

NATURAL RESOURCE EVALUATION REPORT UPDATE

Florida Department of Transportation

District 5

I-95 Interchange at Pioneer Trail

Limits of Project: Williamson Boulevard to Turnbull Bay Road

Volusia County, Florida

Financial Management Number: 436292-1-22-01

ETDM Number: 14193

Date: October 2020

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.

EXECUTIVE SUMMARY

This update to the Natural Resource Evaluation (NRE) report was prepared as part of the PD&E Study for the proposed I-95 interchange at Pioneer Trail (CR 4118) in Volusia County. The proposed interchange is located between two existing interchanges along I-95, one at SR 44 located near MP 16.287, approximately 2.74 miles to the south, and the other at SR 421 (Dunlawton Ave.) located near MP 23.300, approximately 4.26 miles to the north.

The proposed I-95 interchange at Pioneer Trail is intended to reduce traffic congestion, enhance regional mobility, and provide a viable alternative for emergency evacuations for this area in southern Volusia County. Congestion relief is focused at the two adjacent interchanges to the north and south of the project. Additionally, the proposed interchange is anticipated to support existing and approved economic developments, including three DRI's; Farmton, Restoration, and Pavilion at Port Orange.

The purpose of this NRE Report, is to evaluate potential effects to protected species, habitat, and wetlands. The study analyzed the potential for six (6) federally protected animals and three (3) federally protect plants to occur within the study area. A "may affect, but not likely to adversely affect" determination was made for four (4) of the animal species (eastern indigo snake, Florida scrub-jay, bald eagle, and wood stork) and for two (2) of the plant species (Rugel's pawpaw and Okeechobee gourd). A "no effect" determination was made for the Everglade snail kite, red-cockaded woodpecker and fragrant prickly apple. The project study area also potentially contains nine (9) state protected animals and 32 plants. No adverse effects are anticipated with any of these state protected plant or animals.

A total of 20 individual wetlands and 11 other surface waters (OSW) were located within the project study area. Seventeen wetlands and eight OSWs would be affected by the preferred alternative evaluated in the study. A UMAM analysis of each wetland impacted by the preferred alternative results in an estimated functional loss of 27.53 UMAM units associated with the project. This project does not involve Essential Fish Habitat (EFH); therefore, an analysis of EFH is not included in this document.

A Draft NRE was provided to U.S. Fish and Wildlife Service (FWS) North Florida Ecological Services Office and to the Florida Fish and Wildlife Conservation Commission (FWC), Office of Conservation Planning Service on February 25, 2020, requesting concurrence with FDOT's determinations of effect for listed species involvement within the project study area. FWS concurred with FDOT's effect determinations on March 26,2020. No correspondence was received from FWC. The final NRE was provided to FWS, FWC, the US Army Corps of Engineers (USACOE), and St. Johns River Water Management District (SJRWMD) on September 24, 2020. The FWS again concurred with FDOT's effect determinations and had no further comment. The USACOE provided additional data on available mitigation bank options. FWC and SJRWMD did not provide comment to the final NRE.

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PROJECT OVERVIEW

The proposed Interstate 95 (I-95) interchange at Pioneer Trail (County Road (CR) 4118) has been identified as a Strategic Intermodal System (SIS) priority project by the River to Sea Transportation Planning Organization (R2CTPO) and supported by the cities of Port Orange and New Smyrna Beach, as well as Volusia County. The current Project Development and Environment (PD&E) phase of the project conforms to the National Environmental Policy Act (NEPA) approval process and is part of an extensive transportation planning effort that includes the following previous studies:

- Interstate 95 and Pioneer Trail Interchange Justification Report (IJR) [May 2017]
- I-95 Systems Operational Analysis Report (SOAR) [November 2005, August 2016]
- I-95 Sketch Interstate Plan (SIP) [March 2010]
- SR 421/I-95 Interchange Analysis [January 2009]
- Final Pioneer Trail Feasibility Study [November 2005]

The interchange access request documenting engineering and operational acceptability, recommendation of the preferred alternative and opening year funding plan was submitted in the Interstate 95 and Pioneer Trail IJR and received FHWA approval in May 2017.

The proposed I-95 interchange at Pioneer Trail is intended to reduce traffic congestion, enhance regional mobility, and provide a viable alternative for emergency evacuations for this area in southern Volusia County. Congestion relief is focused at the two adjacent interchanges to the north and south of the project: I-95 at SR 421 (Dunlawton Ave) and I-95 at SR 44, respectively. Additionally, the proposed interchange is anticipated to support existing and approved economic developments, including three Developments of Regional Impact (DRI); Farmton, Restoration, and Pavilion at Port Orange.

1.0 Project Description

The Florida Department of Transportation is conducting a PD&E Study to evaluate the proposed construction of a new interchange along I-95 at Pioneer Trail near milepost (MP) 19.032 in Volusia County. The proposed interchange is located between two existing interchanges along I-95 at State Road (SR) 44 located near MP 16.287, approximately 2.74 miles to the south and SR 421 (Dunlawton Avenue) located near MP 23.300, approximately 4.26 miles to the north. A project location map and project study area map are provided below (**Figures 1 & 2**).

1.1 Proposed Study Area

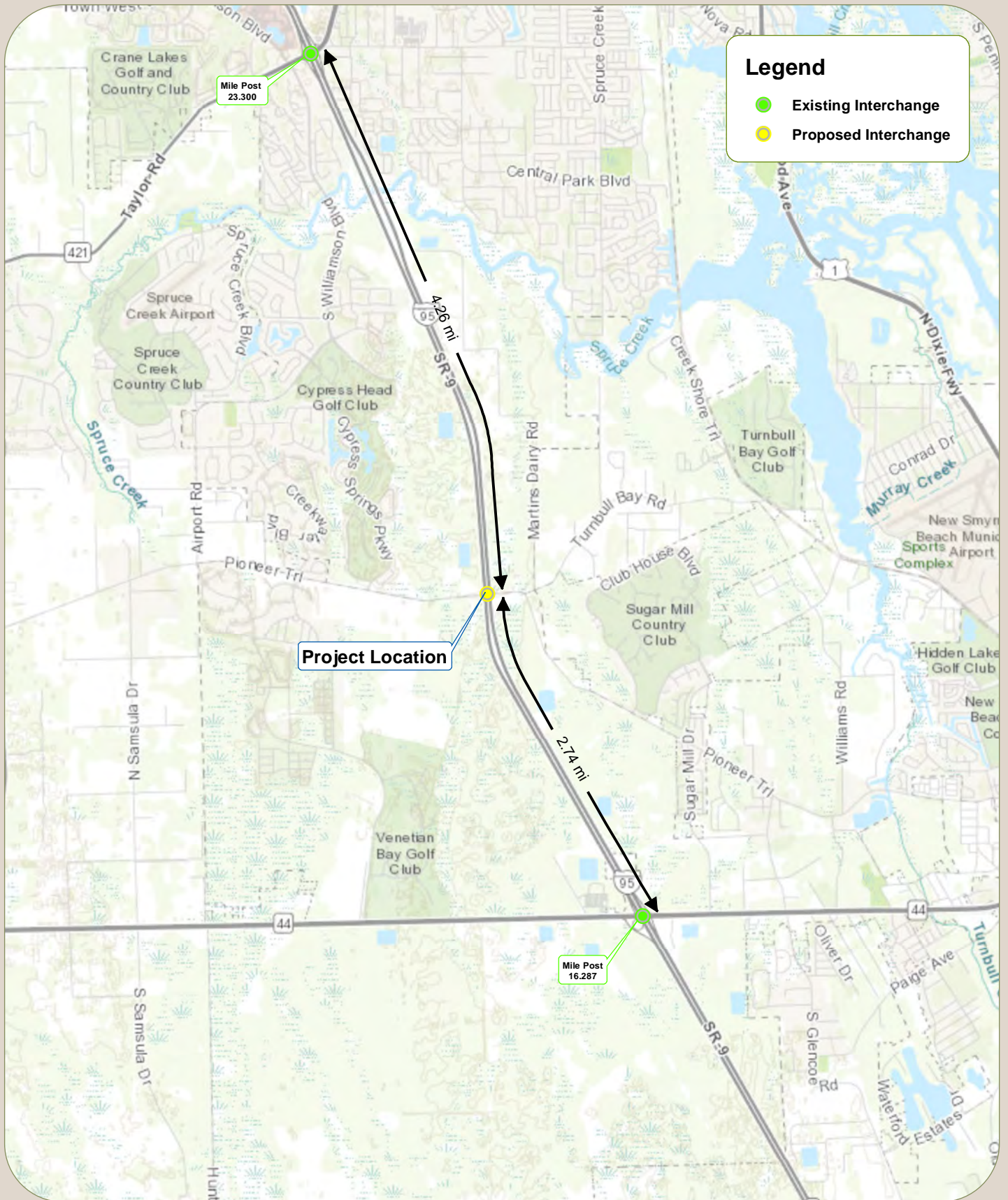
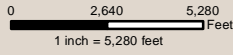
The current PD&E study is evaluating the roadway and interchange alternatives associated with the proposed I-95 interchange at Pioneer Trail. For the purpose of this Natural Resource Evaluation (NRE) Report, the Areas of Influence (AOI) relative to existing environmental resources will be limited to the Project Study Area (**Figure 2**). The Project Study Area is defined as the area surrounding the existing Pioneer Trail overpass as well as any areas potentially required for roadway improvements, ramps and pond sites. In general, the Project Study Area provides approximately a 300-foot buffer around the outer most design feature.

1.2 Proposed Action

The proposed action includes the construction of a new interchange at the existing Pioneer Trail overpass. Facility improvements will include the widening of the Pioneer Trail overpass through reconstruction, construction of entry and exit ramps, construction of stormwater management facilities, and improvements to Pioneer Trail to the east and west of the interchange. Minor improvements to I-95 may be required for entry and exit ramp lanes. This action will require the acquisition of additional right-of-way (ROW) for the construction of the ramps and stormwater management facilities. The effect of the proposed interchange is currently the subject of this NRE, through which an estimated maximum impact will be determined for existing environmental features. Through preliminary investigations, it appears that the proposed interchange has the potential to impact some environmental resources.

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
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Legend

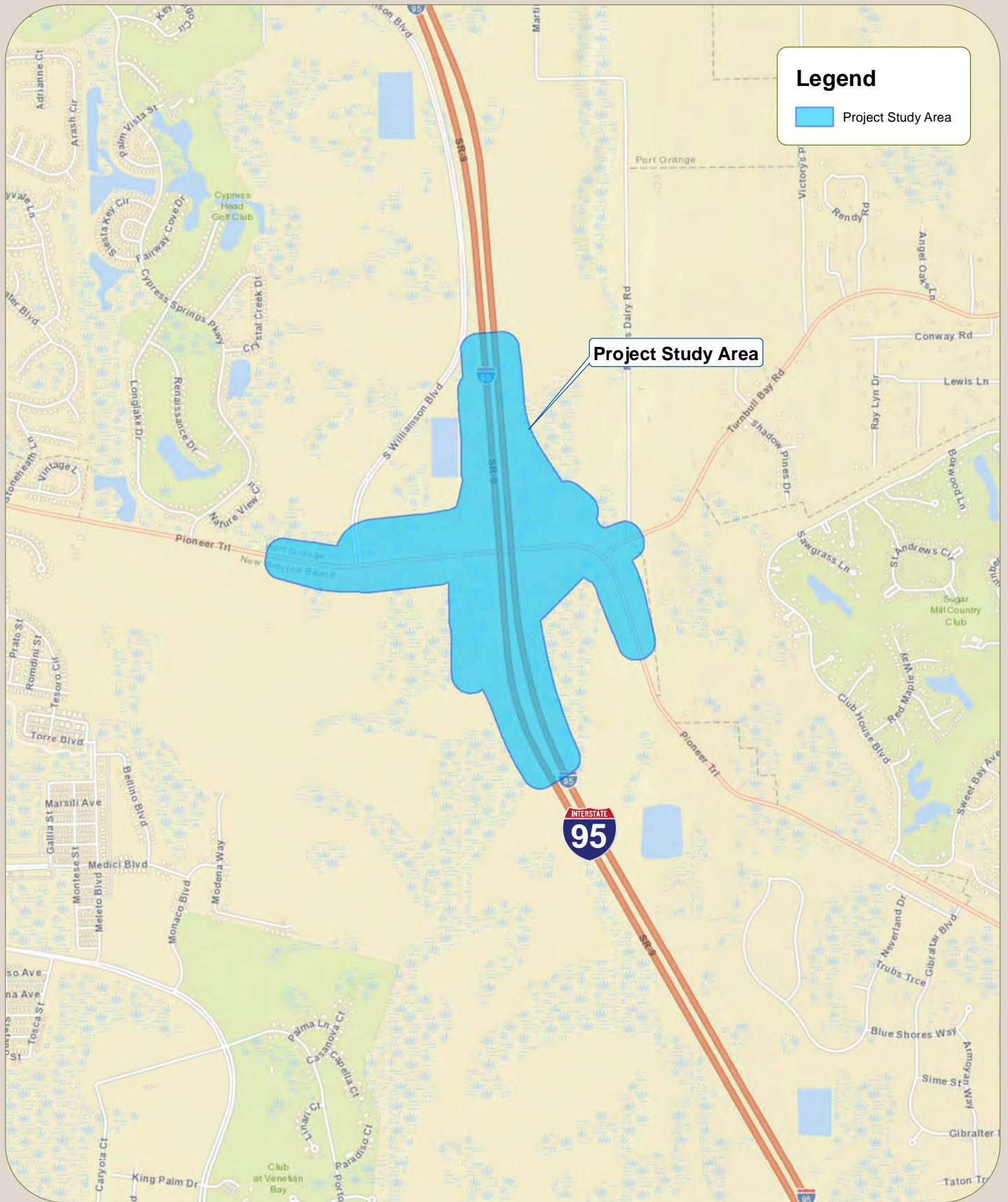
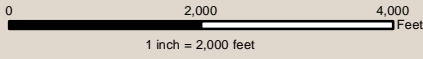
- Existing Interchange
- Proposed Interchange

Project Location

PROJECT LOCATION

I-95 at Pioneer Trail Interchange PD&E Study

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STUDY AREA

1.3 Proposed Alternatives

Three alternative design concepts were developed for the proposed improvements to I-95 at Pioneer Trail. These interchange configurations were developed with consideration to engineering design elements, right of way impacts, environmental constraints and construction costs. The project study area includes all three alternatives and considered the footprints of each in the analysis.

Interchange Build Alternative 1 proposes a diamond interchange that provides full movements. The Diamond Alternative configuration features parallel type entry ramps in the northeast and southwest quadrant that merge onto I-95 and single-lane exit ramps in the northwest and southeast quadrants. Two closely spaced signalized intersections are provided at the ramp terminals.

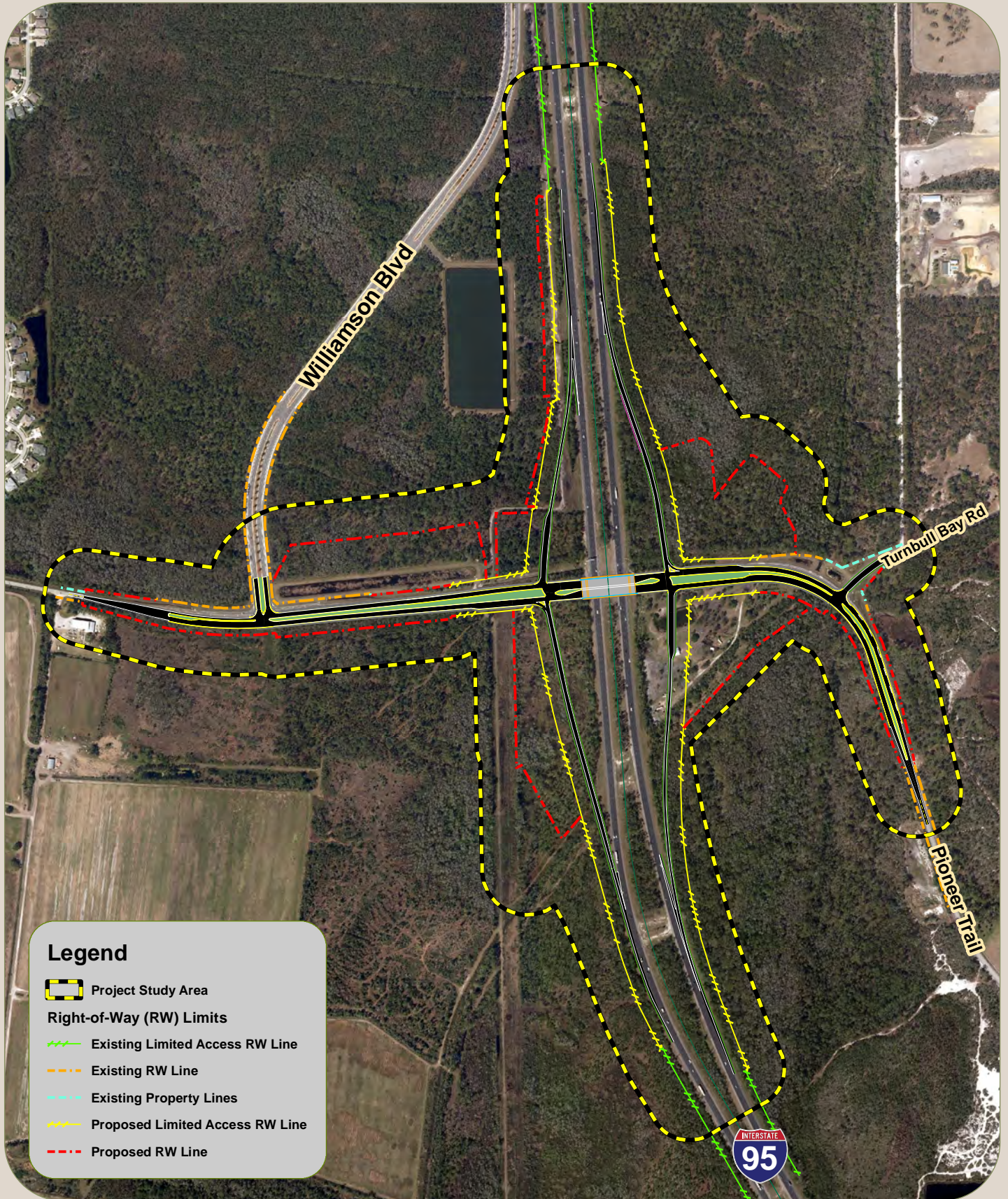
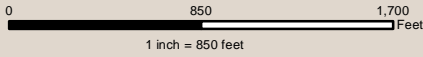
Interchange Build Alternative 2 proposes a partial cloverleaf interchange that provides full access. The Partial Cloverleaf 1 Alternative configuration features parallel type entry ramps in the northeast and southwest quadrant that merge onto I-95 and single-lane exit ramps in the northwest and southeast quadrants. An additional loop ramp is provided in the southwest quadrant for the I-95 southbound traffic exiting to Pioneer Trail eastbound. This loop ramp eliminates the need for a left turn movement at the I-95 southbound ramp terminal.

