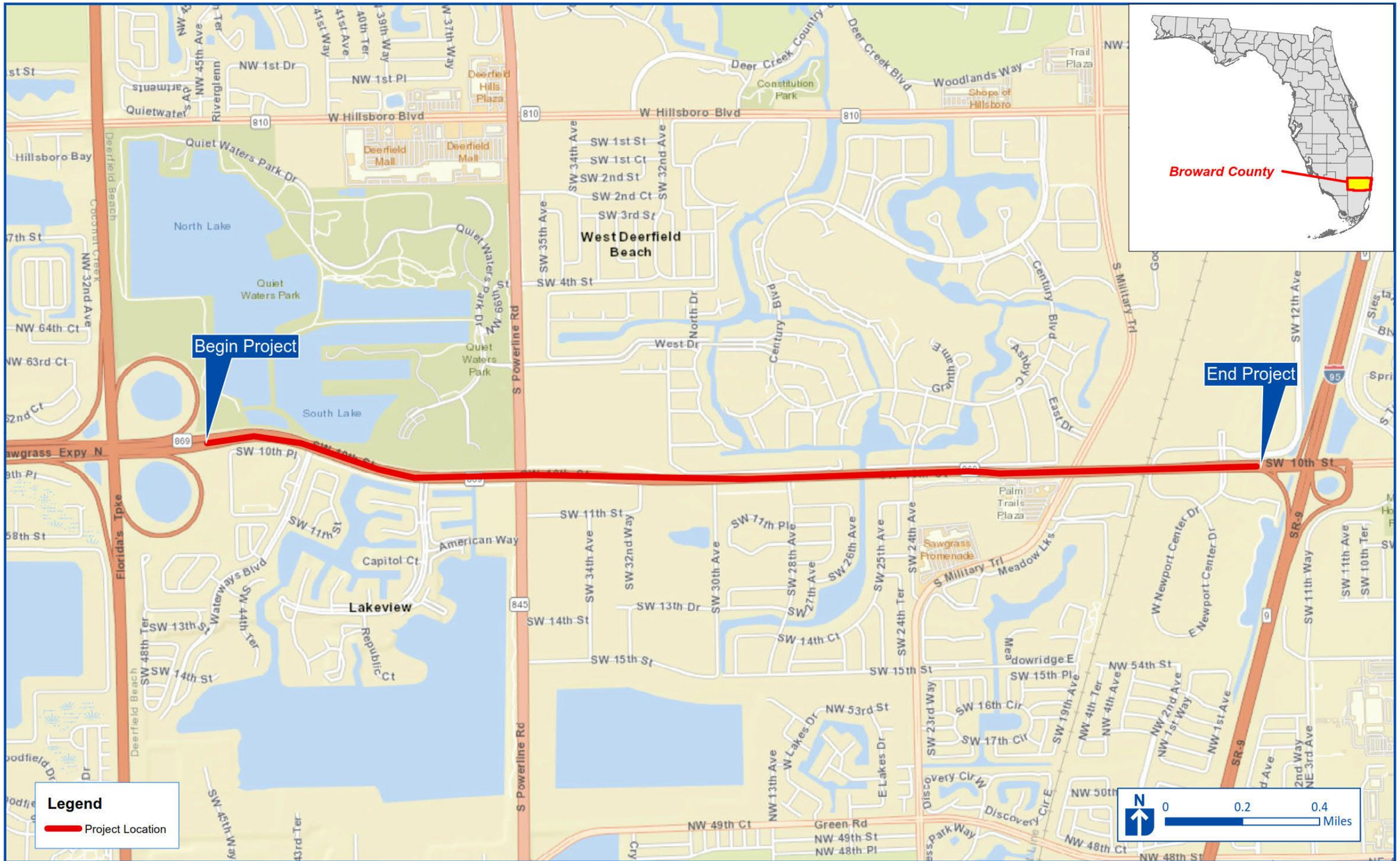


FDOT / SW 10th Street Connector	State Road 869 / SW 10th Street Connector PD&E Study from Florida's Turnpike / Sawgrass Expressway to I-95 Financial Project ID: 439891-1-22-02, ETDM No: 14291	Figure 1.1.1 Project Location Map	Page No. 1-2

2.0 Project Description

The FDOT is evaluating alternatives to improve SR 869 (SW 10th Street) from Sawgrass Expressway / Florida's Turnpike to west of I-95, a distance of approximately 3.0 miles. The project is located in Broward County, Florida and is contained within the municipality of Deerfield Beach. ***Figure 1.1.1*** shows the limits of the SW 10th Street Connector PD&E Study.

SW 10th Street currently consists of six lanes (three in each direction) from Florida's Turnpike to SR 845 (Powerline Road), four lanes (two in each direction) from Powerline Road to east of Military Trail, and five lanes (two westbound and three eastbound) from west of Military Trail to I-95. This segment of SW 10th Street is functionally classified as a Divided Urban Principal Arterial and has posted speed limits of 45 miles per hour from Florida's Turnpike to Military Trail, and 40 miles per hour from Military Trail to I-95. The access management classification from Florida's Turnpike to Powerline Road is Class 1. East of Powerline Road, the access management classification is Class 3.

SW 10th Street is an east-west Principal Arterial that connects three limited access facilities: Florida's Turnpike, Sawgrass Expressway, and I-95. SW 10th Street is part of the state's Strategic Intermodal System (SIS) and the National Highway System (NHS). SW 10th Street from Florida's Turnpike to I-95 is a missing link in the existing and planned regional express lanes system network. This study is proposing to add additional lanes in the corridor for the purpose of closing this gap and providing a continuous link in the managed lanes network that will be separate from the local SW 10th Street facility. In addition, SW 10th Street is designated as an evacuation route.

The proposed improvements are intended to reduce the amount of traffic on local SW 10th Street by allowing vehicles to bypass the area by utilizing the managed lane facility. The ability to provide relief for local traffic is a component of the improved connectivity between the three limited access facilities by providing dual systems (Local Access and Limited Access) within the SW 10th Street right-of-way. Because SW 10th Street is impacted by three major limited access facilities, local traffic relief is necessary before future improvements to the three limited access facilities are implemented. Improvements are planned for the interchange at the Sawgrass Expressway / Florida's Turnpike to the west and I-95 at SW

10th Street interchange to the east. Public involvement will be essential in this PD&E Study due to the residential developments and local businesses along SW 10th Street, as well as in the surrounding areas, as this segment is a missing link in the south Florida managed lanes network.

A Community Oversight Advisory Team (COAT) was formed by the Broward Metropolitan Planning Organization (MPO) and worked to obtain consensus on the future of the SW 10th Street corridor. Public involvement efforts are ongoing with the Broward MPO as a partner, continuing their efforts that began with the establishment of the COAT. Public involvement initiatives, including working directly with the COAT, as well as expanded and full representation from the City of Deerfield, City of Parkland, City of Coral Springs, the Broward MPO, the FDOT and members of the public, will be performed during the PD&E Study.

3.0 Purpose and Need

3.1 Purpose and Objectives

The purpose of this project is to increase capacity and eliminate various existing operational and safety deficiencies along SR 869/SW 10th Street between the Sawgrass Expressway and Military Trail while also providing improved connectivity of the regional transportation network.

3.2 Need for the Project

The primary need for this project is based on capacity/operational deficiencies for local traffic and regional connector traffic, system linkage and safety issues, with secondary considerations for the needs of modal interrelationships, transportation demand, social demands and economic development, and emergency response / evacuation for local traffic and the adjacent communities, as well as regional traffic. The primary and secondary needs for the project are discussed in further detail below.

3.2.1 Project Status

The SW 10th Street Connector project is in the Broward MPO jurisdiction. The Broward MPO Transportation Improvement Program (TIP) Fiscal Year 2018 – 2022 includes funding for the SW 10th Street Connector from Powerline Road to West of Military Trail Project for Preliminary Engineering and Right-of-Way. Construction funding is included in years beyond 2022. The Broward MPO 2035 Long Range Transportation Plan (LRTP) also includes the SW 10th Street Connector from Powerline Road to Military Trail widening project in the 2035 Cost Feasible Roadway Projects. The FDOT State Transportation Improvement Program (STIP) 2017 includes funding for Preliminary Engineering and Right-of-Way in years 2018 and 2019, respectively. Funding for a Design-Build method of delivery is included in years beyond 2021. The FDOT SIS Adopted Five Year Plan includes funding for the SW 10th Street Connector from Powerline Road to West of Military Trail Project for Preliminary Engineering and Right-of-Way. The Construction is included in the FDOT SIS Adopted Second Five Year Plan with funding shown in 2025. This funding is anticipated to be advanced into fiscal year 2023.

The TIP, STIP, and LRTP are consistent in respect to total funding and time frame. However, the TIP, STIP, and LRTP have different physical project limits than the proposed PD&E Study. The planning documents include SW 10th Street from Powerline Road to Military Trail whereas, this PD&E Study extends the limits along SW 10th Street from the Sawgrass Expressway / Florida's Turnpike to I-95. The PD&E study limits originally matched the planning documents; however, the limits were extended in order to provide independent utility and a more logical termini for the project.

3.2.2 System Linkage

SW 10th Street is part of the state's SIS and the NHS. The SIS is an intermodal network of transportation facilities that seamlessly flows from one mode to the next with the goal of providing the highest degree of mobility for people and goods traveling throughout Florida. The SIS is an integral piece of Florida's goal to enhance economic competitiveness and quality of life for its citizens and visitors. The NHS is a network of strategic highways within the United States, including the Interstate Highway System and other roads serving major airports, ports, rail or truck terminals, railway stations, pipeline terminals and other strategic transport facilities. Thus, SW 10th Street is an important facility in the transportation network.

SW 10th Street provides the opportunity for commuters and local residents to connect to three major limited access facilities: Florida's Turnpike, Sawgrass Expressway, and I-95. The ability to provide relief for local traffic is a component of the improved connectivity between the three limited access facilities by providing dual systems (Local Access and Limited Access) within the SR 10th Street right-of-way. Because SW 10th Street is impacted by three major limited access facilities, local traffic relief is necessary before future improvements to the three limited access facilities are implemented. These facilities are also on the regional freight network as identified in the March 2010 South Florida Regional Freight Plan (project #269). Florida's Turnpike provides limited access north-south connectivity from Miami-Dade County to Orlando and connects to I-75 northwest of Orlando. The Sawgrass Expressway provides limited access connectivity from the I-75/I-595 Interchange, to the Florida's Turnpike at the SW 10th Street Interchange. I-95 is the primary north-south interstate facility that links all major cities along the Atlantic Seaboard.