Interchange Build Alternative 3 proposes a partial cloverleaf interchange that provides full access. The Partial Cloverleaf 2 Alternative configuration features parallel type entry ramps in the northeast and southwest quadrant that merge onto I-95 and a single-lane exit ramp in the northwest quadrant. Two loop ramps are provided in this configuration. The southwest quadrant loop ramp is for the I-95 southbound traffic exiting to Pioneer Trail eastbound, eliminating the need for a left turn movement at the I-95 southbound ramp terminal. The northeast quadrant loop ramp is for the I-95 northbound traffic exiting to Pioneer Trail eastbound and westbound; this design reduces the right of way impacts in the southeast quadrant.

Build Alternative 3 was selected by FDOT as the preferred Alternative to advance to design and permitting.

I-95 at Pioneer Trail Interchange PD&E Study


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Legend


 Project Study Area

Right-of-Way (RW) Limits

 Existing Limited Access RW Line

 Existing RW Line

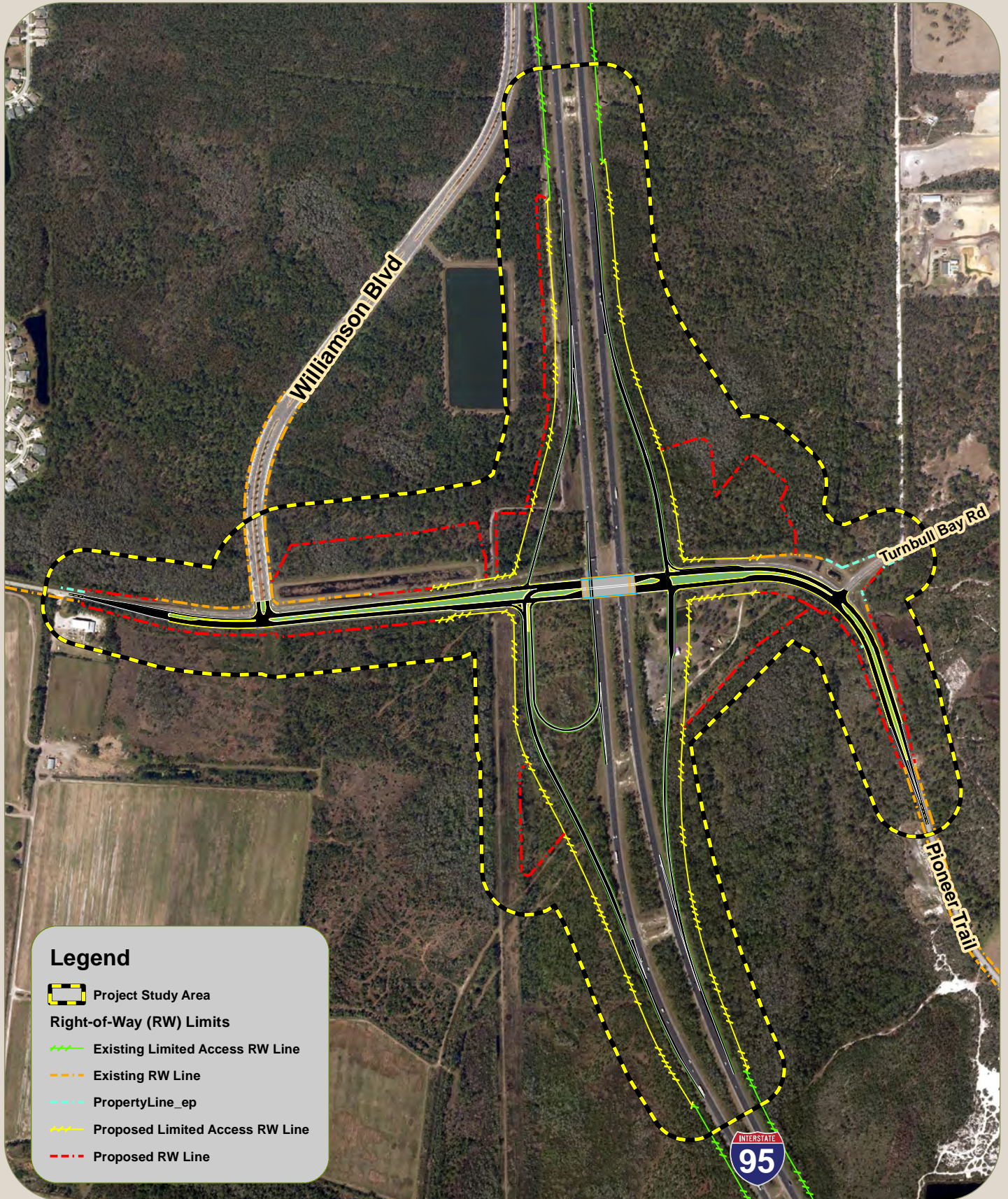
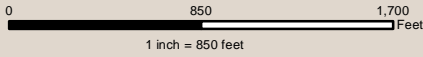
 Existing Property Lines

 Proposed Limited Access RW Line

 Proposed RW Line

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
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Legend

Project Study Area

Right-of-Way (RW) Limits

Existing Limited Access RW Line

Existing RW Line

PropertyLine_ep

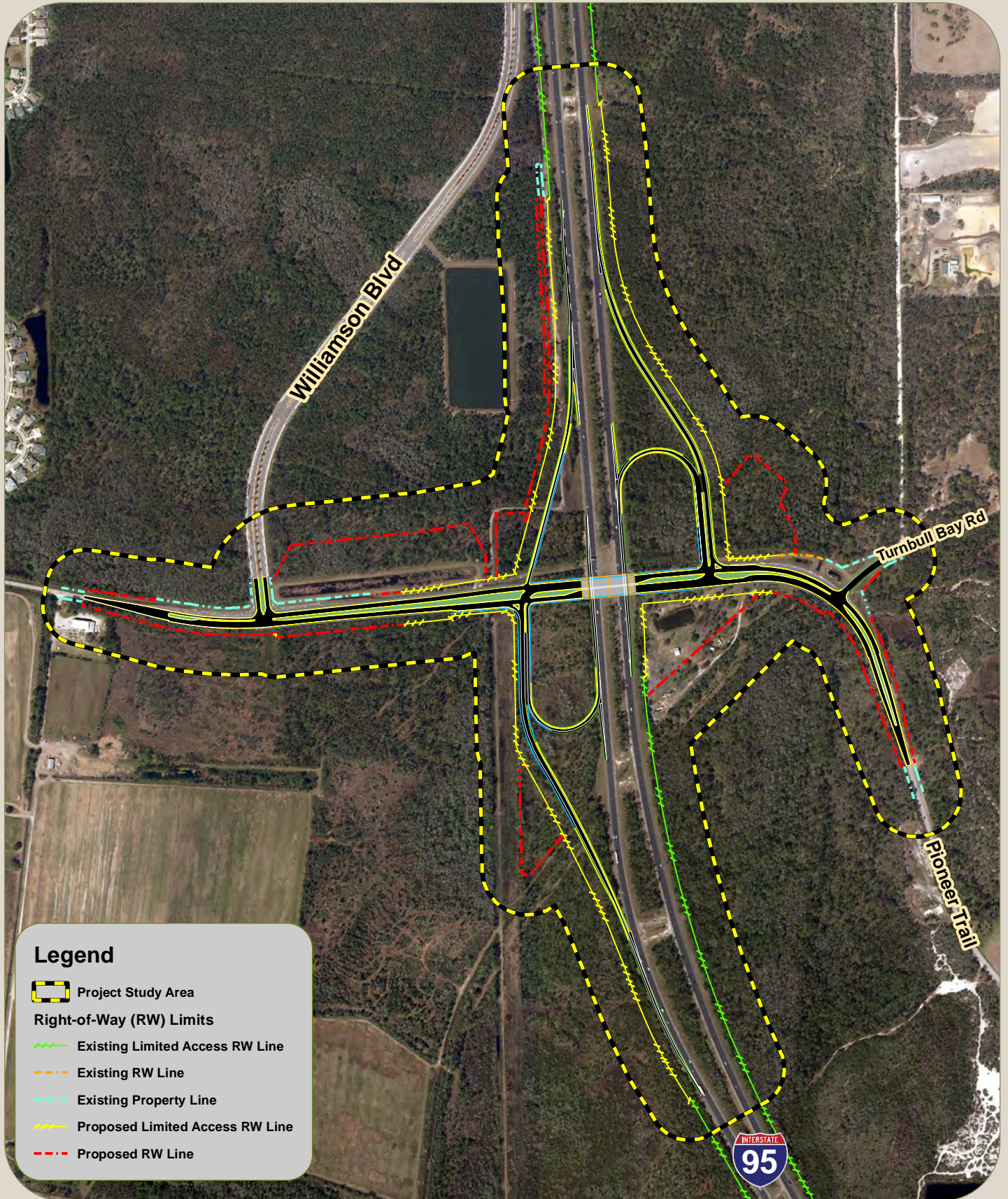
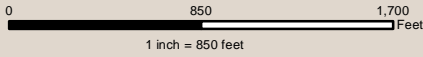
Proposed Limited Access RW Line

Proposed RW Line

ALTERNATIVE 2 (PARTIAL CLOVERLEAF 1)

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
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Legend

- Project Study Area
- Right-of-Way (RW) Limits**
- Existing Limited Access RW Line
- Existing RW Line
- Existing Property Line
- Proposed Limited Access RW Line
- Proposed RW Line

ALTERNATIVE 3 (PARTIAL CLOVERLEAF 2)

2.0 Existing Environmental Conditions

The assessment of the existing environmental conditions began with a review of environmental data available through Geographic Information Systems (GIS) databases, generally provided by federal, state or local agencies. This data was utilized as a first step to determine the approximate locations and boundaries of existing upland and wetland communities within the project area and potential utilization of the project area by protected species. The existing environmental resources were based on data from the following agencies or GIS data warehouses, with updates and modifications based on field verifications. The information reviewed included:

- True color aerial imagery of the project corridor (scale 1" =200'), ESRI 2018;
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Soil Survey of Volusia County, Florida, 1980; and NRCS web soil survey (Accessed December 2018);
- Florida Association of Environmental Soil Scientists, Hydric Soils of Florida Handbook, 4th ed., (Hurt et. al. 2007);
- U.S. Fish and Wildlife Service (FWS), Classification of Wetlands and Deepwater Habitats of the United States (Cowardin *et. al.* 1979);
- U.S. Geological Survey (USGS), Topographic Quadrangle maps, 7.5-minute series;
- St. Johns River Water Management District (SJRWMD), FLUCCS mapping, 2014;
- U.S. Fish and Wildlife Service, National Wetlands Inventory, Wetlands Online Mapper (Accessed December 2018).
- Florida Department of Transportation (FDOT), Florida Land Use, Cover, and Forms Classification System (FLUCCS), 4th ed., January 1999;
- U.S. Geological Survey (USGS), Topographic Quadrangle map, Winter Garden, Florida Map;
- Environmental Protection Agency Sole Source Aquifer Program.

2.1 Land Use and Habitat Cover

The existing land use and habitat cover was developed using the SJRWMD GIS land use data layer. The data was modified to match the existing conditions within the Project Study Area identified during the field reviews, including the reclassification for roads or right-of-way areas, ponds and wetlands. (**Figure 3**) The land use and habitats identified are described below and tabularized in **Table 1**.

2.1-A Upland Habitats

2.1.A.1 Commercial and Services (FLUCCS 1400)

Commercial and Services are areas predominantly associated with the distribution of products and services. There is a golf cart sales and service station located at the western terminus of the project.

2.1.A.2 Woodland Pastures (FLUCCS 2130)

These habitat type includes forested lands that have been partially cleared for the use as pasture. This habitat type occurs at the southeast of the proposed interchange. Horses and associated pole barns and stables occur within this land use type. It does not appear that this land is managed with brush control and/or fertilizer application. Live oak (*Quercus virginiana*), slash pine (*Pinus elliottii*) and laurel oak (*Quercus laurifolia*) was observed as the sparse canopy. The subcanopy, when present consisted primarily of saw palmetto (*Serenoa repens*) and beautyberry (*Callicarpa americana*). The groundcover consisted of heavily grazed Bahia grass (*Paspalum notatum*) as well as many ruderal grasses including Caesarweed (*Urena lobata*). Several areas of landscaping material (primarily cycads) were observed growing as a smaller subset of this land use.

2.1.A.3 Pine Flatwoods (4110)

This land use consists of forested communities that are dominated by either slash pine or longleaf pine (*Pinus palustris*). The subcanopy within these areas is dominated by saw palmetto with smaller amounts of gallberry (*Ilex glabra*) and beautyberry. The groundcover consists of a wide variety of vegetation including wiregrass (*Aristida stricta*), broomgrass (*Andropogon* spp.) and shiny blueberry (*Vaccinium myrsinites*). Pine flatwoods is a habitat type that under natural conditions undergoes frequent lightning or human-caused fire and seasonal drought and flooded soil conditions that promotes a sparse pine canopy and low-growth of the subcanopy. The pine flatwoods within the project study area are primarily fire suppressed having not burned in many years. As such, fire suppression has resulted a much higher growth of ground cover and subcanopy including dense spacings (>80 per acre) of the pine overstory. Historically, portions of these areas may have been planted or seeded for pine plantation; however, evidence such as rows and furrows was not observed during our field surveys.

2.1.A.4 Xeric Oak (4210)

This land use consists of a forested community dominated by sand live oak and associated shrub species. Shrub species include bluejack oak, turkey oak (*Quercus laevis*), and sand post oak (*Quercus margaretta*). Large mature sand pine (*Pinus clausa*) and slash pine are also interspersed within this community. This land use type occurs at the southeastern portion of the project study area. The canopy of this community is mature and thick. The subcanopy within these areas is dominated by thick understory of saw palmetto. It appears that this area was subjected to fire within the past few years.

2.1-B Wetlands and Surface Waters

2.1.B.1 Ditches and Swales (5130)

This habitat type includes rivers, creeks, canals, and other linear water bodies such as ditches. Several created drainage ditches occur within the project study area including a large agricultural ditch that occurs south of Pioneer Trail on both the east and west sides of I-95. These ditches were typically colonized by pennywort (*Hydrocotyle umbellata*), torpedograss (*Panicum repens*), maidencane (*Panicum hemitomon*), primrose willow (*Ludwigia peruviana*), cattail (*Typha latifolia*), dog fennel (*Eupatorium capillifolium*), elderberry (*Sambucus canadensis*), and Carolina willow (*Salix caroliniana*).

2.1.B.2 Reservoirs / Stormwater Ponds (5300)

Reservoirs are artificial impoundments of water used for water treatment, floodplain compensation, or irrigation. Several stormwater retention ponds occur in the project study area that were constructed as part of the stormwater systems associated with the improvements of I-95, the expansion of Williamson Boulevard and improvements to Pioneer Trail. The median of I-95 includes ponds that were permitted to receive and treat the interstate lanes that were sloped to the median. Stormwater treatment for the new extension of Williamson Boulevard included a new pond along Pioneer Trail as well as the retrofit of an existing borrow pit both of which are partially in the project study area. The ponds associated with the improvements of Pioneer Trail are in close proximity to the interchange with Turnbull Bay Road. An additional smaller borrow pit is located east of I-95 and south Pioneer Trail. This pit was likely constructed for fill material. These ponds generally consist of open water with no or little littoral shelf containing wetland vegetation. The side slopes of these created systems are generally vegetated with bahigrass.

2.1.B.3 Cypress (FLUCCS 6210)

This community type is characterized by the dominance of bald cypress (*Taxodium distichum*). Within the project corridor there are minor components of swamp tupelo (*Nyssa sylvatica*), red maple (*Acer rubrum*) and dahoon holly (*Ilex cassine*) around the periphery. The shrub layer consists of fetterbush (*Lyonia lucida*), and gallberry (*Ilex coriacea*). The groundcover is composed of a wide mix of vegetation that includes swamp fern (*Blechnum serrulatum*), cinnamon fern (*Osmunda cinnamomea*), and royal fern (*Osmunda regalis*). This habitat type is located at the northwestern limits of the project study area.

2.1.B.4 Hydric Pine Flatwoods (6250)

Hydric pine flatwood habitat type is generally composed of grassy vegetation with a sparse canopy of slash pine or less frequently pond pine (*Pinus serotina*) that is maintained by frequent natural wildfire. This habitat type within the project study area has been fire suppressed which has resulted in a much denser canopy and ground cover than this habitat is in its natural condition. Within the project area, the canopy is primarily composed of slash pine although pond pine, loblolly bay (*Gordonia lasianthus*), red maple and dahoon holly are also present. The shrub layer consists of fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), saltbush (*Baccharis halimifolia*), immature sweet bay, blueberry (*Vaccinium* spp.) and gallberry (*Ilex coriacea*). The groundcover is composed of a wide mix of vegetation that includes hatpins (*Eriocaulon* spp.), beakrush (*Rhynchospora* spp.), red root (*Lachnanthes caroliniana*), and yellow-eyed grass (*Xyris* sp.).

2.1.B.5 Wetland Forested Mixed (6300)

This wetland habitat type includes forested wetland communities composed of a large variety of hardwood and conifer tree species that are adapted to hydric conditions. This wetland type comprises most of the wetlands within the study area. The overstory of this habitat type within the study area includes bald cypress (*Taxodium distichum*), swamp tupelo (*Nyssa sylvatica*), loblolly bay, swamp bay (*Persea palustris*), red maple, sweet bay (*Magnolia virginiana*), sugarberry (*Celtis laevigata*), cabbage palm (*Sabal palmetto*), American elm (*Ulmus americana*), and water oak (*Quercus nigra*). Slash pine is along the periphery of these systems or on hummocks. The shrub layer generally consists of fetterbush, wax myrtle, buttonbush (*Cephalanthus occidentalis*), and Virginia willow (*Itea virginiana*). Brazilian pepper (*Schinus terebinthifolius*) is also a minor component within the sub canopy. The ground cover within this type of wetland may include a wide variety of herbaceous plant species including swamp fern, cinnamon fern, royal fern, duck potato (*Sagittaria latifolia*), soft rush (*Juncus effusus*), primrose, sawgrass (*Cladium jamaicense*), red root, and maidencane.

2.1.B.6 Wet Prairies (6430)

Wet prairie habitat is composed predominantly of grassy vegetation with shorter herbs and less water inundation than a marsh. Within the project study area, the vegetation found within this habitat type includes: maidencane, beakrush and St. John's wort, dog fennel (*Eupatorium capillifolium*), swamp smartweed (*Polygonum hydropiperoides*), meadow beauty (*Rhexia* spp.), water hyssops (*Bacopa monnieri*), and broomsedge (*Andropogon virginicus*). Within the study area, these were identified within the utility corridors that occur on west of I-95 on both the north and south sides of Pioneer Trail. The systems were historically forested wetlands or uplands that are mechanically or chemically maintained. Portions of these areas were also excavated to provide fill for the utility access roads.

2.1-C Other Land Uses

2.1.C.1 Roads and Highways (8140)

This FLUCCS classification includes areas which are used for the movement of people and goods. This land use includes all roadways within the study area including Pioneer Trail, Williamson Boulevard, Interstate 95 and Turnbull Bay Road.

2.1.C.2 Graded and Drained-ROW/Median (8145)

This land use classification includes areas which are part of the transportation system but not impervious surface. This land use includes the side slopes, linear drainage facilities (dry swales and wet ditches) and grassed median areas.

2.1.C.3 Primitive/Trail/Field Road (8146)

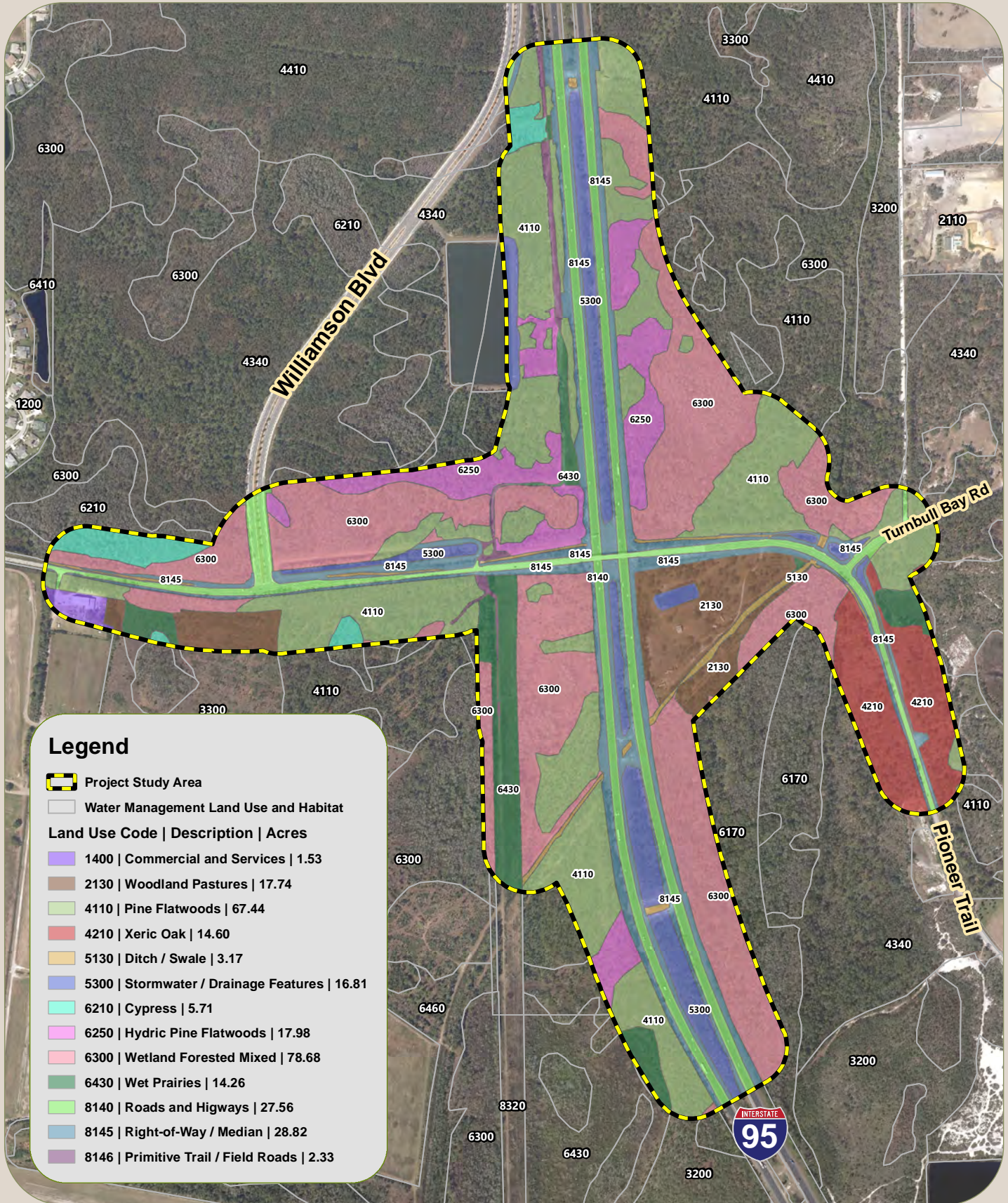
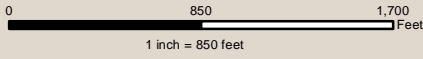
This FLUCCS classification is for the unpaved areas which are used for recreational activities or property access. This land use includes all trails and field roads within the study area including the upland portions of the trails within the utility ROWs. Portions of these trails are improved with limerock or fill-dirt.

Table 1: Land Use and Habitat Cover

Land Use Code	Land Use Description	Acres
1400	Commercial and Services	1.53
2130	Woodland Pastures	17.74
4110	Pine Flatwoods	67.44
4210	Xeric Oak	14.60
5130	Ditch/Swale	3.17
5300	Stormwater Drainage Features	16.81
6210	Cypress	5.71
6250	Hydric Pine Flatwoods	17.98
6300	Wetland Forested Mixed	78.68
6430	Wet Prairies	14.26
8140	Roads and Highways	27.56
8145	Right-of-Way/ Median	28.82
8146	Primitive/Trail/Field Road	2.33

I-95 at Pioneer Trail Interchange PD&E Study

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Legend

- Project Study Area
- Water Management Land Use and Habitat

Land Use Code	Description	Acres
1400	Commercial and Services	1.53
2130	Woodland Pastures	17.74
4110	Pine Flatwoods	67.44
4210	Xeric Oak	14.60
5130	Ditch / Swale	3.17
5300	Stormwater / Drainage Features	16.81
6210	Cypress	5.71
6250	Hydric Pine Flatwoods	17.98
6300	Wetland Forested Mixed	78.68
6430	Wet Prairies	14.26
8140	Roads and Highways	27.56
8145	Right-of-Way / Median	28.82
8146	Primitive Trail / Field Roads	2.33

EXISTING LAND USE AND HABITATS

2.2 NRCS Soil Survey Units

The Natural Resources Conservation Service (NRCS) soil database was used to identify the mapped soil units within the Project Study Area. Nine mapped soils were identified and are depicted on **Figure 4**. The majority of the Project Study Area is comprised of Pomona Fine Sand (49) and Pomona-St. Johns Complex (51), covering approximately 102-acres and 70-acres, respectively. Of the nine soils types identified only three, Pomona Fine Sand, Depressional, 0-2% Slopes (50), Pomona-St. Johns Complex (51), and Samsula Muck, Frequently Pondered, 0-1% Slopes (56) are classified as hydric soils. The soil types identified are described below and tabularized in **Table 2**.

2.2-A Daytona Sand, 0-5% Slopes (17)

The Daytona series is a member of the sandy, siliceous, hyperthermic family of Entic Haplohumods. The soils within this series are nearly level, gently sloping and moderately well drained. The formation of Daytona series occurred in the beds of marine sandy sediment of the lower Coastal Plain. Daytona Sand is generally located on gently slopes, undulating sandhills or areas of slight elevation within flatwoods. The water table during the wet season (1 to 4 months) is at a depth of 40-50 inches and up to 72 inches or more during the dry season. The permeability is very rapid at the surface, slows slight in the subsoils and has a very low available water capacity. This soil type was mapped in the southeast portion of the Project Study Area, covering approximately 8.48 acres, though it extends to the southwest and southeast beyond the assessment area. Natural vegetation was observed throughout most of this area, consisting of sand pine and scrub oaks, with a varied understory dominated by saw palmetto and fetterbush.

2.2-B Myakka-Myakka, Wet, Fine Sands, 0-2% Slopes (32)

The Myakka series is a member of the sandy, siliceous, hyperthermic family of Aeric Haplaquods. A series of soils described as sandy and poorly drained that have a water table at or near the surface during the wet season. Associated with depressional areas in flatwoods, this series can be seasonally ponded. The Myakka-Myakka, Wet, Fine Sands (32) is nearly level and poorly drained with an extensive acreage ranging from a few acres to more than 750 acres. The natural vegetative profile is described as pine-palmetto, typical of flatwoods, where slash and longleaf pine dominate the canopy and saw palmetto dominates the understory. The water table is within 12 inches for 6 months and within 40 inches the remainder of the year. A total of 7.27 acres of this soil are mapped in the northeast quadrant of the Project Study Area. Observational notes indicate that a typical vegetative structure persists within and beyond the assessment area.

2.2-C Pomona Fine Sand (49)

A member of the siliceous, hyperthermic family of Typic Psammaquents, the Pomona series are nearly level, poorly drained sandy soils which formed over thick sandy marine sediment deposits. The Pomona series generally occurs in poorly define drainageways, low areas, and depressions. Pomona Fine Sand (49) occurs in low, broad areas within the flatwoods with smooth slopes between 0-2 percent. For about 6 months, during most years, the water table is within 40 inches. During the wet season the water table is within a depth of 10 inches for 1 to 3 months. Permeability is rapid to about 18 inches and moderate from 18 inches to 33 inches, rapid from 33 to 50 inches and moderately slow from 50 to 60 inches. The majority of the Project Study Area, about 137.28 acres, is mapped as Pomona Fine Sand and generally flanks areas identified as wetlands. A moderate portion of the acreage is in natural vegetation (slash pine and saw palmetto, gallberry, fetterbush, pineland threeawn, and broomsedge). Under natural conditions this soil is poorly suited for vegetable crops because of the periodic wetness, low fertility, and low available water. With high level management and bedding, this soil can have moderately high productivity for slash pine.

2.2-D Pomona Fine Sand, Depressional, 0-2% Slopes (50)

Pomona Fine Sand Depressional (50), a member of the Pomona series described above, is also nearly level and poorly drained. This soil occurs in depressions, within poorly defined sloughs and low, broad flats within flatwoods and has a high potential of wetland classification. Fluctuations within the water table is common and can range from 6 inches above the surface to within a depth of 10 inches for a period of 4 to 6 months during

normal years. During abnormal years the water table can temporarily drop to a depth of 40 inches. Permeability is generally rapid, however, is slowed in areas where the sandy loam subsoil is weakly cemented. Under natural conditions the vegetative structure for this soil type is described as an open forest of scattered slash pine, loblolly bay, sweetgum and pond pine. The understory varies, but can include gallberry, wax myrtle, fetterbush and to a lesser extent saw palmetto. A small (3.28 acre) inclusion is mapped in the northwestern quadrant of the Project Study Area. Observations within the study area noted the appearance of natural vegetation, including slash pine and gallberry, a moderate amount of saw palmetto and a limited ground cover.

2.2-E Pomona-St. Johns Complex (51)

The Pomona-St. Johns Complex consists of the Pomona series (described above) and the St. Johns series of soils. The St. Johns series is described as a member of the sandy, siliceous, hyperthermic family of Typic Haplaquods. Similar to the Pomona series, this series is also nearly level and poorly drained. Both series have the same formation characteristics and generally occur in similar locations. The Pomona-St. Johns Complex (51) is poorly drained and usually covered with standing water for long periods. These soils are found in drainageways and broad depressions in flatwoods. This complex is noted as being irregular or elongated covering 3 to 250 acres. The Pomona soil makes up about 60 percent of the complex, where St. Johns soil makes up about 30 percent of the complex. Both soils have a seasonal water table that rises as much as 10 inches above the surface during wet periods and is almost always saturated within 10 inches of the surface in summer, fall, and winter. Permeability is rapid in the surface layer and moderate in the subsurface for both soil types. This complex has the second largest occurrence within the Project Study Area covering approximately 96.73 acres. The majority of this map unit is classified as hydric forest, abundant in bald cypress with scattered pond pine, sweetgum, loblolly bay and slash pine. The understory and ground cover typically include gallberry, saw palmetto, wax myrtle, maidencane, sawgrass, broomsedge and smooth cordgrass.

2.2-F Samsula Muck, Frequently Ponded, 0-1% Slopes (56)

The Samsula series is a member of the sandy or sandy-skeletal, siliceous, dysic, hyperthermic family of Terric Medisaprists. This series is comprised of nearly level, poorly drained organic soils. Formation of these soils occurred in moderately thick beds of hydrophytic woody and nonwoody plant remains and normally occur in broad, low flats, small depressions, freshwater marshes, and swamps. Samsula Muck (56) is a highly organic, very poorly drained soil generally occurring in areas classified as wetlands. This soil is found to cover large areas of more than 1,000 acres. For most years, the water table is at or above the soil surface except during extended dry periods. Permeability is rapid throughout. Natural vegetation ranges from wetland grasses to dense swamps of cypress and/or wetland hardwoods and longleaf pine. This soil was mapped in two areas (southwest and southeast quadrant) within the Project Study Area, covering approximately 5.32 acres. Most of the area consisted of natural vegetation, however a portion of the southwest area has been cleared and is maintained as herbaceous cover due to power lines.

2.2-G Smyrna-Smyrna, Wet, Fine Sand, 0-2% Slopes (60)

The Smyrna series is a member of the sandy, siliceous, hyperthermic family of Aeric Haplaquods. This series is nearly level, poorly drained and has a moderate or moderately rapid permeability. Formation of this series occurred over thick areas of sandy marine sediment and is generally found on broad, nearly level marine terraces in flatwoods, low areas between sandhills and slightly elevated areas between natural ponds and low areas. Smyrna-Smyrna, Wet, Fine Sand (60) is found in low areas and is poorly drained. The extent of acreage is large, with some areas mapped at more than 500 acres. For most years, the water table is within a depth of 10 inches for 1 to 4 months and between 10 to 40 inches for more than 6 months. The water table does rise to the surface during the rainy season. This soil was mapped in the north-central portion and southeast portion of the Project Study Area, covering approximately 25.95 acres. Most areas of this mapped soil (other than the roadways) are still in native vegetation which includes slash pine flatwoods with saw palmetto and pineland threawn.

2.2-H St. Lucie Fine Sand, Fine Sand, 0-8% Slopes (62)

The Smyrna series is a member of the hyperthermic, uncoated family of Typic Quartzipsamments. This series is excessively drained, very -rapid permeable sand soils. Formation of this series occurred in beds of marine or eolian sand and is generally found on nearly level to moderately sloping dunelike ridges and isolated knolls. For most years, the water table stays below a depth of 72 inches and is usually below 120 inches. This soil was mapped in the southeast portion of the Project Study Area, covering approximately 1.26 acres. The areas of this mapped soil (other than the roadways) are still in native vegetation which includes live oak, slash pine and saw palmetto.

2.2-I Tavares Fine Sand, 0-5% Slopes (63)

A member of the hyperthermic, uncoated family of Typic Quartzipsamments, the Tavares series soils are described as nearly level, moderately well drained, with rapid permeability. The formation of these soils occurred in thick beds of marine or eolian deposits and occur in areas of moderately high sand ridges. The Tavares Fine Sand (63) is nearly level to gently sloping, well-drained soil that occurs in higher positions on the low sand ridges and intermediate positions on the higher sand ridges. During the wet season the water table is between 40 and 60 inches. This soil has a low natural fertility, organic matter content, and available water capacity, generally the result of the rapid permeability. The natural vegetation is longleaf pine and turkey oak with a scattering of saw palmetto and pineland threeawn. Approximately 5.2 acres of this soil was mapped within the Project Study Area. However, this mapped area has been altered by roadways and drainage features leaving little of the native vegetation.