SW 10th Street from Florida's Turnpike to I-95 is a Principal Arterial facility serving local residential communities, commercial properties and commuters alike. This section of roadway has also been considered the missing link in the existing and planned regional express lane network. This project seeks to improve this linkage by reducing congestion and completing the express lane network while reducing operational and safety deficiencies for the local users. The project will consider implementing limited access and express lanes along SW 10th Street in the project area.

3.2.3 Capacity

A need exists to improve local and regional traffic operations along SW 10th Street corridor. Traffic volumes along SW 10th Street between the Sawgrass Expressway / Florida's Turnpike and I-95 have consistently increased over the past 15 years and are expected to continue to grow over the next 20 years. During the five-year period from 2010 to 2015, Average Annual Daily Traffic (AADT) on SW 10th Street was as follows:

- Sawgrass Expressway / Florida's Turnpike to Powerline Road experienced an AADT of 51,333 vehicles per day (vpd) with a high of 56,500 vpd.
- Powerline Road to Military Trail increased from 40,500 vpd to a high of 46,500 vpd.
- Military Trail to I-95 experienced an AADT ranging from 49,500 vpd to 54,500 vpd.

The existing traffic on SW 10th Street between Powerline Road and I-95 exceeds the current capacity of a four-lane arterial roadway which can accommodate approximately 40,000 vpd. The capacity of SW 10th Street from Sawgrass Expressway / Florida's Turnpike to Powerline Road is 60,000 vpd. With the anticipated growth and the combination of local traffic and those travelers going from one limited access facility to the next, this segment is expected to reach capacity by 2040 or sooner.

Additionally, the following intersections fall below acceptable Level of Service (LOS D or better) targets during at least one peak hour in the existing conditions:

- SW 10th Street at Military Trail operates at LOS F in both the AM and PM peak.
- SW 10th Street at Newport Center Drive operates at LOS B in AM and LOS F in PM.

These conditions are existing concerns and are projected to worsen in the future if no action is taken. Even with an assumed 10 percent travel time savings or reduction in delay from possible traffic signal optimization, the peak hour operations are not anticipated to operate at an acceptable LOS (LOS D or better).

3.2.4 Transportation Demand

The SW 10th Street Connector PD&E Study is currently included in the Broward MPO LRTP and TIP. The SW 10th Street Connector PD&E Study will be advanced to move forward in coordination with the I-95 from SW 10th Street to Hillsboro Boulevard PD&E Study (FM# 436964-1) to the east as well as the Sawgrass Expressway widening and interchange PD&E Study (FM# 435763-1) to the west. Additionally, the 2045 SIS Multi-Modal Unfunded Needs Plan listed adding capacity to this segment of SW 10th Street as a needed improvement.

3.2.5 Legislation

At this time, there is no legislation mandating the implementation of this project.

3.2.6 Social Demand and Economic Development

Social and economic demands on the SW 10th Street corridor will continue to increase as population and employment increase in Broward County, and the greater south Florida region. The University of Florida Bureau of Economic and Business Research (BEBR) high end estimate predicts Broward County's population will grow to 2.3 million by 2040, an increase of 34 percent from the year 2011. This regional population growth will increase travel demands on the SW 10th Street corridor. Due to the built-out nature of the local area surrounding the SW 10th Street corridor, the growth will occur in the region as a whole, necessitating connections between the limited access facilities.

Multiple residential developments and businesses are located along the SW 10th Street corridor; therefore, this project will consider livability issues as well as vehicular movement. Capacity improvements to SW 10th Street have previously not advanced to design / construction since MPO and FDOT priorities did not adequately address local concerns during previous assessments of this corridor. However, the Broward MPO Board directed its staff to reach out to communities along the corridor and initiate a consensus building effort to evaluate the best way to accommodate the long-term traffic demands as well as the local

community considerations. As part of this consensus-building effort, a group of concerned individuals, known as the Community Oversight Advisory Team (COAT), was assembled to represent the communities along the corridor, as well as throughout the greater north Broward County area, to identify the long-term opportunities and vision for the corridor. The COAT developed recommendations for the corridor to be considered by the Department in evaluating the improvements in a PD&E Study.

3.2.7 Modal Interrelationships

Sidewalks are located along SW 10th Street's eastbound and westbound lanes from Military Trail to I-95; however, from Waterways Boulevard to Military Trail, sidewalks are only present in the eastbound direction. The City of Deerfield Beach Comprehensive Plan identifies SW 10th Street as a Community Bus Route, although no local bus route is identified in the Broward 2040 LRTP. Bicycle facilities are not designated along SW 10th Street; however, existing five-foot paved shoulders, which serve as undesignated bicycle lanes, are present in both directions. The Broward MPO assigned a LOS F to the bicycle, pedestrian, and transit services along SW 10th Street. The proposed improvements will provide future accommodations for bicyclist and pedestrians, and transit modes.

3.2.8 Traffic Safety

A need exists to resolve safety issues within the project limits along SR-869/SW 10th Street. From 2009 to 2014 there were 269 crashes in this corridor. Of these, 163 were rear-end crashes which are common in heavily congested facilities. This project seeks to reduce congestion thus mitigating existing crash patterns, and to enhance safety through the addition of improved bike / pedestrian features along the local system.

The project is anticipated to improve emergency evacuation and response capabilities by enhancing capacity and connectivity and to major arterials designated on the state evacuation route. SW 10th Street, Florida's Turnpike, Sawgrass Expressway and I-95 serve as part of the emergency evacuation route network designated by the Florida Division of Emergency Management and by Broward County. SW 10th Street moves traffic from the east to I-95, Florida's Turnpike, and the Sawgrass Expressway. Improved travel times would also result in improved emergency response for local residents and for transport to regional

facilities. Broward County Fire and Rescue Station 66 is located at 590 S. Powerline Road, approximately 0.3 miles to the north of the alignment.

3.2.9 Roadway Deficiencies

Currently, SW 10th Street provides FDOT standard width travel and turn lanes. However, as previously mentioned, sidewalk is limited to the south side of SW 10th Street from Waterway's Boulevard to Military Trail. Sidewalk is present along SW 10th Street eastbound and westbound from Military Trail to I-95. Bicycle facilities are not designated along SW 10th Street, although existing 5-foot paved shoulders, which serve as undesignated bicycle lanes, are present in both directions. No other known roadway deficiencies along the corridor.

4.0 Existing Conditions

4.1 Typical Sections

SW 10th Street is a four-lane to six-lane divided, urban principal arterial and is a designated SIS facility. Sidewalk is present on at least one-side of the road for the entire corridor. Bicycle lanes are sporatic along the corridor. The existing SW 10th Street typical sections are shown in ***Appendix A***.

SW 10th Street from the end of the Sawgrass Expressway to Powerline Road (0.76 miles) consists of:

- Three 12-foot travel lanes in each direction;
- Five-foot sidewalk on the south side of SW 10th Street starting east of Waterways Boulevard;
- 28-foot wide raised median; and
- Right-of-way width of 250 feet.

SW 10th Street from Powerline Road to Quiet Waters Business Park Entrance Road (0.35 miles) consists of:

- Three 12-foot travel lanes in each direction;
- Five-foot paved bicycle lane in the eastbound direction;
- Five-foot sidewalk on both sides of SW 10th Street;
- 28-foot wide raised median; and
- Right-of-way width that varies from 264 feet to 316 feet.

SW 10th Street from Quiet Waters Business Park Entrance Road to Military Trail (1.08 miles) consists of:

- Two 12-foot travel lanes in each direction;
- Five-foot paved bicycle lane;
- Five-foot sidewalk on the south side of SW 10th Street;
- 16-foot wide raised median; and
- Right-of-way width that varies from 215 feet to 294 feet.

SW 10th Street from Military Trail to East Newport Center Drive (0.38 miles) consists of:

- Three 11-foot travel lanes in each direction;
- Three-to-four foot paved shoulder;
- Five-foot curb-line sidewalk on both sides of SW 10th Street;
- Variable width raised median (15 feet to 26 feet); and
- Right-of-way of approximately 250 feet.

5.0 Project Alternatives

5.1 No Action Alternative

The No Action Alternative, as its name implies, retains the existing roadway characteristics. Under this scenario, the existing SW 10th Street corridor would not be improved and conditions would continue to deteriorate. The No Action Alternative has certain advantages and disadvantages.

The advantages of the No Action Alternative include:

- No expenditure of public funds;
- No disruption or temporary impacts (air, noise, vibration, travel patterns) due to construction activities; and
- No right-of-way acquisitions.

The disadvantages of the No Action Alternative include:

- Does not meet the projects purpose and need;
- Increased vehicular congestion and delay, which leads to increased travel costs;
- Increased safety concerns;
- Increased emergency response and evacuation time; and
- Decreased air quality.

5.2 Build Alternatives

5.2.1 Typical Sections

This project proposes placing two roadway facilities within the SW 10th Street Corridor. One facility proposed is a four-lane managed lanes roadway to provide a limited access connection from the Florida's Turnpike / Sawgrass Interchange to I-95. The other facility is a four-lane, divided, local roadway with bicycle lanes and sidewalks. During the Tier 1 analysis, two alignments were evaluated: one alignment, the North Alignment Alternative, places the managed lane facility on the north side of the right-of-way with the local roadway lanes on the south side of the right-of-way; the other alignment, the Center Alignment Alternative, locates the managed lanes in the center of the right-of-way with the local lanes operating on either side of the managed lanes as a one-way frontage road system. Each alignment alternative remains, for the most part, within the existing right-of-way footprint with the

exception of small strips and slivers of right-of-way needed from the south side of the corridor. Each of the alignments consist of the following elements:

- Four 12-foot managed lanes, two in each direction separated by a median barrier wall with 8 to 12-foot inside and outside shoulders. This facility would be physically separated from the local lanes;
- A large portion of the managed lanes facility was envisioned to be a below-grade, or depressed, section of roadway with intermittent covers to provide landscape opportunities;
- Four 11-foot local travel lanes separated by a 15.5-foot median;
- Bicycle lanes and sidewalk;

Based on feedback received at numerous community meetings and the Alternatives Public Workshop held on April 24, 2018, the Northern Alignment Alternative will be carried through to the next level of analysis. Also, based on feedback, additional alternatives with reduced or minimized depressed sections and hybrid alternatives will be developed and evaluated in Tier 2. However, each new alternative will be based on the North Alignment concept with the managed lanes facility placed in the northern portion of the existing right-of-way and the local SW 10th Street lanes located in the southern portion of the corridor. Tier 2 Alternatives will be evaluated within the same right-of-way footprint but have differing profiles for the managed lanes facility. The local SW 10th Street profile will remain at-grade.

Proposed typical sections can be found in ***Appendix B*** and conceptual plans can be found in ***Appendix C***.