2.2-J Wabasso Fine Sand (73)

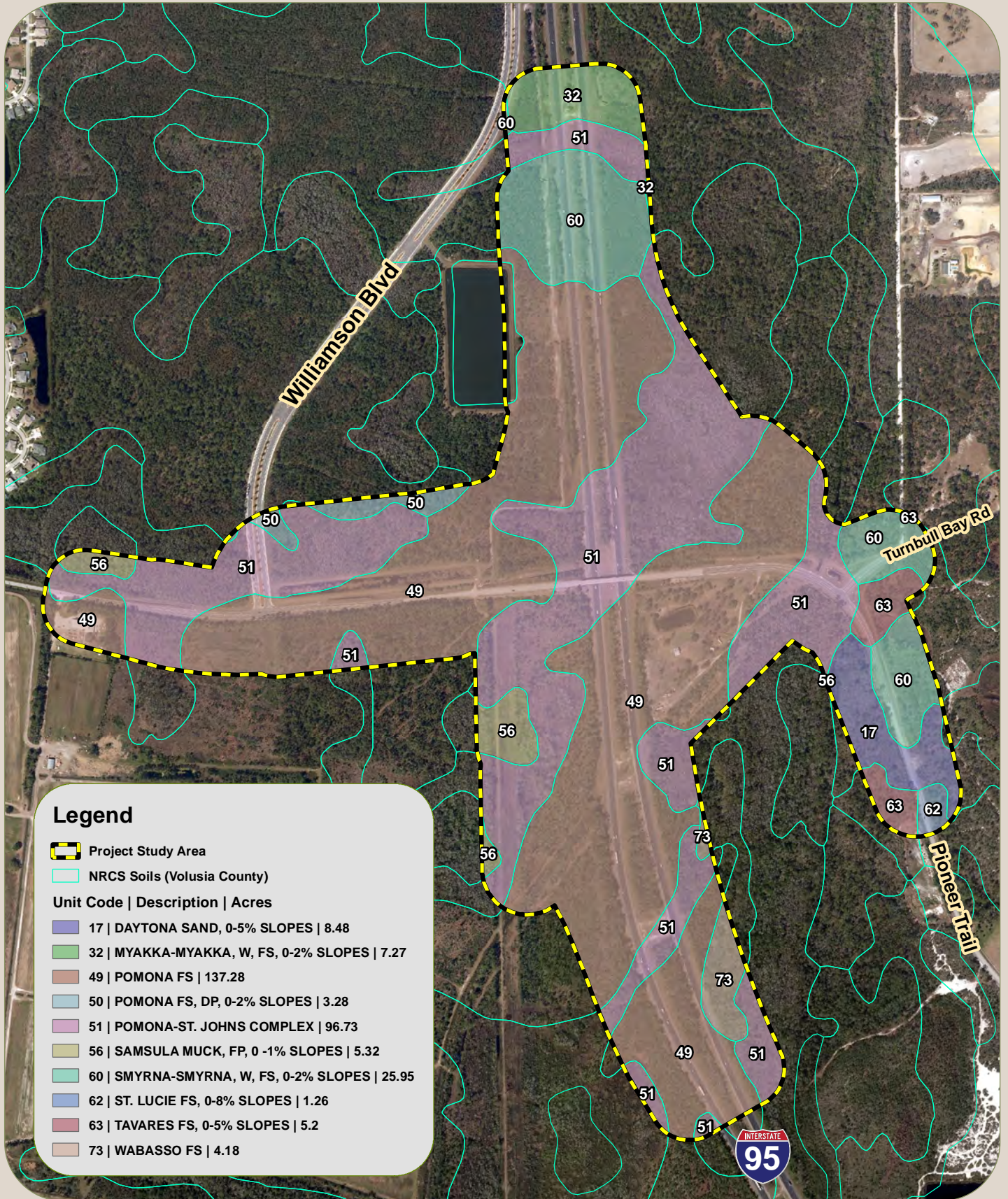
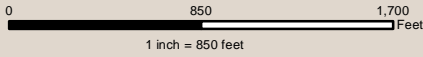
The Wabasso series is a member of the sandy, siliceous, hyperthermic family of Alfic Haplaquods. This series of soils are described as nearly level and poorly drained. The formation of this series was influenced by alkaline materials within beds of marine sandy and loamy deposits. Wabasso Fine Sand (73) occurs in broad, low areas of nearly level flatwoods with smooth slopes. For most years, the water table is within a depth of 10 inches for 1 to 4 months and between 40 inches for about 6 months in most years. Permeability is rapid to about 24 inches and moderate from 24 to 35 inches, rapid from 35 to 39 inches and moderately rapid from 39 to 80 inches. Natural vegetative composition is described as open forest of slash pine and cabbage palmetto, with an understory of saw palmetto, gallberry, runner oak, and fetterbush. A small portion (4.18 acres) in the southeast quadrant of the Project Study Area was mapped as Wabasso Fine Sand. The area assessed appears to consist of natural vegetation.

Table 2: NRCS Mapped Soil Units

Soil unit Code	Series Name	Map Unit Name	Hydric Soil Rating	Drain Classification	Farmland Association	Area (ac)
17	Daytona	Daytona Sand (0-5%S)	No	Moderately Well Drained	Not Prime Farmland	8.48
32	Myakka	Myakka-Myakka (WFS / 0-2%S)	No	Poorly Drained	Not Prime Farmland	7.27
49	Pomona	Pomona Fine Sand	No	Poorly Drained	Not Prime Farmland	137.28
50	Pomona	Pomona Fine Sand (DP / 0-2%S)	Yes	Very Poorly Drained	Not Prime Farmland	3.28
51	Pomona	Pomona-St Johns Complex	Yes	Very Poorly Drained	Not Prime Farmland	96.73
56	Samsula	Samsula Muck (FP / 0-1%S)	Yes	Very Poorly Drained	Not Prime Farmland	5.32
60	Smyrna	Smyrna-Smyrna (WFS / 0-2%S)	No	Poorly Drained	Not Prime Farmland	25.95
62	St. Lucie	St. Lucie Fine Sand, (0-8% S)	No	Excessively Drained	Not Prime Farmland	1.26
63	Tavares	Tavares Fine Sand (0-5%S)	No	Moderately Well Drained	Not Prime Farmland	5.20
73	Wabasso	Wabasso Fine Sand	No	Poorly Drained	Not Prime Farmland	4.18

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
 FPID No. 436292-1-22-01 | ETDM No. 14193



Legend

Project Study Area

NRCS Soils (Volusia County)

Unit Code | Description | Acres

- 17 | DAYTONA SAND, 0-5% SLOPES | 8.48
- 32 | MYAKKA-MYAKKA, W, FS, 0-2% SLOPES | 7.27
- 49 | POMONA FS | 137.28
- 50 | POMONA FS, DP, 0-2% SLOPES | 3.28
- 51 | POMONA-ST. JOHNS COMPLEX | 96.73
- 56 | SAMSULA MUCK, FP, 0 -1% SLOPES | 5.32
- 60 | SMYRNA-SMYRNA, W, FS, 0-2% SLOPES | 25.95
- 62 | ST. LUCIE FS, 0-8% SLOPES | 1.26
- 63 | TAVARES FS, 0-5% SLOPES | 5.2
- 73 | WABASSO FS | 4.18

NRCS SOILS CLASSIFICATIONS

2.3 Other Existing Natural Features

2.3-A Water Resources

Comments from the FDOT's Efficient Transportation Decision Making (ETDM) screening were received from the SJRWMD, Florida Department of Environmental Protection (FDEP), and the U.S. Environmental Protection Agency (EPA) regarding water quality and quantity. SJRWMD and the FDEP assigned a degree of effect of "none", while the EPA assigned a "moderate" degree of effect for the project.

The EPA noted that the project is located within a 500-buffer of a principle aquifer, surficial aquifer system, and recharge area. In addition, the EPA noted that the project is approximately five miles south of Spruce Creek, an Outstanding Florida Water (OFW). The project is also adjacent to and has the potential to involve wetland areas that are directly connected to Spruce Creek. (**Figure 5: Water Resources Map**)

2.3.A.1 Water Quality

The project study area is within the regulatory boundaries of the SJRWMD and lies specifically within the Waterbody Identification Number (WBID) 2679 (Upper East Coast). All projects under the jurisdiction of the SJRWMD are required to meet state water quality standards set forth in Chapter 62-302, F.A.C. To meet the standards for water quality the project will be designed to provide treatment for increases in impervious area and restore or replace existing permitted treatment facilities that maybe impacted by the project. Review of the design plans for the most recent I-95 widening project indicates that portions of the roadway slopes inward, allowing collection and treatment of the runoff to occur within wet retention ponds within the median. Since any proposed design for the interchange will meet the state water quality and quantity standards it is anticipated that no adverse impacts will occur. FDOT will continue to coordinate with the regulatory agencies, as required, throughout the design and permitting phases of the project, as well as post construction.

Water quality impacts that could result from erosion and sedimentation during construction activities will be controlled in accordance with the National Pollutant Discharge Elimination System (NPDES) Permit. The permit will include the preparation of a Stormwater Pollution Prevention Plan (SWPPP), implementation of the FDOT Standard Specification for Road and Bridge Construction and use of the Best Management Practices (BMP) including temporary erosion control features (e.g. turbidity barriers) during construction.

The project study area does not contain Outstanding Florida Waters, Aquatic Preserves, Class II waters or an Area of Critical State Concern. The SJRWMD has a designated Riperian Habitat Protection Zone that is associated with Spruce Creek; however, the limits of this RHPZ are wholly contained within the Doris Leeper Spruce Creek Preserve to the north and are outside of the project study area.

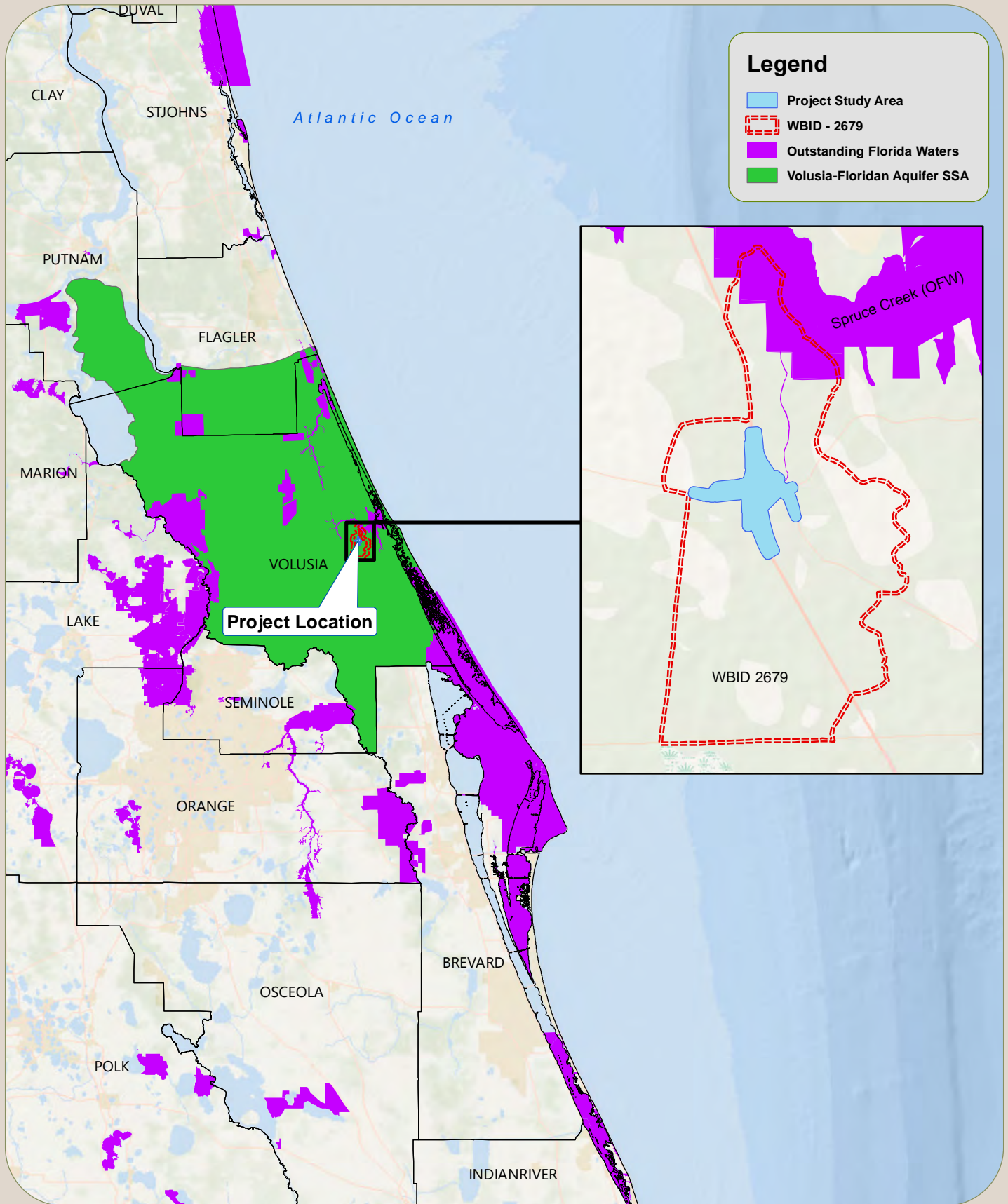
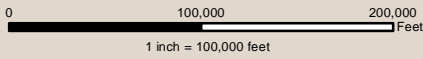
2.3.A.2 Sole Source Aquifer

The project study area lies within the boundaries of the Volusia-Floridan Sole Source Aquifer which includes all of Volusia County and portions of Flagler and Putnam Counties covering approximately 1,450 square miles. Adverse impacts to this aquifer are not anticipated as a result of the proposed project.

In accordance with the Sole Source Aquifer Program, authorized under Section 1424(e) of the Safe Drinking Water Act of 1974, FDOT has initiated coordination with the Environmental Protection Agency-Sole Source Aquifer Program, completed the Sole Source Aquifer Checklist, and requested concurrence that no adverse impacts are anticipated. Concurrence was granted via letter from the EPA dated September 5, 2019 (a copy is included in APPENDIX A).

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
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WATER RESOURCE MAP

3.0 Protected Species and Habitat

In order to determine federal and/or state listed plant and animal species that have the potential to occur within the project corridor, site-specific data was collected and evaluated.

The literature reviewed and databases searched as part of this evaluation included:

- U.S. Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12, June 2007*;
- Florida Fish and Wildlife Conservation Commission (FWC), *Florida's Endangered and Threatened Species, updated December 2018*;
- Florida Fish and Wildlife Conservation Commission, *Florida's Imperiled Species Management Plan, Amended December 2018*;
- Florida Department of Agriculture and Consumer Services, Florida Forest Service, *Florida's Federally Listed Plant Species website* (<https://www.fdacs.gov/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Florida-Statewide-Endangered-and-Threatened-Plant-Conservation-Program/Florida-s-Federally-Listed-Plant-Species>);
- Florida Fish and Wildlife Conservation Commission, *Eagle Nest Locator website* (<https://myfwc.com/wildlifehabitats/wildlife/bald-eagle/>);
- Florida Fish and Wildlife Conservation Commission, *Wading Bird Rookeries website* (<http://geodata.myfwc.com/>);
- U.S. Fish and Wildlife Service, *Critical Habitat Portal website* (<http://ecos.fws.gov/crithab/>);
- Florida Natural Areas Inventory (FNAI) *Biodiversity Matrix Map Server* (<http://www.fnai.org/biointro.cfm>);
- U.S. Fish and Wildlife Service, *Information for Planning and Consultation (IPAC)*, <https://ecos.fws.gov/ipac/>
- Florida Fish and Wildlife Conservation Commission *Fish and Wildlife Research Institute Indigo Snake Occurrences in Florida*; (<http://geodata.myfwc.com/>); and
- U.S. Fish and Wildlife Service, *Wood Stork website* (<https://www.fws.gov/northflorida/WoodStorks/wood-storks.htm>).

3.1 Wildlife Species Specific Surveys

To ensure a thorough assessment of potential impacts to state and federally listed species, project team scientists conducted field surveys within all suitable habitats in the proposed project study area. Prior to the onset of the surveys, typical habitat and other relevant life history information were gathered for each of the listed plant and animal species of potential occurrence along the project corridor. Aerial photographic maps and ground-truthing were used to delineate the different habitat types present along the corridor.

Ground-based biological surveys were conducted between the months of August 2018 through August 2019 and as well as April 2020, to identify natural habitat types, anthropogenic land use types and to investigate wildlife (including listed species) occurrence along the project corridor. Wildlife surveys were conducted during daylight hours and followed species specific survey guidelines as outlined by FWC and FWS. During the field visits, all observations of listed plant and wildlife species or indicators of their presence (i.e. remnants, tracks, burrows, calls, scat) within the study corridor were noted by staff biologists. General wildlife observations were also documented during the field visits. Site surveys consisted of meandering transects that covered areas within all cover types. Pedestrian transects covered approximately 20 percent of the area of natural habitats within the project study area. Based upon the verification of scrubby oak habitat in the southeastern corner of the project study area, it was determined that a five-day Florida scrub-jay survey was necessary.

3.2 Agency Coordination

Comments from the FDOT's Efficient Transportation Decision Making (ETDM) screening were received from The US Fish and Wildlife Service (FWS), and The Florida Fish and Wildlife Conservation Commission (FWC) regarding wildlife. FWC assigned a "moderate" degree of effect for the project while FWS assigned a "minimal" degree of effect. Because of the potential wildlife and habitat issues in the area, the FDOT assigned an overall Degree of Effect of Moderate to this issue.

The FWC noted in the ETDM screening that "Based on known range and preferred habitat type, the following species listed by the Federal Endangered Species Act (ESA) and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), State-Threatened (ST), or State Species of Special Concern (SSC) have the potential to occur in or near the project area: red-cockaded woodpecker (FE), Eastern indigo snake (FT), wood stork ((FT), gopher tortoise (ST), Sherman's fox squirrel (SSC), Southeastern American kestrel (ST), Florida pine snake (ST), little blue heron (ST), and the tricolored heron (ST), while the Florida scrub-jay (FT) has been documented within one mile of the project area."

The FWS noted in the ETDM screening that suitable habitat for the wood stork should be avoided, or if not possible, mitigated for with coordination with FWS. FWS also commented that the eastern indigo snake has large home ranges, surveys for the gopher tortoise burrows should be conducted, and standard protection plans for both species should be enacted prior to construction.

A draft NRE was provided to FWS North Florida Ecological Services Office and to the FWC Office of Conservation Planning Service on February 25, 2020, requesting concurrence with FDOT's determinations of effect for listed species involvement within the project study area. FWS concurred with FDOT's effect determinations on March 26, 2020. No correspondence was received from FWC. The final NRE was provided to FWS, FWC, the US Army Corps of Engineers (USACOE), and SJRWMD on September 24, 2020. The FWS again concurred with FDOT's effect determinations and had no further comment. The USACOE provided additional data on available mitigation bank options. FWC and SJRWMD did not provide comment to the final NRE. All agency correspondence is included within the Appendix A.

3.3 Federal Listed Wildlife, Plants, and Designated Critical Habitat (CH)

While there are numerous federal laws that assist in the protection of listed species, the Endangered Species Act of 1973 (ESA-1973) serves as the guiding document for the conservation and recovery of listed species of plants and animals native to the United States and its territories. The ESA-1973 is administered by the FWS and the Commerce Department's National Marine Fisheries Service (NMFS). The FWS has the responsibility for terrestrial and freshwater plants and animals, where the NMFS has the responsibility for mainly marine wildlife. Other federal laws protecting wildlife which may or may not also be protected by the ESA, include the Marine Mammal Protection Act, Wild Bird Conservation Act, Bald and Golden Eagle Protection Act, and Migratory Bird Treaty Act. Currently, according to the Information for Planning and Consultation (IPaC) website, there are 93 species listed under the ESA-1973 that have the potential to occur in Florida. In addition, 34 species have designated Critical Habitats (CH). The above laws were reviewed and utilized during the evaluation of the Project Study Area to assess the potential involvement of federal listed species.

While the ESA-1973 is better known for its protection of wildlife, it also governs the protection of flowering and non-flowering plant species. According to IPaC, there are currently 68 plant species that have the potential to occur in Florida.

3.3-A Federally Listed Wildlife & Plants with the Potential to Occur Within the Project Study Area

This preliminary data search revealed that the project corridor falls within the FWS consultation area for the Florida scrub-jay (*Aphelocoma coerulescens*). Consultation areas for the red-cockaded woodpecker (*Picoides borealis*) and the Everglade snail kite (*Rostrhamus sociabilis plumbeus*) also occur within Volusia County but do not overlap the project study area.

According to IPaC and literature reviews there are six (6) listed wildlife species and three (3) listed plants that have the potential to occur within the project area (See Appendix B).

3.3.A.1 Reptiles

3.3.A.1.1 Eastern indigo snake (*Drymarchon couperi*)

The eastern indigo snake was listed as Federally threatened on January 31, 1978, (43 Fed. Reg. 4028), due to population declines caused by habitat loss, over-collecting for the domestic and international pet trade, and mortality caused by rattlesnake collectors who gas gopher tortoise burrows to collect snakes. A 5-year review was completed in 2008 resulting in no change to the species designation (FWS 2008). No critical habitat has been designated for the eastern indigo snake. FWS also does not have a designated consultation area for this species.

The eastern indigo snake is known to reach a length of over 8 feet, making it one of North America's largest non-venomous snake. This snake is glossy with a blue-black color of their scales above and slate blue below. Some specimens have been observed to have orange, coral/reddish, or cream coloration in the throat area.

The eastern indigo snake can be found in a variety of habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, as well as human-altered habitats. In peninsular Florida, data on home ranges for females vary from 4.75 ac to 375 ac while male home ranges vary from four ac to 818 ac (Moler 1985b, Layne and Steiner 1996, Bolt 2006, Dodd and Barichivich 2007). Summer home ranges tend to be much larger than winter home ranges. The indigo snake may also utilize gopher tortoise burrows (as well as hollowed root channels, hollow logs or mammal burrows) for shelter to escape hot or cold ambient temperatures within its range.

Two gopher tortoise burrows (a primary source of shelter) were identified within the project study area during field reviews. The majority of the upland habitat within the study area has a high-water table that does not provide the well-drained soil types typically used by gopher tortoise in north central Florida. The exception is the 14.60 acres of xeric oak community that occurs at the southeast terminus of the project study area.

Documented occurrences of the eastern indigo snake were reviewed through GIS databases and the closest documented sightings of the Eastern indigo snake is from 2003 within the New Smyrna coastal strand over 7 miles to the southeast.

The FWS Standard Protection Measures for the Eastern Indigo Snake, which specify education of the construction contractor concerning avoidance of indigo snakes and post-construction reporting, will be implemented during the construction phase. Furthermore, state regulation requires that any gopher tortoise burrows found within the construction corridor be excavated after obtaining a permit from FWC.

The USACOE and the FWS have a programmatic effect key for the indigo snake. Following this 2013 key, (A) the project is no located in open water or salt marsh, (B) the permit will be conditioned for use of the Services Standard Protection Measures For the Eastern Indigo Snake during site preparation and project construction, (C) there are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities,(D) the project will impact less than 25 acres of xeric habitat supporting less than 25 acres of active and inactive gopher tortoise burrows, and (E) any permit will be conditioned such that all gopher tortoise burrows, active or inactive will be excavated prior to site manipulation in the vicinity of the burrow. A copy of the 2013 key is included as

Appendix C. Based on use of the programmatic key, FDOT has determined that this project would result in a “may affect, but not likely to adversely affect” determination for this species.

3.3.A.2 Avian

3.3.A.2.1 Florida scrub-jay (*Aphelocoma coerulescens*)

The Florida scrub-jay (herein “scrub-jay”) was federally listed as threatened in 1987 primarily because of habitat fragmentation, degradation, and loss (52 FR 20715). A recovery plan was issued in 1990 (FWS 1990). The most recent 5-year review was completed in 2007, which resulted in no change to the status of the species, but the review found that an updated recovery plan was needed (FWS 2007b). No critical habitat has been designated for this species. The FWS has designated Consultation Areas for the Florida scrub-jay which include the project study area. Consultation Areas encompass all areas where specific species populations exist. If a project falls within the consultation area, impacts to the designated species should be assessed and consultation with FWS should be initiated.

This bird is similar to the common blue jay in size and shape, but with a pale blue crestless head, nape, wings, and tail. Sexes cannot be distinguished by plumage; however, immature birds have a dusty brown head and neck.

The Florida scrub jay is a habitat specialist, primarily inhabiting xeric oak scrub habitats. Other habitats utilized include sand pine scrub, xeric pines, and agricultural or residential lands where scrub oaks have been retained. Scrub jays prefer areas with open sandy patches to cache large quantities of scrub oak acorns their principal plant food (Woolfenden and Fitzpatrick 1984; Fitzpatrick et al. 1991).

Scrub-jays typically nest from late February through June. Nests are typically constructed in shrubby oaks, at a height of 1.6 to 8.2 feet (Woolfenden 1974) and are constructed of course twigs as the outer layer with tightly wound palmetto or cabbage palm fibers in the interior.

A statewide scrub-jay census (sponsored by FWS and carried out by Archbold Biological Station) was last conducted in 1992 and 1993 and included mapping scrub-jay families as well as scrub habitat. The 1992-1993 statewide survey documented habitat for this species at the southeast corner of the project study area. In addition, the FWC study documented Florida scrub-jays approximately 0.95 miles northeast of the interchange of Pioneer Trail and Turnbull Bay Road. The study area is located within the FWS Merritt Island metapopulation.

Volusia County Environmental Permitting maintains maps that include “Landcover with Florida scrub-jays and Scrub Natural communities. These data maps include habitat east of I-95 on both the north and side of Pioneer Trail. Currently, the project study area contains approximately 4.37 acres of xeric oak at the southeast corner of the project study area. This habitat is suboptimal for the scrub jay as its relatively thick and the oak trees are mature and average over 10 feet in height making them too tall for scrub-jay nesting. In addition, large pine trees within this community provide perches for scrub jay avian predators. Scrub jays were not observed during any field events.

A five-day scrub-jay survey was conducted during late July and early August of 2019. Survey stations were established along both sides of Pioneer Trail south of Turnbull Bay Road in areas of potential habitat. Surveys were carried out during early morning hours prior to the heat of the day and did not occur during times of heavy wind or rain. No scrub-jays were identified during the 5-day survey. A technical memorandum detailing the survey is included as **Appendix D**.

Based on the lack of observations during field surveys, FDOT has determined that this project is “may affect, but not likely to adversely affect” the Florida scrub-jay.

3.3.A.2.2 Bald eagle (*Haliaeetus leucocephalus*)

The bald eagle has been de-listed by the FWS in 2007; however, it is still federally protected by the Bald and Golden Eagle Protection Act (BGEPA) in accordance with 16 United States Code 668 and the Migratory Bird Treaty Act of 1918. On December 14, 2016, the U.S. Fish and Wildlife Service announced a final rule revising the regulations for permits for incidental take of eagles and take of eagle nests. No critical habitat or consultation area has been designated for this species, although activities within 660 feet of a nest require further consideration of potential effects.

The bald eagle is a very large raptor with a distinctive white head and yellow bill. Bald eagle females grow larger (8-14 lbs with a wingspan of 8 feet) than males (6-10 lbs with a wingspan of 6 feet). Sub-adults and juveniles do not display the adult plumage until approximately 3-4 years of age but can still be easily distinguished from all Florida birds based on their large size.

Nests, which are typically built in pine trees, are very large and easily identifiable from the ground. Nests are generally located near water bodies that provide a dependable food source. In Florida the nesting season is from October 1 through May 15th. Bald eagles are territorial of their nests and will chase off other eagles as well as other raptors. Bald eagles typically lay one to three eggs once a year that hatch after about 35 days and fledge three months later.

The bald eagles require a large food base and tend to utilize riparian habitat associated with coastal areas, lake shorelines, and riverbanks. Bald eagle prey base includes fish, birds, small mammals (including domesticated cats), and carrion.

Bald eagle nests within Florida are closely monitored by the FWC, and the FWC Center for Biostatistics and Modeling maintains a website of known bald eagle nest locations, which is current through the 2015-2016 nesting season. According to this database, there are no documented nest sites within one (1) mile of the project corridor. The closest documented eagle nest (VO121) is approximately 2.5 miles to the east of the project study area. The project study area is not located within the primary and secondary protection zone of any active bald eagle nest.

The FWS issued the National Bald Eagle Management Guidelines, dated May 2007, to advise individuals of circumstances in which protective provisions of the BGEPA may apply to their activities. According to the guidance letter, all projects within 660 feet of a bald eagle nest tree are required to abide by the National Bald Eagle Management Guidelines. Because the project's corridor is located outside of the 660-foot zone of any nest site, no additional coordination with FWS with respect to the eagle is required. **As a result, FDOT has been determined that the project is "may affect, but is not likely to adversely affect" the bald eagle.**

3.3.A.2.3 Wood stork (*Mycteria americana*)

The wood stork was listed as endangered under the ESA on February 28, 1984 (49 Fed. Reg. 7332). Recovery plans for wood stork were issued in 1986 and 1997 (FWS 1986; FWS 1997). The most recent five-year review (FWS 2007a) recommended preparation of a proposed rule to reclassify the species from endangered to threatened status, and recommended evaluation of wood storks under the 1996 Distinct Population Segment (DPS) policy. On July 30, 2014, the FWS reclassified the U.S. breeding population of the wood stork from endangered to threatened (79 Fed. Reg. 37078). No critical habitat has been designated for this species. FWS also does not have a designated consultation area for this species.

The wood stork is a large, long-legged wading bird, with a head to tail length of 33 to 45 in. and a wingspan of 59 to 65 in. (Coulter et al. 1999). The plumage is white, except for black on the primary and secondary wing feathers and a short black tail. Wood storks fly with their neck and legs extended. On

adults, the rough scaly skin of the head and neck is unfeathered and blackish in color, the legs are dark, and the feet are dull pink. The bill color is also blackish. Immature wood storks, up to the age of about three years, have yellowish or straw-colored bills and varying amounts of dusky feathering on the head and neck (Coulter et al. 1999).

The wood stork is opportunistic and utilizes various habitat types, including forested wetlands, freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures and ditches. Water that is relatively calm, uncluttered by dense thickets of aquatic vegetation, and with a permanent or seasonal water depth between 2 and 15 inches deep is considered suitable foraging habitat for this species. FWS defines suitable foraging habitat (SFH) for the wood stork 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. In accordance with this definition, SFH does occur within the project study area.

Wood stork nest in mangroves, cypress as well as many other live or dead shrubs or trees located in standing water or on islands surrounded by relatively broad expanses of open water (Palmer 1988, Rodgers et al. 1987, Ogden 1991, Coulter et al. 1999).

FWS has defined core foraging area (CFA) for the wood stork in central Florida population of as a 15 miles buffer surrounding wood stork nesting colonies. Where the wood stork is known to utilize a 15-mile radius from its nesting area for foraging. The FWS wood stork colony database was searched for active wood stork colonies located within 15-miles of the project area. According to the FWS wood stork colony website, the closest wood stork nesting colony is over 20 miles to the west (Hontoon Island). As such, the project study area does not occur within the core foraging radius of any wood stork rookery. Wood storks were not observed during field surveys.

The USACOE and the FWS have a programmatic Effect Determination Key for the Wood Stork in Central and North Peninsular Florida (FWS 2008). According to this key, the project results in a “not likely to adversely affect” determination when project impacts to suitable foraging habitat are not within a Core Foraging of a colony site, and no wood storks have been documented foraging on site. The project study area does not occur within the core foraging radius of any wood stork rookery and no wood storks were observed during field reviews. **Therefore, FDOT has determined that this project is “may affect, but not likely to adversely affect” the wood stork.**

3.3.A.2.4 Red-cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker (RCW) was listed as endangered under the ESA in 1973. A 5-year review was completed in 2006 resulting in no change to the status of the species (FWS 2006a). No critical habitat has been designated for this species. The FWS has designated Consultation Areas for the RCW which occurs approximately 13 miles to the west of the project study area.

This small woodpecker, distinguished by its barred, black and white wings with a ladder back and large white cheek patches. These cheek patches distinguish red-cockaded woodpeckers from all others in their range.

The RCW is a territorial, non-migratory, cooperative breeding species that is the only North American woodpecker that exclusively excavates its roost and nest cavities in living pines. RCWs require open pine woodlands and savannahs with large old pines for nesting and roosting habitat (clusters). The

preferred cavity tree will typically consist of pine trees greater than 60 years in age that have heart rot fungus that softens the inner core of the tree.

Suitable foraging habitat consists of mature pines with an open canopy, low densities of small pines, little or no hardwood or pine midstory, few or no overstory hardwoods, and abundant native bunchgrass and forb groundcovers.

Fire suppression and lack of cavity trees are the primary factors that limit suitable nesting habitat. Fire suppression has resulted in loss of potential breeding groups throughout the RCW's range, because the birds cannot tolerate the hardwood encroachment that results from lack of fire. The closest documented red-cockaded woodpecker cluster is east of Barberville, approximately 20 miles to the northwest of the project area.

Habitat for this species does not occur within the project study area as the majority of the pine trees within the interchange and surrounding roadway footprints are not at an age to support this species and the understory is too overgrown. However, during field events, biologists did inspect large slash and longleaf pine within the corridor footprint for signs of red-cockaded woodpecker cavities. No cavities were identified within the interchange or roadway footprint. **It is FDOT's determination that the project will have "no effect" on the red cockaded woodpecker.**

3.3.A.2.5 Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)

The Everglade snail kite was listed as endangered under the ESA in 1973. In total, about 841,635 acres of critical habitat for the Everglade snail kite were designated in 1977 (42 Fed. Reg. 40685 (Aug. 11, 1977)). No critical habitat for the Everglade snail kite has been designated in Volusia County. The FWS has designated Consultation Areas for the Everglade snail kite which occurs approximately 4.3 miles to the west of the project study area.

The snail kite is a medium-sized raptor, with a total body length for adult birds of 14 to 16 in. and a wingspan of 43 to 46 in. (Sykes et al. 1995). Adult males uniformly slate gray and adult females brown with cream streaking in the face, throat, and breast. Immature snail kites are similar to adult females but are more cinnamon-colored with tawny or buff-colored streaking rather than cream streaking. In both sexes, the tail is square-tipped with a distinctive white base, and the wings are broad, and paddle-shaped.

Everglade snail kites are dietary specialists, a relatively rare foraging strategy among raptors. The slender, decurved bill is an adaptation for extracting the kite's primary prey, the apple snail (*Pomacea paludosa*); the bill is a distinguishing characteristic for field identification in both adults and juveniles. A species of invasive non-native apple snail (*Pomacea maculata*) has become established recently within the kite's range in Florida and have been used to varying degrees by snail kites.

Everglade snail kites rely on freshwater marshes and the shallow-vegetated littoral zones along the edges of lakes (both natural and man-made) where apple snails occur in relatively high abundance and can be found and captured by kites.

The Everglade snail kite breeding season in Florida that typically occurs between December through July. Everglade snail kites may roost communally outside of breeding season and, occasionally, roost in groups of up to 400 or more individuals (Bennetts et al. 1994) and are also usually located over water.