6.0 Wetland and Surface Water Evaluation

The study area for the NRE includes the existing SW 10th Street and a 200-foot buffer from the centerline of SW 10th Street for wetlands and surface waters and a 600-foot buffer from the centerline of SW 10th Street for soils. The potential stormwater pond sites are all outside of the 200-foot study area buffer, therefore the wetlands and surface waters found within the potential pond sites were evaluated separately and are discussed in Section 6.4.2.

6.1 Methodology

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

All wetlands and surface waters identified in the field were compiled onto digital aerial imagery of the project corridor. Acreage calculations of the existing area and area of impact were then calculated using ESRI™ ArcGIS Software. Formal wetland delineations including field flagging and approval by the South Florida Water Management District (SFWMD) or USACE have not been conducted, but will occur during the design and permitting phase of the project, as needed.

ETDM comments received from USACE, Florida Department of Environmental Protection (FDEP), US Environmental Protection Agency (USEPA), USFWS, and SFWMD focused on the potential for limited wetland impacts to occur during road widening construction. USACE

commented that a majority of the surrounding area is developed, paved, cleared and landscaped with minimal wetland habitat. USACE also commented that the proposed project would have a minimal effect on aquatic resources. FDEP had the same comments.

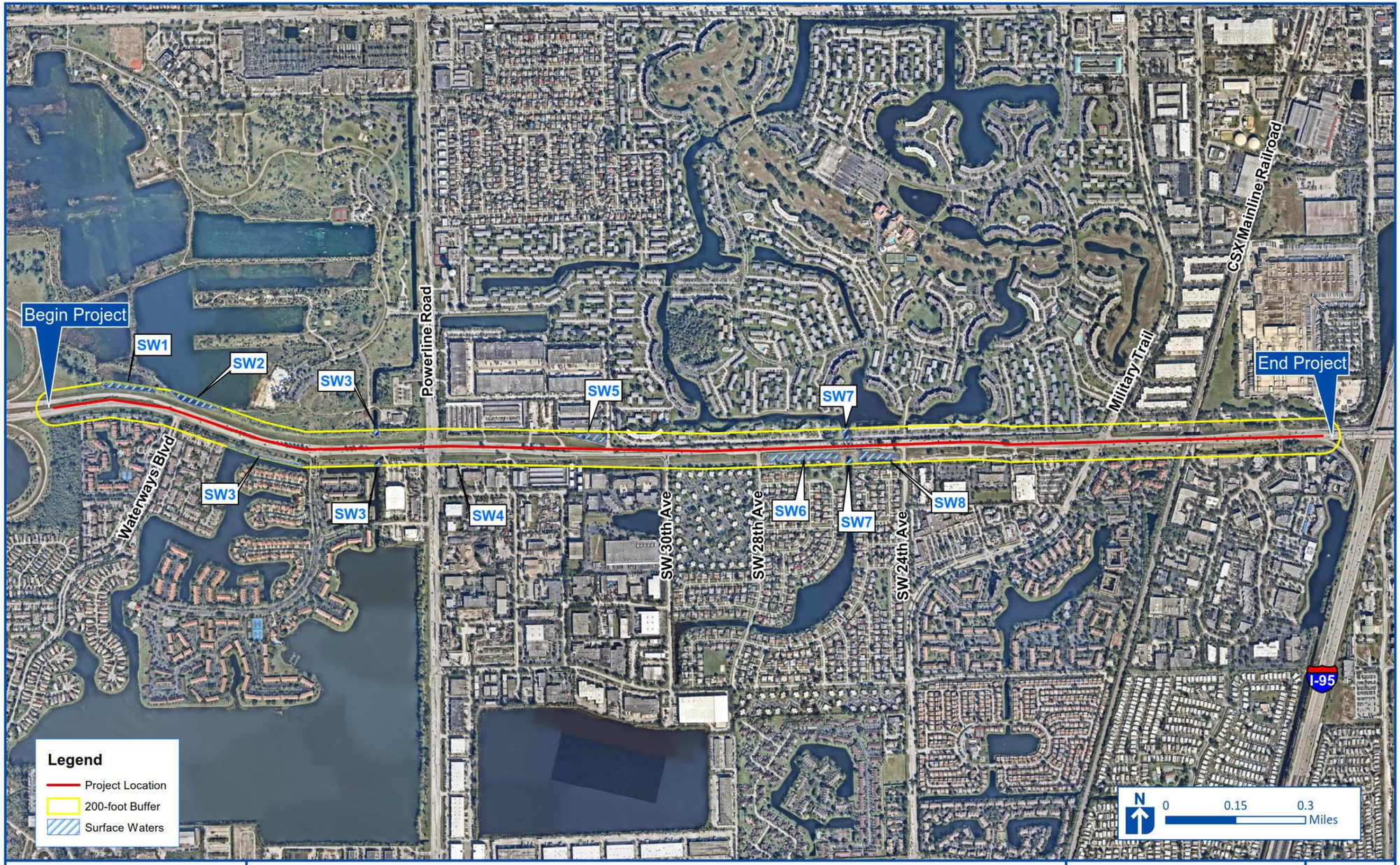
USEPA commented that the primary surface water concern for this project is the canal crossing at Canal 1. The USEPA commented further that because the project will be increasing impervious surfaces, additional stormwater runoff will be generated. Additional stormwater details were requested from the USEPA. Stormwater treatment details will be provided in the Pond Siting Report for this project.

USFWS commented that wetlands provide important habitat for fish and wildlife. USFWS commented further that wetlands may occur within and near the project site and should be avoided to the greatest extent practicable. If complete avoidance is not possible, mitigation should be provided which fully compensates for the loss of important resources.

SFWMD commented that there is an existing Surface Water Management Permit (79-00098-S) over the project area and will need to be modified. This permit was for the initial construction of SW 10th Street as a four-lane rural section with grass swales. This permit can be revised to include the additional lanes and additional stormwater management for SW 10th Street.

6.2 Wetland and Surface Waters

Baseline information characterizing the surface waters located within the study area including contiguity, vegetative structural diversity, edge relationships, wildlife habitat value, hydrologic functions, public use, and integrity is found in ***Table 6.1***. There are no wetlands within the 200-foot project study area. There are several surface waters (canals, swales, ponds, and ditches) in the study area. The surface water polygons were individually characterized based on their FLUCFCS type and are depicted in ***Figure 6.1.1 - Surface Waters Map***. Photographs of the surface waters within the study area are included in ***Appendix D***.



FDOT / SW 10th Street Connector	State Road 869 / SW 10th Street Connector PD&E Study from Florida's Turnpike / Sawgrass Expressway to I-95 Financial Project ID: 439891-1-22-02, ETDM No: 14291	Figure 6.1.1 Surface Waters Map	Page No. 6-3

Table 6.1: Surface Water Summary within the Study Area

Wetland ID	FLUCFCS Code	USFWS Code	Contiguity	Vegetative Structural Diversity	Edge Relationships	Wildlife Habitat Value	Hydrologic Function	Public Use	Integrity	Size (Acres)
SW1	524	Lacustrine Limnetic Unconsolidated Bottom – Permanently Flooded (L1UBH)	Isolated	Low structural diversity along banks of surface water (some *Typha spp.* is present)	Situated adjacent to grassed shoulders of road right-of-way and recreational trails within Quiet Waters Park	Provides opportunistic foraging habitat for wading birds	Provides some stormwater retention	Not applicable	Surface water appears to be naturally occurring, however Park maintenance could have impacted this surface water	0.75
SW2	523	Lacustrine Limnetic Unconsolidated Bottom – Permanently Flooded (L1UBH)	Isolated	Low structural diversity along banks of surface water (some *Typha spp.* is present)	Situated adjacent to grassed shoulders of road right-of-way and located within Quiet Waters Park	Provides some habitat for wildlife especially fish, herpetofauna, and foraging birds	Provides some stormwater retention	Possible fishing within the Park	Surface water has been historically manipulated for mining purposes	0.73*
SW3	522	Lacustrine Limnetic Unconsolidated Bottom – Permanently Flooded (L1UBH)	Connected via culvert to other roadside swales	No wetland vegetation present along lake shore	This surface water occurs within the study area in three separate places. Generally, surface water is adjacent to grass shoulders of road right-of-way, adjacent to residential buildings, and maintenance building of Quiet Waters Park	Minimal habitat value. Potential opportunistic foraging.	Provides some stormwater retention	Not applicable	It appears that this surface water has been artificially manipulated during construction of adjacent residential neighborhood. Surrounding development and regular mowing also affects the habitat composition and structure.	0.45*
SW4	510	Riverine Lower Perennial Unconsolidated Bottom – Temporarily Flooded (R2UBA)	Connected via culvert to other roadside swales	Low structural diversity, periodically mowed. Species include white-topped sedge, dollarweed, torpedo grass, and spikerush.	Situated between roads and paved parking lot.	Provides minimal habitat value due to isolation, intermittent hydrology, and adjacent land uses.	Primarily provides stormwater detention, treatment, and sedimentation abatement functions.	Not applicable	Surface water was designed to convey/treat stormwater runoff. Surrounding development and regular mowing also affects the habitat composition and structure.	0.06
SW5	534	Lacustrine Limnetic Unconsolidated Bottom – Temporarily Flooded (L1UBA)	Isolated	Low structural diversity, periodically mowed. Species include torpedo grass dollarweed, and flatsedge.	Situated between roads and paved parking lot.	Provides minimal habitat value due to isolation, intermittent hydrology, and adjacent land uses.	Primarily provides stormwater detention, treatment, and sedimentation abatement functions.	Not applicable	Surface water was designed to convey/treat stormwater runoff. Surrounding development and regular mowing also affects the habitat composition and structure.	0.48

Wetland ID	FLUCFCS Code	USFWS Code	Contiguity	Vegetative Structural Diversity	Edge Relationships	Wildlife Habitat Value	Hydrologic Function	Public Use	Integrity	Size (Acres)
SW6	534	Lacustrine Limnetic Unconsolidated Bottom – Temporarily Flooded (L1UBA)	Isolated	Low structural diversity, periodically mowed. Species include torpedo grass dollarweed, and flatsedge.	Situated between roads and residential neighborhood.	Provides minimal habitat value due to isolation, intermittent hydrology, and adjacent land uses.	Primarily provides stormwater detention, treatment, and sedimentation abatement functions.	Not applicable.	Surface water was designed to convey/treat stormwater runoff. Surrounding development and regular mowing also affects the habitat composition and structure.	1.38
SW7	510 (Canal 1)	Riverine Lower Perennial Unconsolidated Bottom – Permanently flooded (R2UBH)	Connected to various surface waters and canals throughout the area.	No wetland vegetation present along canal banks.	Situated between roads and residential neighborhoods.	Provides some habitat for wildlife especially fish and foraging birds	May provide some stormwater detention for the surrounding area.	Some recreational use may occur although very limited.	Area receives runoff from adjacent roads and neighborhoods.	0.32*
SW8	534	Lacustrine Limnetic Unconsolidated Bottom – Temporarily Flooded (L1UBA)	Isolated	Low structural diversity, periodically mowed. Species include torpedo grass dollarweed, and flatsedge.	Situated between roads and residential neighborhood.	Provides minimal habitat value due to isolation, intermittent hydrology, and adjacent land uses.	Primarily provides stormwater detention, treatment, and sedimentation abatement functions.	Not applicable.	Surface water was designed to convey/treat stormwater runoff. Surrounding development and regular mowing also affects the habitat composition and structure.	0.05

Surface water extends outside of study area; therefore, acreage only includes area inside the 200-foot study area buffer.