In Florida, the historic range of the snail kite was larger than at present. The current distribution of the snail kite in Florida is limited to central and southern portions of the State. Six large freshwater systems are located within the current range of the snail kite: Upper St. Johns marshes, Kissimmee Chain of Lake (KCOL), Lake Okeechobee, Loxahatchee Slough, the Everglades, and the Big Cypress Basin

(Beissinger and Takekawa 1983; Sykes 1984; Rodgers et al. 1988; Bennetts and Kitchens 1992; Rumbold and Mihalik 1994; Sykes et al. 1995; Martin et al. 2005). In addition to the primary wetlands discussed above, there are numerous records of kite occurrence and nesting within isolated wetlands throughout the region. The majority of nesting continues to be concentrated within the large marsh and lake systems of the Greater Everglades, the Kissimmee basin, and the Upper St. John’s marshes.

No snail kites were observed during field reviews. The habitats within the proposed interchange and the associated roadway do not provide substantial habitat for the apple snail. The closest documented snail kite occurrence is in southern Brevard County within the marshes that surround the upper St. Johns River. **It is FDOT’s determination that the project will have “no effect” on the Everglade snail site.**

3.3.A.2.6 Additional Federally Listed Species Considerations

Coastal reptile species that occur within Volusia County that were eliminated from consideration of potential occurrence within the project study area include the threatened green sea turtle (*Chelonia mydas*) and loggerhead sea turtle (*Caretta caretta*); the endangered hawksbill sea turtle (*Eretmochelys imbricata*) and leatherback sea turtle (*Dermochelys coriacea*); and the threatened Atlantic salt marsh snake (*Nerodia clarkia taeniata*). All of these species are associated with marine and/or estuarine/inshore tidal habitat types that do not occur within the project study area. Please note that the gopher tortoise a federally listed “candidate” species is discussed under the state listed wildlife section.

The threatened red knot (*Calidris canutus rufa*) and piping plover (*Charadrius melodus*) as well as the proposed threatened eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*) were also eliminated based on the lack of habitat within the project study. These birds all prefer to coastal habitats including intertidal, marine, estuaries and bays.

The threatened west Indian Manatee (*Trichechus manatus*) and southeastern beach mouse (*Peromyscus polionotus niveiventris*) are federally listed mammals that occur within Volusia County. Both of these species were eliminated from consideration as they occur within large aquatic habitat and the beach dunes respectively. **As such, it is FDOT’s determination that this project will have “no effect” on the green sea turtle, loggerhead sea turtle, hawksbill sea turtle, leatherback sea turtle, Atlantic salt marsh snake, red knot, piping plover, and black rail.**

Table 3: Federal Listed Effects Determination Summary

Common Name	Scientific Name	Listing Status	Habitat Onsite	Effect Determination
Eastern indigo snake	<i>Drymarchon couperi</i>	T	Yes	MANLAA
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	T	Yes	MANLAA
Bald eagle	<i>Haliaeetus leucocephalus</i>	N/A*	Yes	MANLAA
Wood stork	<i>Mycteria americana</i>	T	Yes	MANLAA
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No	NE
Everglade Snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E	No	NE

*Protected under the bald and golden eagle protection act and migratory bird treaty.

3.3.A.3 Plants

There are three (3) federally listed plant species that have been determined that have the potential to occur within the project area. None of these species have been documented within the project study area, nor were any of them observed during field reviewed. However, it was determined based on the limited amount of suboptimal habitat within the project study area, that the project “may affect, but is not likely to adversely affect” the Rugel’s pawpaw and Okeechobee Gourd. Based on the lack of habitat for

the Fragrant prickly apple, it was determined that this project will have “no effect” on this species. **Table 4** provides a summary of the effect determinations for federally listed plant species for this project.

3.3.A.3.1 Rugel’s pawpaw (*Deeringothamnus rugelii*)

This small shrub with a substantial tap root is a member of the custard-apple (*Annonaceae*) family. This species is endemic to Volusia County occurs within open slash pine or longleaf pine flatwoods with wiregrass and saw palmetto in the understory and federally listed as **endangered**. Rugel’s pawpaw thrives in habitat that is burned every 2-3 years in the growing season which promotes flowering and reduces competition. No specimens of Rugel’s pawpaw were documented within a mile of the project study area. There is habitat (pine flatwoods) within the project study area that could support this species if it was properly managed with fire or even mowed. However, in its current condition, the pine flatwoods are far too overgrown. Field surveys were carried out to ascertain whether this species is within the corridor. No species of pawpaw were observed within the study area. **It is FDOT’s determination that the project “may affect, but not likely to adversely affect” the Rugel’s pawpaw.**

3.3.A.3.2 Okeechobee Gourd (*Cucurbita okeechobeensis* spp. *okeechobeensis*)

The Okeechobee Gourd is a vine with long, twisting tendrils and slender stems that is endemic to central Florida. This gourd is listed as **endangered** by FWS. This member of the gourd (*Cucurbitaceae*) family occurs within pond apple swamps and mucky soils on Lake Okeechobee shores and islands as well as floodplain forests along the St. Johns River. This gourd is known to grow on elderberry (*Sambucus canadensis*) and buttonbush (*Cephalanthus occidentalis*). The project corridor is over 20 miles east of the St. Johns River. Nonetheless, the large wetland forests within the floodplain area were inspected for this gourd. No specimens of Okeechobee gourd were found during field surveys. **It is FDOT’s determination that the project is “may affect, but not likely to adversely affect” the Okeechobee gourd.**

3.3.A.3.3 Fragrant prickly apple (*Harrisia fragrans*)

This plant is a member of the cactus (*Cactaceae*) family and is found in coastal hammocks and shell middens. This plant is federally listed as **endangered**. None of these habitat types occur within the project study area and no specimens of cactus were observed during field reviews. **It is FDOT’s determination that the project will have “no effect” on this species.**

Table 4: Federal Listed Plant Effects Determination Summary

Common Name	Scientific Name	Listing Status	Habitat Onsite	Effect Determination
Rugel’s pawpaw	<i>Deeringothamnus rugelii</i>	E	Yes	MANLAA
Okeechobee Gourd	<i>Cucurbita okeechobeensis</i> spp. <i>okeechobeensis</i>	E	Yes	MANLAA
Fragrant prickly apple	<i>Harrisia fragrans</i>	E	No	NE

3.3-B Avoidance, Minimization and Mitigation Measures for Federal Listed Wildlife

Avoidance and minimization measures are intended to avoid and/or reduce the adverse impacts of an action to wildlife and their habitat. In the case of this study, no federally listed wildlife species were identified within the project area and limited suitable habitat is available. The preferred alternative is following the avoidance and minimization procedures to limit the footprint of the project and therefore the potential impacts to habitat. Primarily this involves impacts to wetlands that could serve as foraging habitat for wood stork, though there is no shortage of available foraging habitat in the surrounding area. Wetland mitigation for unavoidable impacts will be provided to satisfy the state and federal regulatory program guidelines which in turn can provide habitat suitable for wood stork.

3.3-C Critical Habitat Assessment

The project corridor was evaluated for the occurrence of Critical Habitat (CH) as defined by the ESA-1973, as amended and 50 CFR part 424. The FWS has the authority, as a federal agency, to protect CH from destruction or adverse modification the biological or physical constituent elements essential to the conservation of listed species. Critical Habitat is defined as the specific areas within the geographical area occupied by a species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection. **No Critical Habitat for any federally listed species was identified within the project corridor.**

3.4 State Protected Species and Habitat

Chapter 379 of the Florida Statutes (F.S.) provides the direct protection of wildlife from activities that may harm or jeopardize the species. However, Section 379.2291, F.S., otherwise known as the Florida Endangered and Threatened Species Act of 1977 (ESA-1977) provides the details related to the conservation and management of threatened and endangered species within Florida. The Marine Life statute (Section 379.2401-379.26, F.S.) provides specific protections to marine (brackish water) animals. Currently, Florida has 131 species listed under the ESA-1977, of these 91 species have been included as Federally designated Endangered (FE), Federally designated Threatened (FT), Federally designated Threatened due to Similarity of Appearance (FT-S/A), and Federal Non-Essential Experimental Population (FXN). The remaining 40 species have been specifically designated as either State-designated Threatened (ST) or State Species of Special Concern (SSC). Other chapters and sections within the F.S. which involve wildlife generally deal with habitat issues, such as The Florida Water Resource Act of 1972 (Chapter 373, F.S.).

Authorized under Rule 5B-40 of the Florida Administrative Code (F.A.C), the Division of Plant Industry, Florida Department of Agriculture and Consumer Services is responsible for the regulation of endangered, threatened and commercially exploited plants of Florida. Currently, there 387 endangered, 118 threatened and 9 commercially exploited plants listed in the state of Florida.

3.4.A.1 State Listed Wildlife and Plants with the Potential to Occur Within the Project Study Area

The FWC Wildlife Observations GIS database and FNAI's Biodiversity Matrix Map server were searched for documented occurrences of listed species within eastern Volusia County. According to these FNAI's Biodiversity Matrix Map, a number of state listed wildlife occurs within Volusia County (see **Appendix E**, FNAI Biodiversity Matrix Query Results Unofficial Report); however, none have been documented near the project study area.

Based on the above referenced collected data, as well as in-house and field reviews, the following federal and state protected species may potentially occur in the project study area were identified:

3.4.A.2 Reptiles

3.4.A.2.1 Gopher tortoise (*Gopherus polyphemus*)

This medium-sized land tortoise is listed as **threatened** by the FWC. The gopher tortoise prefers areas of well-drained loose soils that support adequate low-growing herbs. Tortoises are most often found in xeric oak, sandhills, dry pine flatwoods, scrub habitats as well as old fields, pastures and roadsides. Gopher tortoise burrows also provide refuge and home to numerous species (burrow commensals), including listed species, which are either partially or wholly reliant upon the burrow. Two gopher tortoise burrows were identified within the project study area during field reviews. Most of the upland habitat within the study area has a high-water table that is not ideal for this species which prefers well-drained soil types. The exception is the two well-drained soil types (Tavares Fine Sand and Daytona sand) that occur in the southeast quadrant near the

terminus of the project area. These soils comprise less than 2 acres of the project study, of which, much is paved Pioneer Trail.

Within 90 days prior to construction, surveys for gopher tortoises will be conducted within 100% of all available gopher tortoise habitats identified within 25 feet of the project corridor. The surveys for gopher tortoises will be conducted in conformance with FWC guidelines by an Authorized Gopher Tortoise Agent. All gopher tortoise burrows that are found within the project corridor will be excavated in accordance with a conservation permit by FWC. **Based on this, FDOT has determined that this project will have no adverse effect anticipated for the gopher tortoise.**

3.4.A.2.2 Florida pine snake (*Pituophis melanoleucus mugitus*)

This large, tan or rust colored snake with an indistinct pattern of blotches is listed as **threatened** by the FWC. The Florida pine snake prefers open-canopied xeric habitats with dry sandy soils, and can be found in sandhills, pastures, sand pine scrub, longleaf pine and turkey oak forests. The pine snake is also known to coexist with pocket gophers and gopher tortoises.

There is a small amount of suitable habitat is within the project area (pine flatwoods); however, there are no documented occurrences within one (1) mile of the project corridor and no Florida pine snakes were observed during the field reviews. In addition, there were only two gopher tortoise burrows (which the pine snake is known to utilize) within the study area. The primary concern for impacts to this species is habitat loss and fragmentation. The proposed project is not anticipated to permanently impact, or cause fragmentation of habitat used by this species. In addition, if Florida pine snakes are found during construction, FDOT will follow current FWC guidance and allow the species to leave the construction area on its own volition before resuming construction. **Based on this, FDOT has determined that this project will have no adverse effect anticipated for the pine snake.**

3.4.A.3 Avian

3.4.A.3.1 Southeastern American kestrel (*Falco sparverius paulus*)

The southeastern American kestrel is a smallest falcon within the United States. This falcon has with blue-grey (male) or reddish brown (female) wings and distinctive black and white facial pattern and a black band at the base of the tail. This non-migratory breeding subspecies is listed as **threatened** by the FWC, and is most common in peninsular Florida, and rarer in the panhandle. Another subspecies of the American Kestrel (*Falco sparverius sparverius*) which is undisguisable from the southeastern subspecies is a non-listed wintering migrant bird species that is found throughout Florida between September and March.

The preferred habitats for this species are open habitats that include dry prairies and open mixed pine, open pine scrub, hardwood forests, and pine flatwoods (with open patches of grass). This kestrel is frequently observed dropping from exposed tree limbs, utility poles and lines and shrubs onto large insects which are its primary prey source. The nest sites are tall dead trees, abandoned woodpecker cavities or utility poles. Breeding activities extend from January through May with the young remaining with the parents for several weeks after they fledge.

There is a small amount of suitable kestrel foraging habitat within the open portions of the woodland pasture; however, most of the project study area is much too overgrown to be suitable habitat for this species. The dead pine trees observed within the corridor were inspected for signs of nesting kestrel, although none were observed. There have been no documented sightings of

the kestrel within one (1) mile of the project corridor and there was no direct observation of a southeastern kestrel or a nest during field reviews. **As such, no adverse effect is anticipated for the Southeastern American kestrel.**

3.4.A.3.2 Florida sandhill crane (*Grus canadensis pratensis*)

This tall, long necked and long-legged bird with a red head is listed as **threatened** by FWC. The greater sandhill crane (*G. canadensis tabida*) another species of crane is a migratory winter visitor to Florida and is indistinguishable in the field.

The Florida sandhill crane prefers shallow non-forested freshwater wetlands (marsh and prairies), pastures, and open woods and other open habitat such as roadsides and dry prairie for foraging. Nests can be found on the ground in shallow marsh areas and lakes beginning as early as December but more typically in January and extending through August. Nest sites are typically surrounded by water to reduce predation by small mammals. No sandhill cranes have been observed during field reviews, nor have any nest sites been identified. The project is not expected to have impact any sandhill cranes. FDOT has determined that **no adverse effect is anticipated for this species.**

3.4.A.3.3 Florida burrowing owl (*Athene cunicularia floridana*)

This small, long legged owl, ground-dwelling burrowing owl is listed as **threatened** by FWC. The Florida burrowing owl prefers high sandy soils with little vegetation growth. Habitats such as prairies, sandhills, farms, or airfields are preferable areas for the Florida burrowing owl to nest.

Burrowing owls exists as a breeding pair or as a loose family colony. In Florida burrowing owls' nest from November through April with young beginning to fly at approximately 6 weeks old.

Little potential nesting habitat is available although foraging habitat is plentiful. Foraging and nesting habitat within the project study area is restricted to the maintained utility easements and roadsides grass side slopes (foraging only). There were no direct observations of this species foraging within the corridor during future field reviews. All burrowing owls identified within the project area will be relocated under FWC permitting guidelines. FDOT has determined that **no adverse effect is anticipated for this species** from the proposed project.

3.4.A.3.4 Roseate spoonbill (*Ajaia ajaja*)

This large pink and white wading bird with a flat, spoon-like bill is listed as **threatened** by the FWC. The roseate spoonbill prefers both fresh and saltwater foraging habitats such as shallow water of variable salinity, marine tidal flats and ponds, coastal marshes, mangrove-dominated inlets and pools, and freshwater sloughs and marshes. This species nests on coastal islands, in Brazilian pepper on man-made dredge spoil islands near foraging habitat, and sometimes in willow heads at freshwater sites. The roseate spoonbill typically nests in wading bird colonies with other multiple other species. There is foraging habitat for this species within the project corridor; however, there is no nesting habitat.

No direct observations of the roseate spoonbill were made during field reviews of the project corridor. The primary concern for impacts to this species is the loss of wetland habitat for foraging and nesting. The closest wading bird rookery is over 5 miles to the southeast. The proposed project is not anticipated to cause a net loss of wetland habitat and therefore will likely have no

effect on the roseate spoonbill. FDOT has determined that **no adverse effect is anticipated for this species.**

3.4.A.3.5 Little blue heron (*Egretta caerulea*)

This medium-sized, slate-blue, wading bird is listed as **threatened** by the FWC. The plumage of first year immature birds is white. The little blue heron prefers both fresh and saltwater habitats such as fresh- and saltwater mudflats and marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps. In Florida, the little blue-heron breeds in colonies from February to September.

A specimen of little blue heron was observed utilizing a drainage ditch west of I-95. Protection and buffers of nesting habitat is the primary protection objective for this species. The closest wading bird rookery is over 5 miles to the southeast. As such, FDOT has determined that **no adverse effect is anticipated for this species.**

3.4.A.3.6 Tricolored heron (*Egretta tricolor*)

This medium-sized, two-toned, wading bird is listed as **threatened** by the FWC. A medium-small slim heron, mostly dark slate-blue on head, neck, upper wings and upper body. Identifiable features for this bird include the purplish chest, a white belly and undertail. Adults exhibit yellow-brown plumes across the lower back. Immature birds are reddish-brown on the head, neck and wings. The tricolored heron prefers both fresh- and saltwater habitats such as fresh- and saltwater marshes and mudflats, brackish marshes, coastal beaches, mangrove swamps, hardwood and cypress swamps, and wet prairies. In Florida, the little blue-heron breeds in colonies from February to July.

No tricolored herons were observed during field reviews although habitat is available within the study area. Protection and buffers of nesting habitat is the primary protection objective for this species. The closest wading bird rookery is over 5 miles to the southeast. As such, FDOT has determined that **no adverse effect is anticipated for this species.**

3.4.A.3.7 Least tern (*Sterna antillarum*)

This light grey bird with a black cap and nape is listed as **threatened** by the FWC. This species occurs in both fresh and saltwater habitats. Habitats such as coastal beaches, open fresh and saltwater, fresh and saltwater marshes, wet prairies, and agricultural environments are preferable for the species.

Habitats such as coastal beaches, open fresh and saltwater, fresh and saltwater marshes, wet prairies, and agricultural environments are preferable for the species. While there is freshwater marsh within the study area, no least terns were observed during field reviews. FDOT has determined that **no adverse effect is anticipated for this species.**

3.4.A.3.8 Additional State Listed Species Considerations

The threatened reddish egret (*Egretta rufescens*), American Oystercatcher (*Haematopus palliatus*), and black skimmer (*Rynchops niger*) were eliminated from consideration of occurrence based on the lack of habitat within the project study. These birds all prefer coastal habitats including intertidal, marine, salt marshes, estuaries and bays. **As such, it is FDOT's determination that this project is anticipated to have "no effect" on the reddish egret, American Oystercatcher, and black skimmer.**

Table 5: State Listed Effects Determination Summary

Common Name	Scientific Name	Listing Status	Habitat Onsite	Effect Determination
Gopher tortoise	<i>Gopherus polyphemus</i>	T	Yes	NAE
Southeastern American kestrel	<i>Falco sparverius paulus</i>	T	Yes	NAE
Florida sandhill crane	<i>Grus canadensis pratensis</i>	T	Yes	NAE
Florida burrowing owl	<i>Athene cucularia floridana</i>	T	Yes	NAE
Roseate spoonbill	<i>Ajaia ajaja</i>	T	Yes	NAE
Little blue heron	<i>Egretta caerulea</i>	T	Yes	NAE
Tricolored heron	<i>Egretta tricolor</i>	T	Yes	NAE
Least tern	<i>Sterna antillarum</i>	T	No	NAE

3.4.A.4 Plants

An evaluation of FNAI and FWC resources resulted in the following state listed plants that are documented to occur within Volusia County. Based on the type and overall condition of the habitats within the study area, as well as the lack of direct observations, it is anticipated that the project will have **no adverse effect of state listed plants**. **Table 6** provides a summary of the effect determinations for state listed plant species for this project.

3.4.A.4.1 Golden leather fern (*Acrostichum aureum*)

This is one of two leather ferns in Florida. This plant is a member of the brake fern (*Pteridaceae*) family and is frequently observed within tidal swamps or riverbanks in Volusia County. This species can be distinguished from the other species (*Acrostichum danaeifolium*) by its shorter fronds and more separated leaflets. This large fern which is listed as threatened by the FDA, grows in mangrove and other forested wetland areas. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for the golden leather fern.

3.4.A.4.2 American toothed spleenwort (*Asplenium dentatum*)

This small, tufted fern is listed as endangered by FDA. This plant is a member of the spleenwort (*Aspleniaceae*) family and occurs in tropical hardwood hammocks and on limestone outcrops and walls of limesinks. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.3 Auricled spleenwort (*Asplenium erosum*)

This small, tufted fern is listed as endangered by FDA. This plant is a member of the spleenwort (*Aspleniaceae*) family and occurs in on tree trunks and logs in swamps and hammocks. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for the auricled spleenwort.

3.4.A.4.4 American bird's nest fern (*Asplenium serratum*)

This fern which has numerous upright, 1-2-foot-long leaves is listed as endangered by the FDA. This plant is a member of the spleenwort (*Aspleniaceae*) family and grows as a rosette on tree branches on fallen logs, stumps, and tree trunks in cypress swamps and tropical rockland hammocks. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for the American bird's nest fern.

3.4.A.4.5 Ashe's savory (*Calamintha ashei*)

This small Florida endemic shrub has light lavender flowers and is typically less than 2 feet tall and 2-3 feet wide. This plant is a member of the mint (*Lamiaceae*) family and is found on well-drained sandy

soils predominately on Florida's sand ridges. This plant is listed by FDA as a threatened species. Very little habitat for this species occurs within the corridor. However, this habitat was inspected for potential presence for this species. No specimens of Ashe's savory were identified during a field review of these areas. **No adverse effect is anticipated** for this species.

3.4.A.4.6 Sand butterfly pea (*Centrosema arenicola*)

This perennial vine with lance-shaped leaflets is listed as endangered by the FDA. This plant is a member of the pea (*Fabaceae*) family and is found in sandhill, scrubby flatwoods, and dry upland woods. Very little habitat for this species occurs within the corridor. However, this habitat was inspected for potential presence for this species. This habitat was inspected for potential presence for this species. No specimens of sand butterfly pea were observed during field surveys of these areas. **No adverse effect is anticipated** for the sand butterfly pea.

3.4.A.4.7 Sand-dune spurge (*Chamaesyce arenicola*)

This spurge is a member of the spurge (*Euphorbiaceae*) family, occurs as an inconspicuous mat within dunes and scrub. This spurge is listed as endangered by the FDA. Very little habitat for this species occurs within the corridor. However, this habitat was inspected for potential presence for this species. No specimens of sand-dune spurge were observed during field surveys of these areas. **No adverse effect is anticipated** for the sand-dune spurge.

3.4.A.4.8 Large-flowered rosemary (*Conradina grandiflora*)

This plant is a member of the mint (*Lamiaceae*) family and is found on well drained sandy soils of in coastal shrub. This plant is listed as threatened by the FDA. Very little habitat for this species occurs within the corridor. However, this habitat was inspected for potential presence for this species. No specimens of large-flowered rosemary were identified during an inspection of these areas. **No adverse effect is anticipated** for this species.

3.4.A.4.9 Coastal vervain (*Glandularia maritima*)

This plant is a member of the vervain (*Verbenaceae*) family and is found on dunes and coastal pinelands. This plant is listed as endangered by the FDA. Very little habitat for this species occurs within the corridor. However, this habitat was inspected for potential presence for this species. No specimens of coastal vervain were identified during an inspection of these areas. **No adverse effect is anticipated** for this species.

3.4.A.4.10 Tampa vervain (*Glandularia tampensis*)

This plant is a member of the vervain (*Verbenaceae*) family and is found in moist hammocks. This plant is listed as endangered by the FDA. There is habitat for this species within the project study area, although no specimens of Tampa vervain were identified during an inspection of these areas. **No adverse effect is anticipated** for this species.

3.4.A.4.11 Hartwrightia (*Hartwrightia floridana*)

This large perennial herb with several erect stems rising from a basal rosette and clusters of flat-topped pink to whitish flower heads is listed as threatened by the FDA. Hartwrightia is a member of the composite (*Asteraceae*) family and is found in seepage slopes, edges of bayheads and spring runs, wet prairies, and flatwoods with wet, peaty soils. Habitat for this species does occur within the project study area, although no specimens of Hartwrightia were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.12 Lake-side sunflower (*Helianthus carnosus*)

This large perennial herb with many yellow disk flowers on a slightly domed disk is listed as endangered by the FDA. This sunflower is a member of the composite (*Asteraceae*) family and is found in wet prairies and flatwoods. Habitat for this species does occur within the project study area, although no specimens of lake-side sunflower were observed during field reviews. **No adverse effect is anticipated** for Lake-side sunflower.

3.4.A.4.13 Star anise (*Illicium parviflorum*)

This small, aromatic, evergreen shrub with star-shaped flowers and fruits is listed as endangered by the FDA. Star anise is a member of the anisetree (*Schisandraceae*) family and is found on the banks of spring-runs, bottomland forest, hydric hammock, and bayheads dominated by red maple and sweet bay. Habitat for this species does occur within the project study area, although no specimens of star anise were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.14 Atlantic Coast Florida lantana (*Lantana depressa var floridana*)

This low, mat forming shrub is listed as endangered by the FDA. This shrub is a member of the vervain (*Verbenaceae*) family and is found on dry habitats along coastal Florida. Habitat for this species does occur within the project study area, although no specimens of Atlantic Coast Florida lantana were observed during field reviews. **No adverse effect is anticipated** for Atlantic Coast Florida lantana.

3.4.A.4.15 Nodding pinweed (*Lechea cernua*)

This perennial herb with slender, erect flowering stems rising from a dense mat of spreading, older stems is listed by the FDA as a threatened species. Nodding pinweed is a member of the rockrose (*Cistaceae*) family and is found in scrub and scrubby flatwoods. Very little habitat for this species occurs within the corridor. However, this habitat was inspected for potential presence for this species. No specimens of nodding pinweed were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.16 Pygmy pipes (*Monotropis reynoldsiae*)

This perennial herb that lack chlorophyll is parasitic on underground fungus. This plant is listed by the FDA as an endangered species. Pygmy pipes are a member of the heath (*Ericaceae*) family and is found in upland forests, mesic and xeric hammocks, sand pine, and oak scrub. There is habitat for this species contained within the project study area. No specimens of pygmy pipes were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.17 Narrowleaf naiad (*Najas filifolia*)

This submerged aquatic herb is listed by the FDA as a threatened species. Narrowleaf naiad is a member of the water nymph (*Najadaceae*) family and is found in freshwater ponds. There is habitat for this species contained within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.18 Celestial lily (*Nemastylis floridana*)

This perennial herb, which has dark blue flowers and a bulb with a single, tall, slender stem, is listed as an endangered species by the FDA. Celestial lily is a member of the iris (*Iridaceae*) family and is found in wet flatwoods, prairies, marshes, and cabbage palm hammocks edges. Habitat for this species does occur within the project study area, although no specimens of celestial lily were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.19 Florida beargrass (*Nolina atopocarpa*)

This perennial herb species with a long, stiff leaves, in a grass-like clump rising from a bulbous stem is listed as threatened by the FDA. Florida beargrass is a member of the agave (*Agavaceae*) family and

is found in flatwoods. No specimens of Florida beargrass were observed during field reviews. There is habitat for this species contained within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.20 Hand fern (*Ophioglossum palmatum*)

This flat drooping fern is listed as an endangered species by the FDA. Hand fern is a member of the adder's tongue (*Ophioglossaceae*) family and occurs in the detritus-filled base of cabbage palm trees in low, moist, shaded hammocks. Habitat for this species does occur within the project study area, although no specimens of hand fern were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.21 Widespread polypody (*Pecluma dispersa*)

This deeply cut polypody with a scaly, short-creeping stem is listed as an endangered species by the FDA. Widespread polypody is a member of the polypody (*Polypodiaceae*) family and occurs in limestone outcrops and hammocks. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.22 Plume polypody (*Pecluma plumula*)

This polypody with a brown scaly stem is listed as an endangered species by the FDA. Plume polypody is a member of the polypody (*Polypodiaceae*) family and occurs as an epiphyte on hammock trees. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.23 Comb polypody (*Pecluma ptilota* var. *bourgeauana*)

This polypody with a thick black scaly stem is listed as an endangered species by the FDA. Comb polypody is a member of the polypody (*Polypodiaceae*) family and occurs mostly as terrestrial (sometimes on limestone or logs) in moist woods and hammocks. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.24 Terrestrial peperomia (*Peperomia humilis*)

This perennial herb, which sometimes forms dense colonies on the ground (or rarely trees) is listed as an endangered species by the FDA. This plant is a member of the pepper (*Piperaceae*) family and is found on shell mounds and limestone outcrops in mesic hammocks, coastal berms, and cypress swamps. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.25 Giant orchid (*Pteroglossaspis ecristata*)

This perennial herb, which has 2 to 4 basal leaves and a 1 to 5.5-foot tall leafless flower stalk, is listed as threatened by the FDA. Giant orchid is a member of the orchid (*Orchidaceae*) family and is found in sandhills, pinelands, and oak hammocks. Habitat for this species does occur within the project study area, although no specimens of giant orchid were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.26 Chaffseed (*Schwalbea americana*)

This perennial herb with an erect usually unbranched hairy stem is listed as endangered by the FDA. Chaffseed is a member of the snapdragon (*Scrophulariaceae*) family and is found in moist pond edges within sandhill and flatwoods. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.27 Buckthorn (*Sideroxylon lyciodes*)

This small tree is listed as endangered by the FDA. Buckthorn is a member of the sapodilla (*Sapotaceae*) family and is found in hammocks and floodplain forests. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.28 Pinkroot (*Spigelia loganioides*)

This perennial herb with small white flowers is listed as endangered by the FDA. Pinkroot is a member of the strychnine (*Loganiaceae*) family and is found in hammocks and floodplain forests. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.29 Coastal hoary-pea (*Tephrosia angustissima var curtissii*)

This perennial herb with oblong flat pods is listed as endangered by the FDA. Pinkroot is a member of the pea (*Fabaceae*) family and is found in coastal strands. Habitat for this species does not occur within the project study area and no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.30 Variable-leaf crownbeard (*Verbesina heterophylla*)

This perennial herb with solitary yellow flowerheads is listed as endangered by the FDA. Pinkroot is a member of the composite (*Asteraceae*) family and is found in mesic flatwoods. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

3.4.A.4.31 Ocala vetch (*Vicia ocalensis*)

This perennial herb with long stalks of clustered white flowers is listed as endangered by the FDA. Ocala vetch is a member of the pea (*Fabaceae*) family and is found in mesic flatwoods. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews **No adverse effect is anticipated** for this species.

3.4.A.4.32 Redmargin Zephyrlily (*Zephyranthes simpsonii*)

This perennial herb with delicate white flowers with red margins is listed as threatened by the FDA. Redmargin zephyrlily is a member of the amaryllis (*Ameryllidaceae*) family and is found in flatwoods and meadows. Habitat for this species does occur within the project study area, although no specimens were observed during field reviews. **No adverse effect is anticipated** for this species.

Table 6: State Listed Plant Effects Determination Summary

Common Name	Scientific Name	Listing	Habitat	Effect
Golden leather fern	<i>Acrostichum aureum</i>	T	Yes	NAE
American toothed	<i>Asplenium dentatum</i>	E	Yes	NAE
Auricled spleenwort	<i>Asplenium erosum</i>	E	Yes	NAE
American bird's nest fern	<i>Asplenium serratum</i>	E	Yes	NAE
Ashe's savory	<i>Calamintha ashei</i>	E	Yes	NAE
Sand butterfly pea	<i>Centrosema arenicola</i>	E	Yes	NAE
Sand-dune spurge	<i>Chamaesyce arenicola</i>	E	Yes	NAE
Large-flowered rosemary	<i>Conradina grandiflora</i>	T	Yes	NAE
Coastal vervain	<i>Glandularia maritima</i>	E	Yes	NAE
Tampa vervain	<i>Glandularia tampensis</i>	E	Yes	NAE
Hartwrightia	<i>Hartwrightia floridana</i>	T	Yes	NAE
Lake-side sunflower	<i>Helianthus carnosus</i>	E	Yes	NAE
Star anise	<i>Illicium parviflorum</i>	E	Yes	NAE
Atlantic Coast Florida	<i>Lantana depressa var floridana</i>	E	Yes	NAE
Nodding pinweed	<i>Lechea cernua</i>	T	Yes	NAE
Pygmy pipes	<i>Monotropis reynoldsiae</i>	E	Yes	NAE
Narrowleaf naiad	<i>Najas filifolia</i>	T	Yes	NAE
Celestial lily	<i>Nemastylis floridana</i>	E	Yes	NAE
Florida beargrass	<i>Nolina atopocarpa</i>	T	Yes	NAE
Hand fern	<i>Ophioglossum palmatum</i>	E	Yes	NAE
Widespread polypody	<i>Pecluma dispersa</i>	E	Yes	NAE
Plume polypody	<i>Pecluma plumula</i>	E	Yes	NAE
Comb polypody	<i>Pecluma ptilota var.</i>	E	Yes	NAE
Terrestrial peperomia	<i>Peperomia humilis</i>	E	Yes	NAE
Giant orchid	<i>Pteroglossaspis ecristata</i>	T	Yes	NAE
Chaffseed	<i>Schwalbea americana</i>	E	Yes	NAE
Buckthorn	<i>Sideroxylon lyciodes</i>	E	Yes	NAE
Pinkroot	<i>Spigelia loganiodes</i>	E	Yes	NAE
Coastal hoary-pea	<i>Tephrosia angustissima var</i>	E	No	NAE
Variable-leaf crownbeard	<i>Verbesina heterophylla</i>	E	Yes	NAE
Ocala vetch	<i>Vicia ocalensis</i>	E	Yes	NAE
Redmargin Zephyrlily	<i>Zephyranthese simpsonii</i>	T	Yes	NAE

3.4-B Avoidance, Minimization and Mitigation Measures for State Listed Wildlife

Avoidance and minimization measures are intended to avoid and/or reduce the adverse impacts of an action to wildlife and their habitat. In the case of this study, no state listed wildlife species were identified within the project area and limited suitable habitat is available. The preferred alternative is following the avoidance and minimization procedures to limit the footprint of the project and therefore the potential impacts to habitat. Primarily this involves impacts to wetlands that could serve as foraging habitat for wading birds, though there is no shortage of available foraging habitat in the surrounding area. Wetland mitigation for unavoidable impacts will be provided to satisfy the state and federal regulatory program guidelines which in turn can provide habitat suitable for wading birds.

4.0 Wetlands and Surface Waters

The enactment of Executive Order 11990 (EO11990), entitled “Protection of Wetlands”, in furtherance of the National Environmental Policy Act of 1969, as amended (42 U.S.C 4321 et seq), established a national policy stating that federal agencies or actions authorized by federal agencies must attempt “to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative”. Similarly, the State of Florida, through Article II, Section 7 of the State Constitution states “It shall be the policy of the state to conserve and protect its natural resources and scenic beauty. Adequate provision shall be made by law for the abatement of air and water pollution and of excessive and unnecessary noise and for the conservation and protection of natural resources.” The Florida Water Resource Act, F.S. Ch 373 (Florida Water Resource Act of 1972) was implemented to carry out the policies of the State Constitution, providing the authority and responsibility of this act to the FDEP and Water Management Districts to be regulated by the environmental resource permit program. In accordance with EO11990 and state regulations the evaluation of the wetlands within the Project Study Area was conducted to identify, map, and enumerate the potential impacts to wetlands and surface waters that may be associated with the construction of this Project. This section provides a discussion of the initial data collection, methods used for demarcation of the wetlands and surface waters, and the identified resources within the project study area.