6.3 Soils

Based on a review of the US Department of Agriculture (USDA)/Natural Resources and Conservation Service (NRCS) Soil Survey for Broward County, there are seven (7) soil types within 600 feet of the proposed improvements. In general, the soils found within this area are derived from sandy marine sediments with a variety of drainage characteristics. Per the *Hydric Soils of Florida Handbook*, Fourth Edition (Florida Association of Environmental Soil Scientists, 2007), Margate fine sand, Plantation muck, Pompano fine sand, and Sanibel muck are hydric soils. ***Table 6.2*** includes a summary of the mapped soils in the study area (see ***NRCS Soils Map - Figure 6.2.1***).

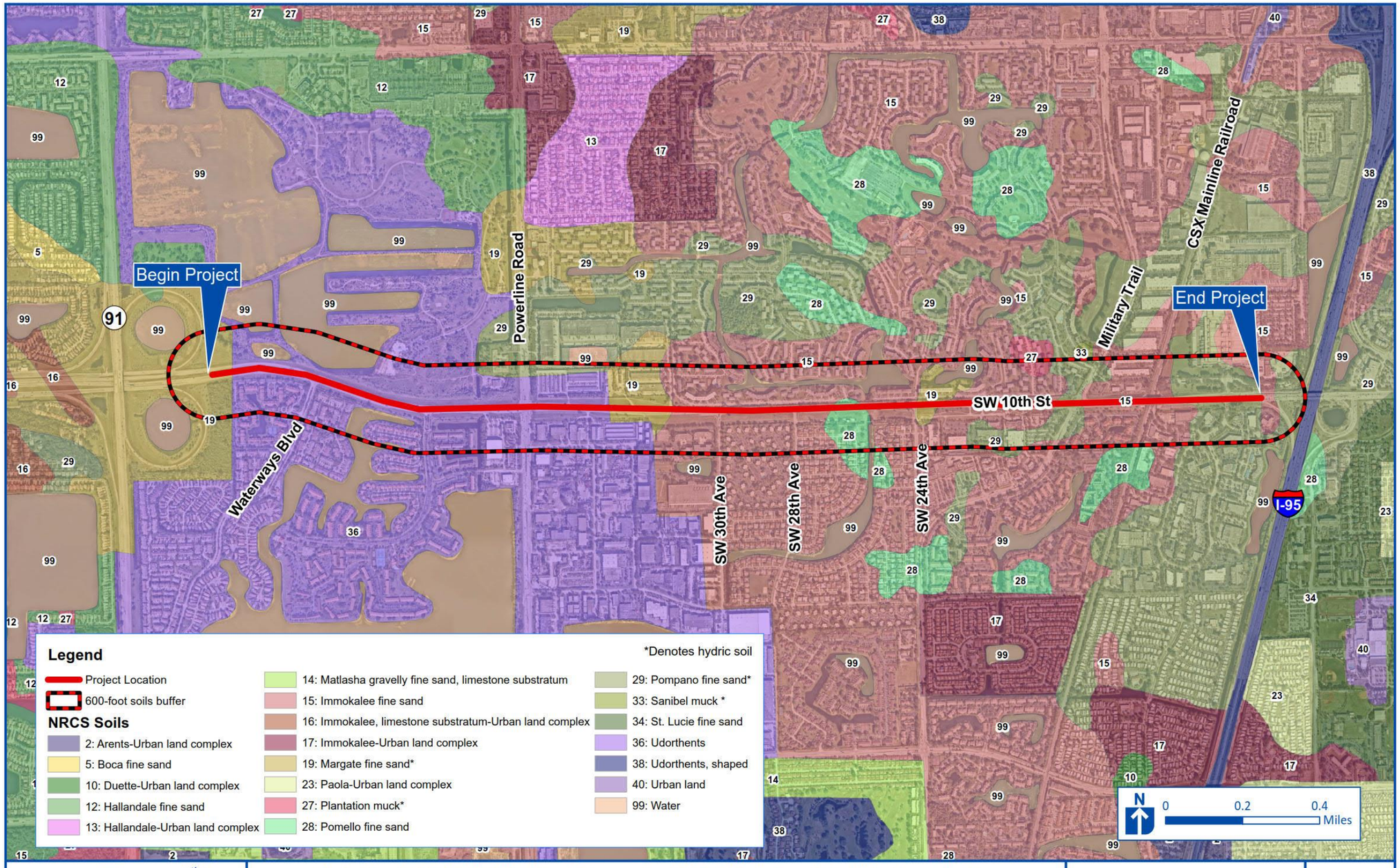
Table 6.2: Soils within 600 feet of Proposed Improvements

Mapped Unit ID	Name	Soils Texture	Drainage Class	Layer Depth	Bedrock Depth	Groundwater Depth
15	Immokalee fine sand	Fine sand	Poorly drained	Surface: 0-6” Subsurface: 6-40” Subsoil: 40-80”	>80 inches	10 to 40”
19	Margate fine sand	Fine sand, decomposed limestone fragments	Poorly drained	Surface: 0-8 in Subsurface: 8-16 “ Subsoil: 16-32”	>32 inches	20 to 40”
27	Plantation muck	Muck on surface over sandy mineral material	Very poorly drained	Muck: 0-10” Mineral surface: 10-16” Sand layer: 16-35”	>35 inches	10 “or less for 2-6 months and 20” or less for remainder of the year
28	Pomello fine sand	Fine sand	Moderately well drained	Surface: 0-5 in Subsurface: 5-33” Subsoil: 33-80”	>80 inches	24 to 40” for 2-4 months and 40-60” for remainder of the year
29	Pompano fine sand	Fine sand	Poorly drained	Surface: 0-7” Subsurface: 7-50 “ Subsoil: 50-80”	>80 inches	10” or less for 2-6 months and 30” or less for remainder of the year

Mapped Unit ID	Name	Soils Texture	Drainage Class	Layer Depth	Bedrock Depth	Groundwater Depth
33	Sanibel muck	Muck at surface then fine sand	Very poorly drained	Muck: 0-9" Mineral surface: 9-10" Sand: 10-60"	>60 inches	Less than 10" for 6-12 months
36	Udorthents	Shell rock, sand, loamy carbonatic material	Well drained to excessively drained	Homogeneous: 0- 57"	>57 inches	20-50"

6.4 Wetland and Surface Water Impacts

Within the SW 10th Street study area, impacts to surface waters are anticipated to occur based on the proposed build alternatives and are discussed in the following sections. No wetlands are within 200 feet of the proposed improvements, therefore there will be no impacts to wetlands for the build alternatives. There are also no wetland impacts from the proposed pond locations.



FDOT SW 10th Street Connector	State Road 869 / SW 10th Street Connector PD&E Study from Florida's Turnpike / Sawgrass Expressway to I-95 Financial Project ID: 439891-1-22-02, ETDM No: 14291	Figure 6.2.1 NRCS Soils Map	Page No. 6-8

6.4.1 Avoidance and Minimization

Avoidance and minimization of potential wetland and surface water involvement was incorporated throughout the development of the proposed build alternative alignments, where possible. As previously discussed, two alternatives are being considered to minimize impacts to surface waters, along with listed species, right-of-way, residential communities, and community features. Most of the surface waters impacted by the project are swales along the road right-of-way or canal crossings of the road (Canal 1); thus, complete avoidance is not feasible. Avoidance and minimization of surface water impacts will continue to be evaluated during the final design, permitting and construction phases of this project and the FDOT will incorporate all possible and practicable measures to avoid or minimize these impacts during design. The stormwater management system will be upgraded to accommodate the improvements and to meet the state water quality standards. Thus, the proposed project will minimize effects on water quality.

There are no wetland impacts associated with the proposed improvements. Impacts to surface waters and water quality because of construction will be avoided and minimized to the maximum extent practicable using Best Management Practices (BMPs) and erosion control methods found in the latest edition of FDOT's Standard Specifications for Road and Bridge Construction.

6.4.2 Direct Impacts

The approximate surface water permanent impacts were calculated based on the total footprint of the proposed build alternatives. There will be no permanent or temporary wetland impacts from the proposed construction along SW 10th Street.

Permanent impacts to surface waters are a result of fill. The permanent impacts to surface waters are shown in ***Table 6.3***. The No Action Alternative would result in no impacts to wetlands or surface waters.

Table 6.3: Summary of Permanent Surface Water Impacts

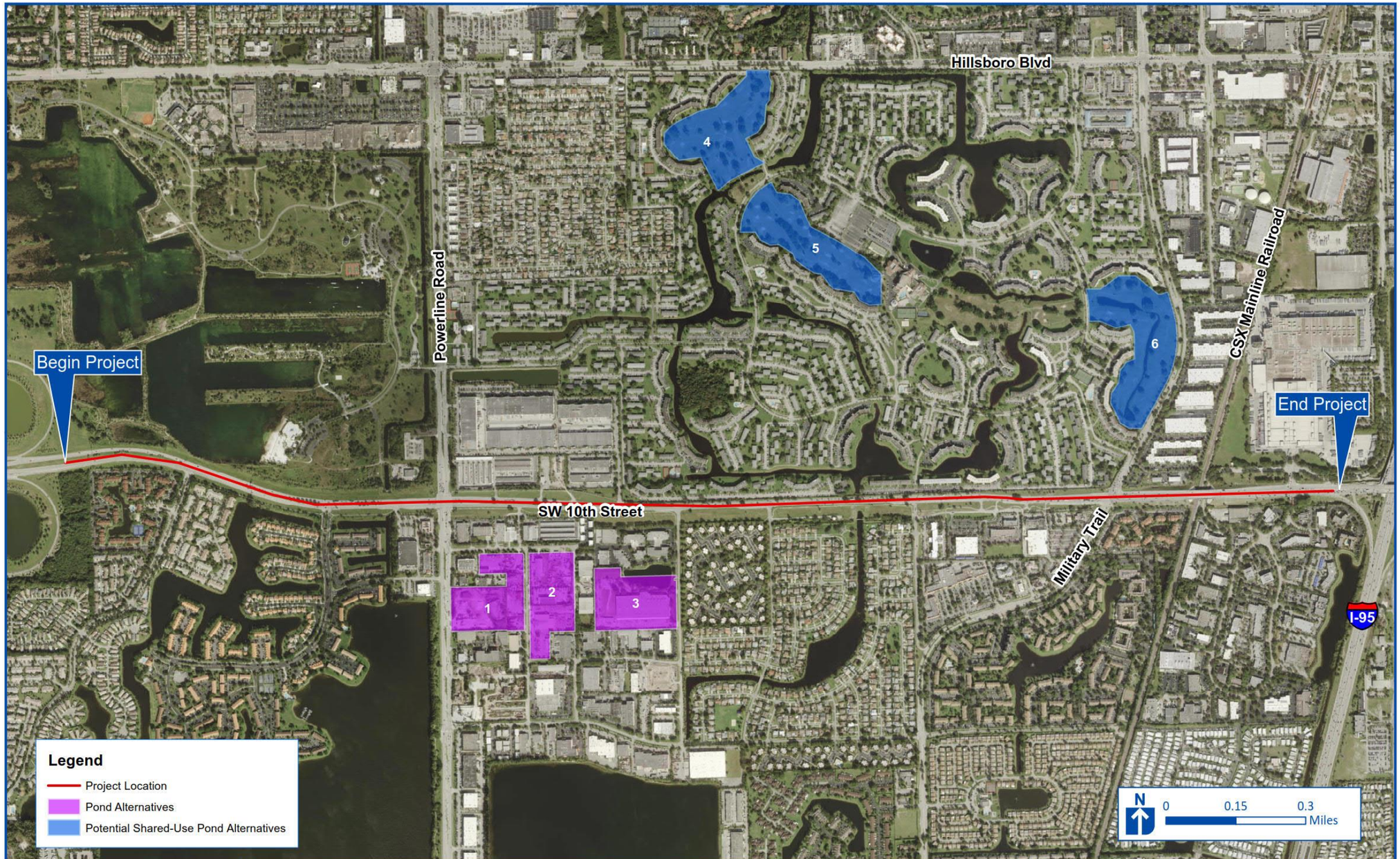
Alternative	WL/SW Number	FLUCFCS Code	FLUCFCS Description	Impact Type	Impact (acres)
North Alignment	SW 4	510	Streams or Waterways	Fill	0.05
	SW 6	534	Reservoirs less than 10 acres	Fill	1.38
	SW 7	510	Streams or Waterways	Fill	0.10
	SW 8	534	Reservoirs less than 10 acres	Fill	0.78
North Alignment Total Surface Water Impacts (acres)					**2.31**

A stormwater pond screening analysis was conducted and the results are included in ***Table 6.4***. The potential pond sites are included on **Figure 6.3.1**. No wetland impacts will occur from the potential stormwater pond locations; however, surface water impacts will occur from ponds 3 and 6.

Table 6.4: Summary of Stormwater Pond Screening

Pond Number	Owner(s)	Acreage	FLUCFCS Description	Vegetative Description	Wetland or Surface Water (SW) Impacts
1*	Hardrives Industries Inc., Dernik LLC., A&J Storage Inc., R&G 34 AVE B Properties LLC., 3400 SW 11 ST LLC., Man-Con Inc.	12.82	Industrial (FLUCFCS 150)	N/A	No wetland or SW impacts
2*	Entegra Roof Tile Inc., R&G 34 Avenue Properties LLC ., Turner Envirologic Inc., 2 for 2 LLC	12.07	Industrial (FLUCFCS 150)	N/A	No wetland or SW impacts
3	Rexall Sundown, Inc.	13.55	Industrial (FLUCFCS 150)	Majority of lot is developed; however northern portion contains part of a stormwater pond	1.37 acres of SW (stormwater pond) impacts

Pond Number	Owner(s)	Acreage	FLUCFCS Description	Vegetative Description	Wetland or Surface Water (SW) Impacts
4	Fairway Investors, LLC	19.26	Golf courses (FLUCFCS 182)	Fairways with no water features	No wetland or SW impacts
5	Fairway Investors, LLC	19.18	Golf courses (FLUCFCS 182)	Fairways with no water features	No wetland or SW impacts
6	Fairway Investors, LLC	22.78	Golf courses (FLUCFCS 182)	Fairways with existing stormwater ponds	2.56 acres of SW (stormwater pond) impacts
*Stormwater ponds 1 and 2 contain multiple parcels, some of which have separate owners.					



FDOT / SW 10th Street Connector	State Road 869 / SW 10th Street Connector PD&E Study from Florida's Turnpike / Sawgrass Expressway to I-95 Financial Project ID: 439891-1-22-02, ETDM No: 14291	Figure 6.3.1 Potential Stormwater Pond Map	Page No. 6-14

6.4.3 Indirect and Cumulative Impacts

In addition to having no wetlands impacted from the proposed improvements, there are no wetlands adjacent (within 25 feet) to the improvements; thus, indirect impacts to wetlands are not anticipated. Further, though there are series of drainages that extend off-site, there is no direct drainage or discharge into any regional or large wetland systems. However, because of the surface waters, including Canal 1, in the project area, indirect impacts could occur during construction and operation of the proposed project.

For the proposed build alternatives, potential indirect effects to surface waters are expected to be temporary in nature and may include:

- Alterations in hydrology and disruption of natural waterway processes
- Sedimentation and turbidity from construction activities
- Degradation of water quality from runoff

The indirect effects can be minimized by incorporation BMPs as described in FDOT Standard Specifications for Road and Bridge Construction. BMPs could include the use of turbidity curtains, silt fencing, hay bales. etc.

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

The proposed project that is under consideration includes widening along the existing SW 10th Street in an already urban and built-up corridor. There are no wetland impacts with the road widening; thus, there are no cumulative impacts to wetlands resulting from this project. Furthermore, though past actions resulted in wetland impacts in the study area, based on the historic aerial review, a majority of the existing road appeared to be constructed in uplands. It is also assumed that wetland impacts would have been mitigated. As for future

impacts, as described previously, the area is essentially built out and future development could consist of improvements to the Sawgrass Expressway and the interchange with SW 10th Street, redevelopment of the golf courses in Century Village and redevelopment of existing parcels. Surface water or wetland impacts could occur with the Sawgrass improvements or the golf course redevelopment, but current regulations would require consideration of avoidance, minimization and mitigation for the impacts. Stormwater facilities will be upgraded, reducing hydrocarbons and other pollutants being discharged into adjacent surface waters. Based on these considerations, cumulative impacts for the proposed project are not expected to occur.

6.5 Wetland Mitigation

There are no wetland impacts, thus, no mitigation is proposed. Mitigation for surface waters is not required.

7.0 Protected Species and Habitat

7.1 Methodology

In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 16 (June 14, 2017), a Protected Species and Habitat Assessment was conducted for the proposed widening of SR 869/SW 10th Street. Information on the potential occurrence of federal and state listed species within the project corridor was assessed based on a review of available literature, database review, and based on field reconnaissance that was conducted along the corridor. Field reconnaissance was conducted in September 2017, which included pedestrian transects throughout the study area surveying for listed flora and fauna and identification of any potential habitat. Because there is the potential for gopher tortoises or Florida burrowing owl to occur even in disturbed roadside areas, the study area was surveyed for Florida burrowing owl and a 15% gopher tortoise survey was completed.

Literature reviews were conducted and data was collected from numerous regulatory agencies including the USFWS, NRCS, Florida Department of Agriculture and Consumer Services (FDACS), FWC, Florida Fish and Wildlife Research Institute (FWRI), FWC's Eagle Nest Locator Database (https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx, accessed 10/02/2017), FWC's Waterbird Colony Locator (http://atoll.floridamarine.org/WaterBirds/, accessed 10/02/2017), and the SFWMD. A standard data report from the Florida Natural Areas Inventory (FNAI) (***Appendix E***), and an IPaC Trust Resources Report from the USFWS was also requested (***Appendix F***). GIS data from the Florida Geographic Data Library (FGDL) was reviewed. The results of the database and GIS review are as follows:

FNAI:

Within a quarter mile from the study area, there was a documented occurrence of one state-listed bird, the Florida burrowing owl (*Athene cunicularia floridana*). The Florida burrowing owl was observed in 1991 north of SW 10th Street and just east of Powerline Road.

USFWS:

The project corridor is located within the Core Foraging Area (CFA) of three active wood stork nesting colonies (Lox NC-4, Wakodahatchee, and one unnamed colony in Broward County). The CFA in south Florida is defined as 18.6 miles from an active nesting colony.

The project is not within any USFWS designated critical habitat.

The project study area is located within the USFWS Consultation Area for the Everglade snail kite.

Several species were included in the IPaC Trust Resources Report because USFWS includes historic data. However, when comparing current conditions for the study area as well as the comments made by USFWS and FWC in the ETDM Programming Screen, it was determined that many of these species would not occur in the study area (e.g. Florida panther, southeastern beach mouse, Ivory-billed woodpecker, piping plover, red knot, Florida scrub-jay, red-cockaded woodpecker, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, American crocodile, smalltooth sawfish, Batram's hairstreak butterfly, Florida leafwing butterfly, Miami blue butterfly, staghorn coral, beach jacquemontia, Johnson's seagrass, Okeechobee gourd, and tiny polygala). Therefore, these species are not discussed further in the document. Additionally, although the American alligator remains threatened due to similarity of appearance, the status means that the alligator is not biologically threatened or endangered, but supports a need for continued Federal controls on taking and commerce of the species to insure against excessive taking and to continue necessary protections to the Endangered American crocodile in the U.S. and foreign countries and other endangered crocodilians in foreign countries. As such, the Service does not consult on this species pursuant to the Endangered Species Act, when reviewing an action proposed by the FDOT. Thus, the American alligator is not discussed further in this assessment.

ETDM Comments:

The FWC commented that the land cover indicates that the entire study area is urban and therefore the project has little potential for adverse impacts to fish and wildlife resources. However, burrowing owls have historically occupied the study area and therefore, a burrowing owl survey is recommended.

The USFWS commented that the wood stork, eastern indigo snake, and federally-listed plants may be present within the SW 10th Street study area.

Maps of wood stork CFAs and USFWS Consultation Areas are included in ***Appendix G***.

7.2 Potentially Occurring Listed Species

Pursuant to Section 7(c) of the Endangered Species Act of 1973, the project corridor was evaluated for the potential occurrence of federal and/or state listed threatened and endangered species, species classified by federal agencies as candidates for listing, and state species classified as species of special concern. The likelihood of species occurrences considered for the study area were determined based on several factors including whether the species were positively identified by project biologists during field surveys, suitable habitat was observed or is known to occur, species life history, and local knowledge. This assessment also included review of data obtained from the FDACS publication *Notes on Florida's Endangered and Threatened Plant* (Coile and Garland 2003), information from FNAI, and the Atlas of Florida Vascular Plants (http://www.plantatlas.usf.edu/) pertaining to listed plant species that may be present in the SW 10th Avenue study area. Based on the data and literature review and subsequent field surveys, state and federally listed species that may occur in the project area are identified in ***Table 7.1***.

Table 7.1: Potential Federal and State Listed Fauna and Flora

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence
Mammals				
Florida bonneted bat	*Eumops floridanus*	E	FE	Low
West Indian manatee	*Trichechus manatus*	T	FT	Low
Birds				
Everglade snail kite	*Rostrhamus sociabilis plumbeaus*	E	FE	Low
Wood stork	*Mycteria americana*	T	FT	Medium
Florida burrowing owl	*Athene cunicularia floridana*	NL	ST	Low
Tricolored heron	*Egretta tricolor*	NL	ST	Medium
Roseate spoonbill	*Platalea ajaja*	NL	ST	Medium
Little blue heron	*Egretta caerulea*	NL	ST	Medium

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence
Bald eagle*	*Haliaeetus leucephalus*	NL	NL	High
Reptiles				
Eastern indigo snake	*Drymarchon corais couperi*	T	FT	Low
Gopher tortoise	*Gopherus polyphemus*	C	ST	Low
Amphibians				
None				
Fish				
None				
Plants				
Florida royal palm	*Roystonea elata*	NL	SE	Low
Large-flowered rosemary	*Conradina grandiflora*	NL	ST	Low

Based on *Florida's Endangered and Threatened Species* updated January 2017 available on http://myfwc.com/wildlifehabitats/imperiled/ .

Federal Status: E = Endangered; T = Threatened; SSC = Species of Special Concern; C = Candidate Species; NL = Not Listed

State Status: FE- Federally Endangered; FT – Federally Threatened; ST- State Threatened. Note: Coordination is not required with FWC for Federally listed species.

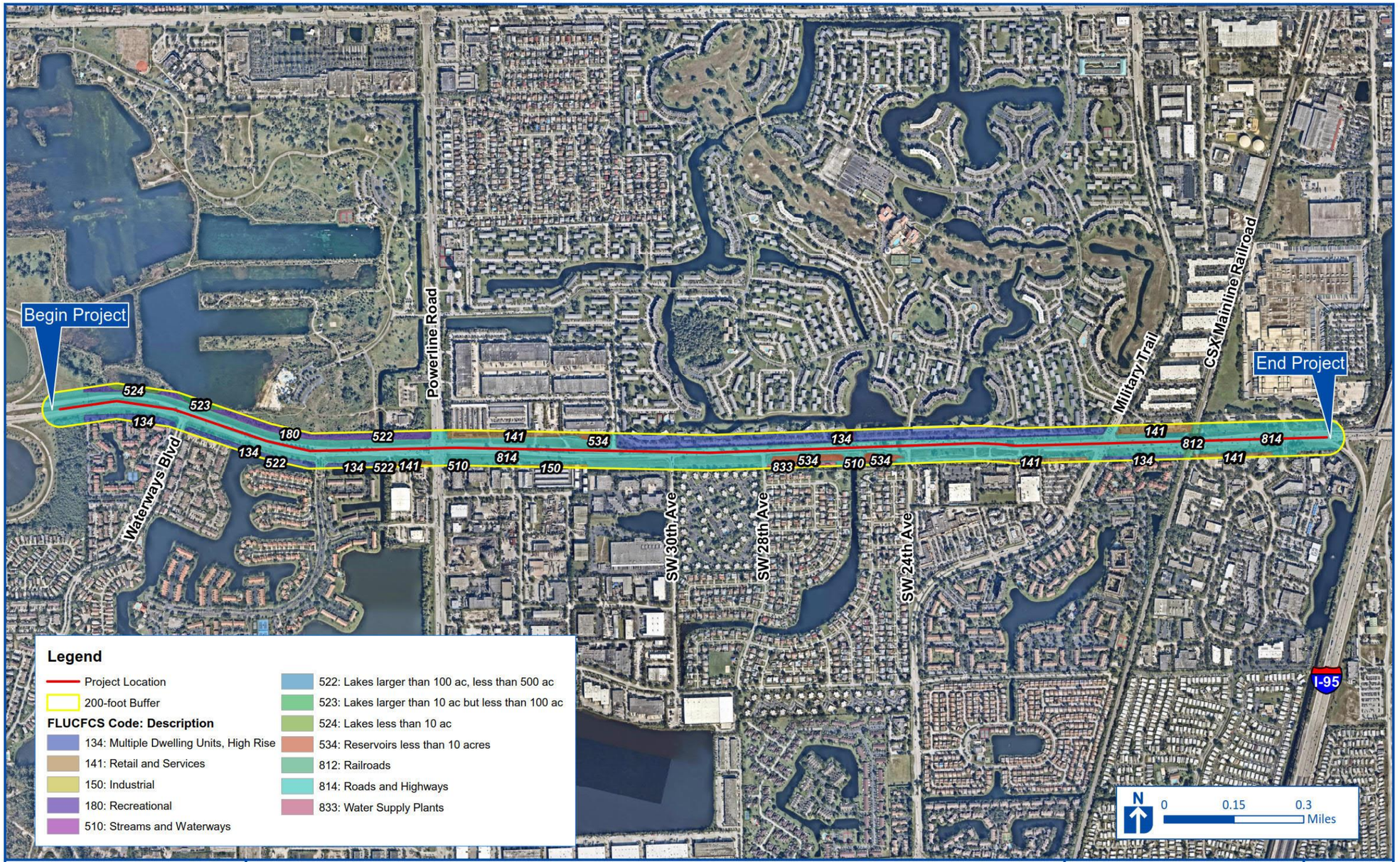
* The Bald eagle is still protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act and FWC Management Plan regulations.

Upland land covers within the SW 10th Street study area have been assigned habitat classifications per the FLUCFCS. A FLUCFCS map is included (see ***Figure 7.1.1.***), and a description by FLUCFCS type, and calculated total acreages are provided in ***Table 7.2***. The study area contains nine (9) land cover classes, including five surface water types, which are discussed in Section 6.0. As shown by the land cover classes, no natural upland habitats remain within the study area. Therefore, no impacts will occur to natural uplands.

Table 7.2: Summary of Upland Land Cover/Land Use within the Study Area

FLUCFCS Code	FLUCFCS Type[1]	Description	Acres[2]
134	Multiple Dwelling Units, High Rise <Three stories or more>	This category includes residential areas of multiple dwelling units or apartments. This includes the apartment complex called The Lakes, Century Village, Waterway Village, and Independence Bay.	23.80
141	Retail Sales and Services	This category is primarily devoted to the sale of products and services. This category includes commercial developments such as shopping centers (e.g. Palm Trails Plaza), gas stations (e.g. Shell), and restaurants (e.g. Pollo Tropical).	7.36
150	Industrial	This category includes the industrial park south of SW 10th Street, which includes Public Storage.	0.68
180	Recreational	This category includes one recreational park located within the 200-foot study area buffer (Quiet Waters Park). [3]	5.84
812	Railroads	This includes the CSX Mainline Railroad.	0.96
814	Roads and Highways	This category includes SW 10 Street, Powerline Road, Military Trail and other smaller local roads. The grassed shoulders within the road rights-of-way are included in this land cover.	90.91
833	Water Supply Plants	This category includes the Deerfield Beach Water Well located just south of SW 10th Street and just north of the Crystal Heights neighborhood.	0.69

1: Land cover and land uses based on the Florida Land Use, Cover and Forms Classification System (FLUCFCS).
2: Acreage is based on the 200-foot study area boundary.
3: Crystal Heights Park-North is adjacent to SW 10th Street, however it does not fall within the 200-foot study area buffer defined for this NRE.



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7.3 Federally Listed Species

7.3.1 Florida Bonneted Bat

The bonneted bat is a large bat approximately 5 to 6.5 inches. Adult fur color varies from dark gray to brown on the dorsal side of the bat, with lighter, grayish fur underneath. The bases of the ears are joined at the midline of the head and are large and broad and slant forward over the eyes. Little is known about habitat associations and natural roost site preferences of the bonneted bats, but this species has been documented in urban, rural, and native landscapes with roost sites found in tree cavities, buildings, rock outcroppings, and bat houses. Florida bonneted bats have only been found in four counties in Florida: Lee, Collier, Charlotte, and Miami-Dade. Habitat for the bonneted bat may occur within adjacent habitats; however, habitat does not occur within the SW 10th Street right-of-way.

The study area does not fall within the Consultation Area for the bonneted bat. Bats or evidence of bats was not noted during field reconnaissance, and no habitat exists within the study area. Therefore, determination of **no effect** has been made for the bonneted bat. It should be noted that USFWS is in the process of updating the effects determination key for the bonneted bat and the above determination is subject to change and should be revisited during design and permitting.

7.3.2 West Indian Manatee

The manatee is a large, gray, nearly hairless, aquatic mammal that has a round, paddle-shaped tail. Adult manatees typically average 9 feet in length, weigh around 900-1000 pounds, and inhabit coastal waters, bays, rivers, and occasionally lakes. Manatees range from the southeastern United States to Central America and require warm-water refugia such as springs or cooling effluent during cold weather. Manatees are herbivorous and commonly feed on seagrass species.

The project will not impact critical habitat for this species nor is the project within the USFWS Consultation Area for this species. A review of the USACE Manatee Key Broward County map (2013), shows no Important Manatee Areas (IMA) or Warm Water Aggregation Areas (WWAA) near the study area. Although manatees could occur within the Hillsboro Canal (which is connected to Canal 1 within the study area), there is a water control structure

within Hillsboro Canal prohibiting movement of manatees to Canal 1. Therefore, the project will have **no effect** of the West Indian manatee.

7.3.3 Everglade Snail Kite

The everglade snail kite is a medium-sized raptor that is dark slate gray to black with a white tail and a long, hooked bill. Snail kites inhabit large, open, freshwater marshes and lakes from the St. Johns River headwaters south. They prefer relatively shallow water (less than 4 feet) and a low density of emergent vegetation. Their primary food source is the apple snail which they catch at the water's surface. Snail kites usually nest over the water in a low tree or shrub. Dense, thick vegetation or sparse emergent vegetation is not optimal for foraging because either the apple snails cannot be readily seen in dense vegetation or do not survive or reproduce in sparse vegetation.

The study area falls within the USFWS Consultation Area for the snail kite, but does not fall within the critical habitat for this species. Large, open water lakes exist adjacent to the study area; however, these lakes lack the emergent vegetation required by the snail kite for nesting. Additionally, these lakes will not be impacted by the proposed improvements. Although apple snail [(*Pomacea* sp.) (non-native species)] shells were observed along the canal edges within Century Village, no snail kites were observed within the study area. Therefore, this project ***may affect, but is not likely to adversely affect*** the snail kite.

7.3.4 Wood Stork

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

stocked ponds, shallow ditches, narrow tidal creeks, shallow tidal pools, and depressional areas of cypress heads and swamp sloughs provide foraging habitat.

The shallow surface waters within the study area are man-made swales, ponds and stormwater detention areas (SW 1-8) that may provide some minimal opportunistic foraging habitat, but no nesting habitat was present and no wood storks were observed. The North Alignment Build Alternative will result in 2.31 acres of surface water impact. As impacts to surface water containing foraging habitat are less than five acres, mitigation will not be required by USACE and USFWS for lost foraging habitat and a core foraging analysis will not be required during design and permitting. The creation of drainage features for this project may be sufficient to off-set lost foraging habitat. A determination of ***may affect, but is not likely to adversely affect*** has been made for the wood stork.

7.3.5 Eastern Indigo Snake

The eastern indigo snake occurs in a range of habitats, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats. Eastern indigo snakes are often found in strong association with gopher tortoises, though this is more prevalent where temperatures drop to below 50 degrees regularly in the winter, but are also known to use the burrows of armadillos, cotton rats, and land crabs (in coastal areas). These snakes require large tracts of land for survival and are typically restricted to xeric habitats on pine-oak sandhills. Indigo snakes forage in hydric habitats, often along wetland ecotones. Gopher tortoise burrows provide this species with shelter from cold winter temperatures and relief from desiccation (Multi-Species Recovery Plan for South Florida, FWS), but this is more prevalent in north Florida populations. Habitat for the eastern indigo snake does not exist within the study area and no indigo snakes were observed during field reconnaissance. According to the *Eastern Indigo Snake Programmatic Effect Determination Key – Revised July 2017*, with the implementation of the *USFWS Standard Protection Measures for the Eastern Indigo Snake* (August 12, 2013; See ***Appendix H***) during construction and because impacts to eastern indigo snake habitat are less than 25 acres, a determination of ***may affect, is not likely to adversely affect*** has been made for the proposed project.

7.4 State Listed Species

7.4.1 Florida Burrowing Owl

This small, ground-dwelling owl is boldly spotted and barred with brown and white. They average nine inches in height and have a wingspan of approximately 21 inches. They often dig their own burrow and line the entrance with decorative materials prior to laying eggs at the bottom of the burrow. They also have been documented to use gopher tortoise burrows or armadillo burrows. They inhabit, high, sparsely vegetated, sandy ground with low groundcover vegetation, and more recently can be found in ruderal areas such as pastures, airports, ball fields, golf courses, and road right-of-way. FNAI listed that a pair of owls was observed within the study area in 1991. In 1991, this area was classified as residential. Currently, the land use is commercial/industrial and has been developed since 1991. Therefore, owls are unlikely to inhabit this area. There is some suitable habitat still present within the study area (grassy road right-of-way). However, no individuals were observed during field reconnaissance. Thus, there is no effect anticipated for this species.

7.4.2 Tricolored Heron

The tricolored heron is a medium-sized heron with a slender neck. The body color appears two-toned with dark slate coloration on the head, neck, and body that contrasts with a white rump, belly, and undertail. A reddish-brown and white streak extends along the front of the neck. During breeding season, adults have white head plumes and rufous to whitish shoulders. Young birds have more reddish-brown on head, neck, and mantle but otherwise similar to adults. This species' nesting season is from late February to August, and nesting typically occurs in mangrove or willow trees in mixed or single species rookeries. The tricolored heron feeds on small fish, frogs, tadpoles, crustaceans, snails, worms, and aquatic insects. There is no suitable nesting habitat within the study area. The surface waters within the study area contain suitable foraging habitat for this species. Tricolored herons were not observed during field reconnaissance and drainage features will still exist following construction. Thus, there is no adverse effect anticipated.

7.4.3 Roseate Spoonbill

These wading birds are characterized by their bright pink bodies, white necks, and spoon-like bills. Immature birds are whitish, acquiring the pink coloration as they mature Roseate spoonbills are the only spoonbill native to the Western Hemisphere and the only pink bird

that breeds in Florida. Their primary nesting sites include coastal mangrove islands or in Brazilian pepper on man-made dredge spoil islands near suitable foraging habitat. Roseate spoonbills typically forage in shallow water of variable salinity, including marine tidal flats and ponds, coastal marshes, mangrove-dominated inlets and pools, and freshwater sloughs and marshes.

Most of the known breeding sites occur within federally owned national parks and wildlife refuges and National Audubon Society sanctuaries. Nests are found in Florida from Tampa Bay on the Gulf coast and Brevard County on the Atlantic coast, south to northern Florida Bay. There is no suitable nesting habitat within the study area. The surface waters within the study area contain suitable foraging habitat for this species. Roseate spoonbills were not observed during field reconnaissance and drainage features will still exist following construction. Thus, there is no adverse effect anticipated.

7.4.4 Little Blue Heron

The little blue heron is a medium-sized heron, with a purplish to maroon-brown head and neck. There is a small white patch on the throat and the upper neck. The body is slate-blue. The bill is black towards the tip, especially during breeding season, with the other exposed areas on the head appearing dark gray to cobalt blue. The legs are grayish to green, becoming black in breeding season. Immature birds are mostly white with pale slate- gray tips on primary wing feathers. Legs of young birds are yellowish green. There is no suitable nesting habitat within the study area. The surface waters within the study area contain suitable foraging habitat for this species. Little blue herons were not observed during field reconnaissance and drainage features will still exist following construction. Thus, there is no adverse effect anticipated.

7.4.5 Gopher Tortoise

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

These habitat characteristics occur in a variety of Florida's native upland communities, including scrub communities, coastal strand and pine flatwoods. Development pressures on many of the upland communities in Florida have been increasing. Thus, more disturbed habitats, such as fence rows, old fields, range lands, and canal banks have become important to gopher tortoises. Gopher tortoise burrows are important shelter for a variety of species including the Eastern indigo snake, gopher frog and Florida mouse.

Suitable habitat for this species can be found within the road right-of-way in the study area. No gopher tortoises were observed within the study area during field reconnaissance. It is unlikely that gopher tortoises would migrate into the study area due to the lack of suitable habitat outside of the study area. Thus, there is no adverse effect anticipated.

7.4.6 Florida Royal Palm

Florida royal palm is a native, large palm that can grow to heights of 50-70 feet, with a spread of 20-25 feet. The trunk is smooth and light grey and can be up to 2 feet in diameter. Royal palms are considered self-cleaning and will shed their dying leaves. Inflorescences consisting of hundreds of tiny cream-colored flowers appear in late summer, which are followed by dark red to black fruits. The Florida royal palm can be found in a variety of habitats although does not have a high salt tolerance. This species was not observed during field surveys and therefore there is no effect anticipated.

7.4.7 Large-Flowered Rosemary

The large-flowered rosemary is a long-lived perennial shrub that reaches a height of 3-4 feet and a width of 1-2 feet, with purple to lavender flowers. Native habitat for large-flowered rosemary includes scrub and coastal strand; it has also been known to inhabit disturbed areas. Large-flowered rosemary flowers year-round (blue) and can therefore be surveyed at any time. Habitat for large-flowered rosemary is limited within the study area (disturbed areas); however, no individuals were observed during field surveys. Therefore, there is no effect anticipated.

7.5 Other Protected Species

7.5.1 Bald Eagle

As of 2008, the bald eagle is no longer listed by the USFWS or FWC as endangered or threatened. Bald eagles are still protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and FWC's bald eagle rule (F.A.C. 68A-16.002). Potential habitat for bald eagles (e.g. tall pine trees) occurs throughout the project study area, and commonly includes areas in proximity to bays, rivers, lakes, or other bodies of water that provide concentrated prey availability. Eagles usually nest in tall trees (mostly live pines) that provide clear views of the surrounding area.

There is one eagle nest documented in the FWC Eagle Nest Locator database just north of SW 10th Street adjacent to Quiet Waters Park and the northbound off-ramp of the Turnpike (see ***Figure 7.2.1 – Bald Eagle Map*** for location of eagle nest). Per FWC's online eagle nest locator database, the eagle nest (nest ID BO003) was last active in 2014. The Florida's Turnpike Enterprise (FTE) is conducting a separate PD&E Study along the Sawgrass Expressway which is at the western end of the project study area. As part of the Sawgrass study, FTE conducted bald eagle monitoring from October 2017 through May 2018 to determine status of the existing eagle nest (Nest ID BO003). The following is a summary of the data provided by FTE consultants. At the beginning of the nest monitoring, nest BO003 appeared partially degraded and by the end of the nest monitoring (May 2018), the nest was no longer present. An alternate nest (Alternate Nest 1) was identified during the monitoring events, which is located approximately 458 feet north of the Sawgrass Expressway/SW 10th Street interchange and 275 feet east of the Turnpike northbound off-ramp. Alternate Nest 1 was active during the 2017/2018 breeding season and produced one eagle that fledged.

Based on the survey results, most of the perch locations were within the adjacent pines close to the nest. Many of the flights to and from the nest were near the nest, though the eagles routinely flew south/southwest over the Turnpike northbound off-ramp. There were no documented flights over SW 10th Street during the survey.

Based on the USFWS National Bald Eagle Management Guidelines and the FWC Bald Eagle Management Plan, construction activities proposed at least 660 feet from an eagle nest do not require an Eagle Permit from the USFWS. FWC also defines a 330-foot buffer and a 100-

foot buffer for protection particularly in more urban environments. The North Build Alternative encroaches within the 330-foot buffer of the eagle nest, but not within the 100-foot buffer. The nest is on the edge of a line of pine trees and adjacent to the lakes within Quiet Waters Park. But the nest is also near the four-lane divided SW 10th Street, less than 300 feet from the Turnpike northbound off-ramp to the Sawgrass and near several existing mountain bike trails within Quiet Waters Park. Therefore, it is reasonable to assume that the eagles have acclimated to the presence of existing roadway infrastructure and people. The nest occurs at the western limits of the proposed improvements and the road at this point is no longer elevated, but is tying into existing grade; however, the typical section will be increased.

As shown in ***Table 7.3***, the land uses within the 330-foot and 660-foot buffers will change slightly with the proposed improvements. The grassed areas within the right-of-way will decrease and the amount of pavement will increase in both the 330-foot buffer and the 660-foot buffer. However, the amount of upland forested habitat will not change with the proposed improvements.

Table 7.3: Land Use Types Within Bald Eagle 330-foot and 660-foot Buffers

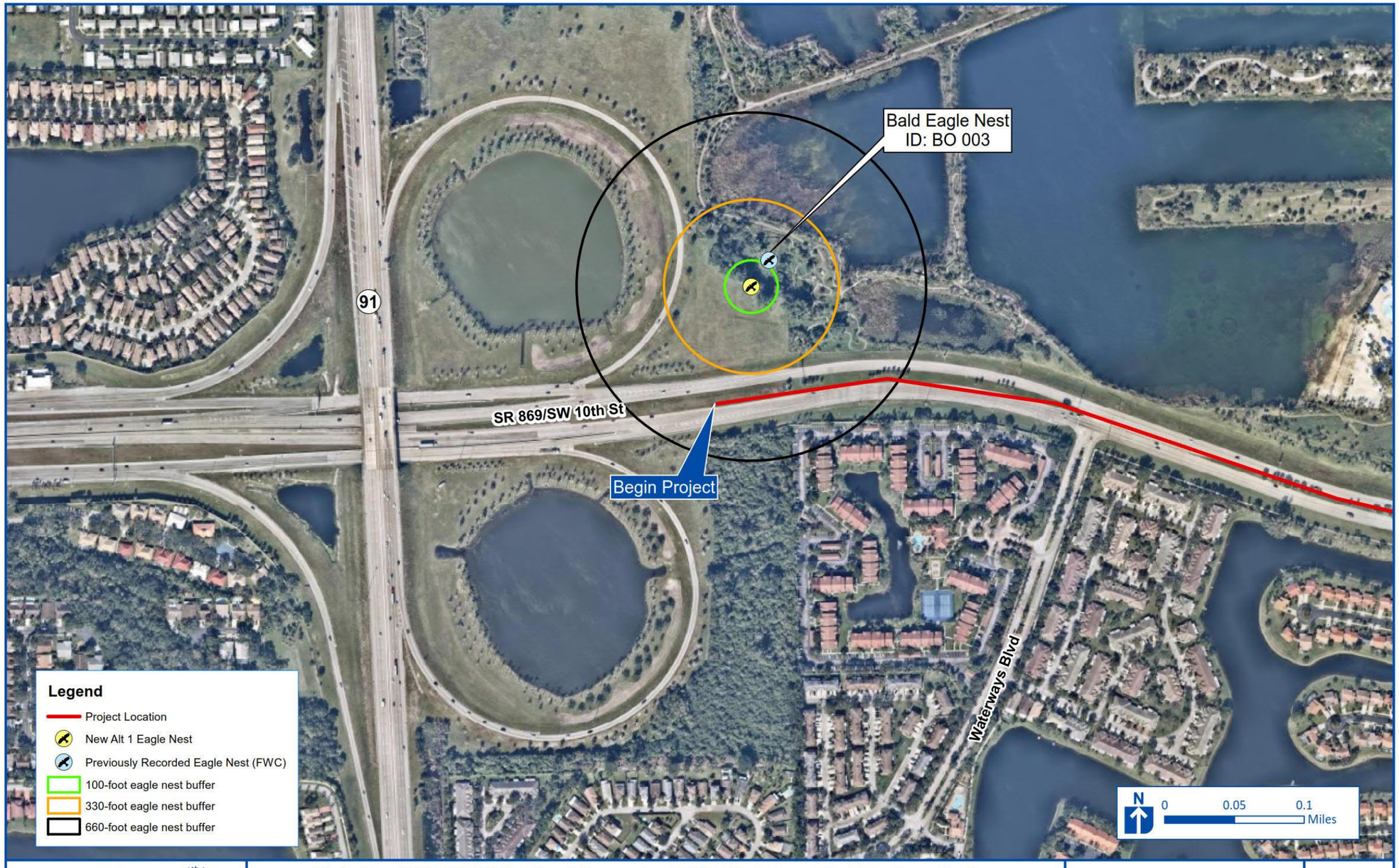
Land Use	330-foot Buffer		660-foot Buffer	
	Existing	Proposed	Existing	Proposed
Grassed Area w/in R/W	4.34	4.22	8.33	7.06
Pavement	0.14	0.26	2.96	4.23
Stormwater Pond	0	0	1.47	1.47
Residential	0	0	0.54	0.54
Lakes w/in Quiet Waters Park	0.35	0.35	7.34	7.34
Quiet Waters Park	2.55	2.55	2.19	2.19
Upland Forested	0.46	0.46	0.72	0.72

Because the road is existing and already within the 330-foot buffer, complete avoidance of the nest buffer zones is not feasible with a build alternative.

A teleconference was conducted with USFWS on September 5, 2018 and USFWS indicated that based on the schedule it was pre-mature to make any definitive recommendations or determinations on permitting requirements (See Meeting Minutes- ***Appendix I***). The eagle nest survey/monitoring should be updated the season prior to the start of construction. Technical assistance and possible permitting would occur following the updated survey, when the current condition of the nest is known.

Potential minimization measures could include:

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



FDOT / SW 10th Street Connector	State Road 869 / SW 10th Street Connector PD&E Study from Florida's Turnpike / Sawgrass Expressway to I-95 Financial Project ID: 439891-1-22-02, ETDM No: 14291	Figure 7.2.1 Bald Eagle Nest Map	Page No. 7-15

7.6 Critical Habitat

The project is not within any USFWS designated critical habitats.

7.7 Listed Species Impacts

7.7.1 Avoidance and Minimization

Measures to avoid and minimize impacts to listed species or other protected species potentially occurring within the SW 10th Street study area include:

- Implementing the *Standard Protection Measures for the Eastern Indigo Snake* during project construction (***Appendix H***).
- Eagle Nest – An updated survey, will be conducted the nesting season prior to construction and further coordination on avoidance and minimization measures would be determined at that time. Avoidance and minimization measures include appropriate construction timing, nest observation during construction, contractor education, and creating a visual buffer between the nest and the proposed improvements.

7.7.2 Direct Effects

As described in Section 6.4.2, the project will result in approximately 2.31 acres of surface water impacts. These surface waters can be used on occasion by wading birds including state and federally listed species. The impacts to surface waters are minor and drainage features will exist following the project. There are no native habitat impacts resulting from construction or operation of the proposed action. Stormwater Ponds 3 and 6 will have impacts to existing stormwater features (surface waters), however impacts are minor and surface waters will be recreated (and enlarged) to create stormwater pond for the proposed project.

7.7.2.1 Federally Listed Species

The proposed improvements will have no adverse effects to federally listed species.

7.7.2.2 State Listed Species

No adverse effects are anticipated to state listed species.

7.7.3 Indirect Effects and Cumulative Impacts

In addition to the permanent impacts previously discussed, indirect (secondary) impacts to listed wildlife and plant species were also considered. As stated in Section 6.4.3, the project may result in indirect impacts to adjacent surface waters, especially during construction. These surface waters are utilized by listed wading birds for foraging habitat. The use of BMPs during construction will help to minimize indirect impacts to listed species.

The proposed project will result in an increase in vehicular capacity but will not impact any natural habitats within or surrounding the SW 10th Street study area. Further, no federally or state listed species were observed and only minimal habitat exists along the corridor (man-made surface waters). Thus, there are no cumulative impacts with this project.

7.8 Mitigation

There are no adverse impacts to listed species. Mitigation is not required for impacts to surface waters, thus, no mitigation is required.

8.0 Anticipated Permits

The following permits are anticipated to be required for the proposed project:

- FDEP National Pollutant Discharge Elimination System (NPDES) General Permit
- Section 10/Section 404 Department of the Army Permit
- Modification for SFWMD Environmental Resource Permit (79-00098S)

9.0 Conclusions

The results of the analyses presented in this report show that this proposed project will not result in significant permanent or temporary impacts to wetlands or listed species. The following is a summary of impacts to federally listed species for the proposed project:

Species	Effect Determination
Florida bonneted bat	No effect
West Indian manatee	No effect
Everglade snail kite	May affect, not likely to adversely affect
Wood stork	May affect, not likely to adversely affect
Eastern indigo snake	May affect, not likely to adversely affect

Seven FWC state listed species were evaluated in this study. No adverse effects are anticipated to these species.

No wetlands were observed within the 200-foot study area, but permanent fill impacts will occur to surface waters. The North Alignment will have 2.31 acres of surface water impacts.

10.0 Commitments

As part of the standard specifications, FDOT incorporates the most current versions of the *Standard Protection Measures for the Eastern Indigo Snake* during construction.

In addition to the standard specifications the FDOT commits to the following measures to protect the bald eagle nest and minimize effects on the nesting bald eagles:

- Conduct updated survey the nesting season prior to the start of construction and coordinate results with the USFWS.

11.0 Agency Coordination

Agency coordination with environmental review agencies has occurred through the ETDM Planning and Programming Screening Tool and the Advance Notification (AN) process. The comments received regarding wetlands and endangered species from Powerline Road to Military Trail as published on the ETDM Programming Screen, dated December 9, 2016 are incorporated here by reference and can be viewed at https://etdmpub.fla-etat.org/est/ (ETDM #14291). The comments received for West of the Florida's Turnpike to Powerline Road as published on the ETDM Programming Screen, dated March 25, 2017 are incorporated here by reference and can be viewed at https://etdmpub.fla-etat.org/est/ (ETDM #14280). As stated in the Protected Species and Habitat section, FWC commented that the project study area was developed and the proposed project would likely have little to no impacts on state listed species. FWC recommended that Florida burrowing owl surveys be included in the PD&E. These surveys were completed in September 2017, which indicated that no burrowing owls were present within the study area. USFWS commented that the eastern indigo snake, wood stork, and federally listed plants could occur within the study area. Based on the lack of suitable habitat within the study area, adverse impacts to federally listed species is unlikely.

A teleconference was held with the USFWS Eagle Coordinator on September 5, 2018. The minutes of this call are included in ***Appendix I***.

12.0 References

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APPENDIX A

Existing Typical Sections

APPENDIX B

Proposed Typical Sections

APPENDIX C

Conceptual Plans

APPENDIX D

Photographic Log of Surface Waters within Study Area

APPENDIX E

Florida Natural Areas Inventory Standard Data Report

APPENDIX F

USFWS IPaC Trust Resources Report

APPENDIX G

Wood Stork Core Foraging Area Map and USFWS Consultation Area for the Everglade Snail Kite Map

APPENDIX H

USFWS Standard Protection Measures for the Eastern Indigo Snake

APPENDIX I

USFWS Meeting Minutes