4.1 **Wetland Delineation Methodology**

4.1-A Accepted Methodologies for Wetland Demarcation

The field investigations evaluated the potential for classification as a wetland or surface water based on vegetative composition, presence of hydric soils, and hydrological indicators.

The landward extent of the wetlands and surface waters was established based on the Corps of Engineers Wetland Delineation Manual, 1987, and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plan Region, 2010, and Chapter 62-340 of the Florida Administrative Code (F.A.C), Delineation of the Landward Extent of Wetlands and Surface Waters.

Whenever practical, it is the intent of the rule(s), to use the definition of a wetland to determine the landward extent. The Florida Department of Transportation (FDOT) uses the following two definitions for identifying wetlands. (FDOT PD&E Manual, Chapter 9)

Federal Definition: as stated in 33 CFR 328.3(b) and as used by the USACOE in administering Section 404 of the Clean Water Act, are defined as “areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.”

State Definition: as defined by Section 373.019(27) F.S., wetlands are “those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands generally are classified as hydric or alluvial or possess characteristics that are associated with reducing soil conditions. The prevalent vegetation in wetlands generally consists of facultative or obligate hydrophytic macrophytes that are typically adapted to areas having soil conditions described above. These species, due to morphological, physiological, or reproductive adaptations, can grow, reproduce, or persist in aquatic environments or anaerobic soil conditions. Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, hydric seepage slopes, tidal marshes, mangrove swamps and other similar areas. Florida wetlands generally do not include longleaf or slash pine flatwoods with an understory dominated by saw palmetto”.

In addition to the demarcation of the wetlands, any surface waters were delineated based on the definition provided by Section 373.019(21) F.S., “as waters on the surface of the earth, contained in bounds created

naturally or artificially, including, the Atlantic Ocean, the Gulf of Mexico, bays, bayous, sounds, estuaries, lagoons, lakes, ponds, impoundments, rivers, streams, springs, creeks, branches, sloughs, tributaries, and other watercourses". This also includes jurisdictional ditches, swales and drainage features.

Environmental scientists conducted field reviews of the project corridor between the months of August 2018 through August 2019 and as well as April 2020. The identified wetlands and surface waters within the Project Study Area were field delineated and recorded using a Trimble Geo7x™ handheld GPS. The final wetland survey data was used to determine the coverage of, as well as potential impacts to wetlands or surface waters within the Project Study Area. All identified resources were classified according to the FDOT "FLUCCS" designations.

4.2 Existing Wetland and Surface Water Resources

A total of 20 individual wetlands (WL) and 11 surface waters were located within the project study area. These habitat types include natural wetlands (WL), and man-made surface water ditches and a stormwater pond designated as other surface waters (OSW).

Section 5.2.A.1. provides descriptions of each individual wetland and other surface water, including its wetland habitat type, FLUCCS and FWS classifications, dominant vegetation, and the acreage found within the project corridor. **Table 7** lists the acreage of each wetland and surface water within the project corridor, FLUCCS and FWS wetland classifications. **Figure 6** depicts the location of each wetland and other surface water. The individual wetlands/surface waters were described below in order of appearance starting from the north to the south of the corridor.

4.2-A Individual Wetland and Surface Water Descriptions

4.2.A.1 Wetland 1, 5, 8, 10, 13A, 13B, and 14

FLUCCS: 6250 (Hydric Pine Flatwoods)

FWS: PFO4A (Palustrine, Forested, Needle-Leaved Evergreen, Temporarily Flooded)

The hydric pine flatwood habitat within the project study area have a canopy that is dominated by slash pine with small amounts of loblolly bay, red maple and dahoon holly are also present. The shrub layer is a mix of fetterbush, wax myrtle, saltbush, and gallberry. The groundcover is composed of hatpins, beakrush, red root, and yellow-eyed grass.

From a qualitative perspective, these wetlands are fire suppressed which result in an overgrown system that does not exhibit the diverse groundcover that is typical of hydric flatwoods making them of moderate quality.

4.2.A.2 Wetland 2, 6, 7, 9, 12, 13, and 16

FLUCCS: 6300 (Wetland Forested Mixed)

FWS: PFO4A (Palustrine, Forested, Needle-Leaved Evergreen, Temporarily Flooded)

These mixed forested wetland systems have a canopy that is dominated by an overstory of bald cypress and swamp tupelo. Loblolly bay, swamp bay, red maple, sweet bay, sugarberry, cabbage palm, American elm, laurel oak and water oak are also intermixed within this system. Slash pine is along the periphery of these systems or on hummocks. The ground cover within this wetland included swamp fern, cinnamon fern, royal fern, duck potato, soft rush, primrose, and maidencane.

From a qualitative perspective, this wetland is moderate quality but does have Brazilian pepper as a minor component within the sub canopy. Additional areas along the periphery have disturbance from past clearing efforts. The quality of the wetland degrades as these systems approach disturbed areas. For Wetland 7, there is evidence of tree mortality observed as portions of this wetland system appear to have burned

within the past 5 years. Typically, this type of system will experience fire no more than a few times a century.

4.2.A.3 Wetland 3, 4, 15, and 18

FLUCCS: 6430 (Wet Prairie)

FWS: PEM1E (Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated)

These wetlands are wet prairie habitat with maidencane, beakrush and St. John's wort dog fennel, swamp smartweed, meadow beauty, water hyssops, and broomsedge. Wetland 4 and 5 occur within the utility corridor west of I-95 and includes an access road that is used presumably during the dry season. It appears that portions of this system were excavated to provide fill for the utility access roads. Wetland 18 is on the periphery of a freshwater marsh that occurs offsite at the southeast corner of the project study area.

From a qualitative perspective, Wetlands 3 and 4 are moderate quality systems as they were historically forested wetlands or uplands that were disturbed by the utility lines and maintenance roads. Currently, these wetlands are maintained as an herbaceous system either mechanically or with chemicals. Wetland 18 is a high-quality undisturbed system.

4.2.A.4 Wetland 11, 17

FLUCCS: 6210 (Cypress)

FWS: PEM1E (Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated)

These cypress systems have a canopy that is dominated by bald cypress, with a fern understory that includes swamp fern, cinnamon fern, and royal fern. This habitat type is located at the northwestern limits of the project study area.

From a qualitative perspective, these wetlands are moderate quality systems that have Brazilian pepper as a minor component within the sub canopy. Additional areas along the periphery have disturbance from past clearing efforts from the roadway or from the utility easement. The quality of the wetland degrades as these systems approach disturbed areas.

4.2.A.5 OSW 1, 2, 6, and 7

FLUCCS: 5300 (Stormwater / Drainage Features)

FWS: POW/EMH (Palustrine, Open Water/Emergent, Permanently Flooded)

These OSW's are impoundments that were excavated historically for fill material or were created for stormwater management that provides treatment for the impervious surfaces. OSW 1 and 2 are stormwater management facilities that are part of the permitted systems associated with the Williamson Boulevard extension. Historically, OSW 2 was originally created for borrow material, likely for the construction of I-95. Both OSW 1 and 2 are primarily open water with cattail along portions of the edges. OSW 5 consists of three connected stormwater ponds that were created as treatment of the impervious surfaces for Pioneer Trail. OSW 6 is part of the I-95 median areas that were historically forested wetland systems which were subsequently permitted as stormwater treatment systems as part of the latest widening of I-95. These forested systems are vegetated with slash pine, cypress, swamp tupelo, red maple and sweetbay. OSW 7 is a borrow pit that was excavated between 2002 and 2003 likely for fill material for the onsite agricultural structures. This pond is primarily open water with mowed edges.

4.2.A.6 OSW 3, 4, 5, 8, 9, 10, and 11

FLUCCS: 5130 (Stormwater ditch)

FWS: POW/EMA (Palustrine, Open Water/Emergent, Temporarily Flooded)

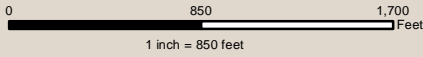
OSW 3, 4 and 8 are upland cut ditches constructed to facilitate drainage. OSW 3, 4, 9 are linear roadside ditch systems that occur on the northside of Pioneer Trail on both side of I-95 and are part of the roadside stormwater management facility. These ditches area vegetated with torpedo grass, primrose, pennywort, and duck potato. OSW 8 was created historically as part of a regional agricultural drainage system implemented prior to permitting rules. OSW 11 is a drainage ditch that flows beneath I-95 via culverts.

Table 7: Wetland and Surface Water Summary

No.	Habitat Type	FLUCCS	FWS Classification	Wetland Acreage Within Project Study Area
Wetlands				
1	Hydric Pine Flatwoods	6250	PFO4A	6.49
2	Wetland Forested Mixed	6300	PFO4A	12.18
3	Wet Prairie	6430	PEM1E	7.35
4	Wet Prairie	6430	PEM1E	2.66
5	Hydric Pine Flatwoods	6250	PFO4A	6.35
6	Wetland Forested Mixed	6300	PFO4A	24.17
7	Wetland Forested Mixed	6300	PFO4A	13.61
8	Hydric Pine Flatwoods	6250	PFO4A	7.78
9	Wetland Forested Mixed	6300	PFO4A	15.03
10	Hydric Pine Flatwoods	6250	PFO4A	1.63
11	Cypress	6210	PFO4A	2.48
12	Wetland Forested Mixed	6300	PFO4A	5.13
13	Wetland Forested Mixed	6300	PFO4A	9.93
13A	Hydric Pine Flatwoods	6250	PFO4A	0.14
13B	Hydric Pine Flatwoods	6250	PFO4A	0.12
14	Hydric Pine Flatwoods	6250	PFO4A	1.94
15	Wet Prairie	6430	PEM1E	1.62
16	Wetland Forested Mixed	6300	PFO4A	0.09
17	Cypress	6430	PEM1E	2.32
18	Wet Prairie	6430	PEM1E	1.39
Subtotal				122.41
Surface Waters				
1	Stormwater / Drainage	5300	POW/EMH	1.37
2	Stormwater / Drainage	5300	POW/EMH	4.62
3	Ditch / Swale	5130	POW/EMA	0.27
4	Ditch / Swale	5130	POW/EMA	0.53
5	Stormwater / Drainage	5300	POW/EMH	0.11
6	Stormwater / Drainage	5300	POW/EMH	12.45
7	Stormwater / Drainage	5300	POW/EMH	0.65
8	Ditch / Swale	5130	POW/EMA	1.95
9	Ditch / Swale	5130	POW/EMA	0.23
10	Ditch / Swale	5130	POW/EMA	0.02
11	Ditch / Swale	5130	POW/EMA	0.02
Subtotal				22.22
Total				144.63

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Other Surface Waters

OSW ID | Description | Acres

OSW 1	Stormwater / Drainage Features	1.37
OSW 2	Stormwater / Drainage Features	4.62
OSW 3	Ditch / Swale	0.27
OSW 4	Ditch / Swale	0.53
OSW 5	Ditch / Swale	0.11
OSW 6	Stormwater / Drainage Features	12.45
OSW 7	Stormwater / Drainage Features	0.65
OSW 8	Ditch / Swale	1.95
OSW 9	Ditch / Swale	0.23
OSW 10	Ditch / Swale	0.07
OSW 11	Ditch / Swale	0.02

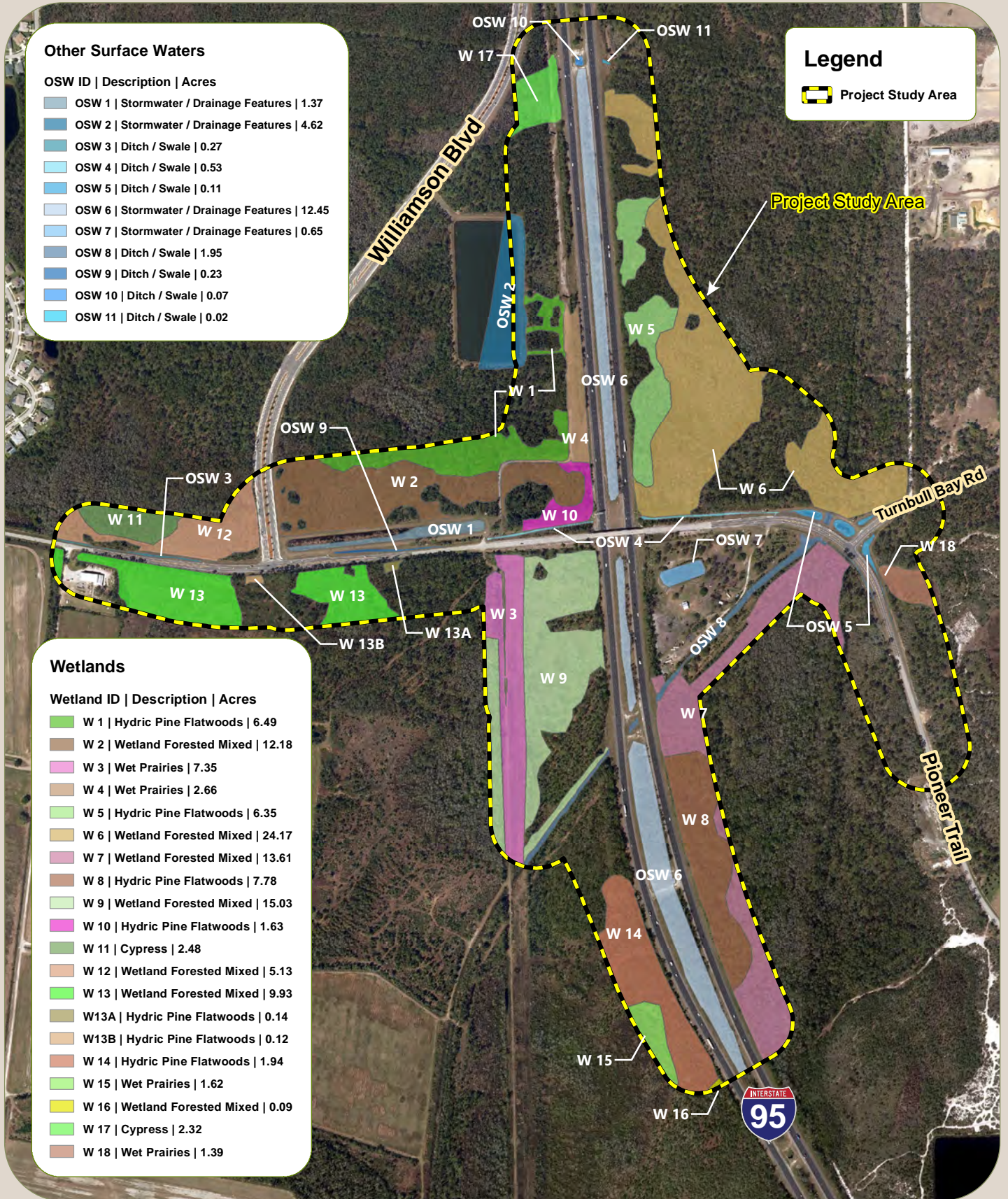
Legend

Project Study Area

Wetlands

Wetland ID | Description | Acres

W 1	Hydric Pine Flatwoods	6.49
W 2	Wetland Forested Mixed	12.18
W 3	Wet Prairies	7.35
W 4	Wet Prairies	2.66
W 5	Hydric Pine Flatwoods	6.35
W 6	Wetland Forested Mixed	24.17
W 7	Wetland Forested Mixed	13.61
W 8	Hydric Pine Flatwoods	7.78
W 9	Wetland Forested Mixed	15.03
W 10	Hydric Pine Flatwoods	1.63
W 11	Cypress	2.48
W 12	Wetland Forested Mixed	5.13
W 13	Wetland Forested Mixed	9.93
W13A	Hydric Pine Flatwoods	0.14
W13B	Hydric Pine Flatwoods	0.12
W 14	Hydric Pine Flatwoods	1.94
W 15	Wet Prairies	1.62
W 16	Wetland Forested Mixed	0.09
W 17	Cypress	2.32
W 18	Wet Prairies	1.39



WETLANDS AND SURFACE WATERS

4.2-B Project Evaluation of Wetland Impacts

Comments from the FDOT's Efficient Transportation Decision Making (ETDM) screening were received from the EPA, the USACOE, National Marine Fisheries Service (NMFS), FWS, SJRWMD, and the FDEP, regarding wetlands and surface waters.

The ETDM Summary report documented that the Wetlands and Surface Water issue was given a Moderate Degree of Effect by the USEPA, FWS, and USACOE, while the FDEP and National Marine Fisheries Service NMFS assigned a Degree of Effect of None. SJRWMD assigned a Degree of Effect of Substantial. These Degrees of Effects are based on the agency comments related to the loss of function, degradation, etc. associated with wetlands and corresponding habitat.

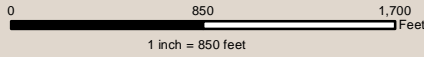
The EPA noted that the project contains 70 acres within a 500-buffer and that wetlands are important because they are a critical natural resource and serve several functions including filtration and treatment of surface water runoff, flood control, erosion control, groundwater recharge and discharge, wildlife and species habitat, and recreational activities.

The USACOE noted that any palustrine wetlands in the project area deemed to be jurisdictional within this major interchange roadway already have been secondarily impacted so a functional assessment should reveal a lower quality of wetlands.

The potential for impacts to these wetlands have been evaluated based upon the three (3) interchange alternatives. **Table 8** identifies the wetlands and OSW impact acreages associated with each alternative. Of the 20 wetlands and 11 OSWs identified, 17 wetlands and eight (8) OSWs will be affected by at least one of the segments of proposed roadway improvements. **Figure 7-9** depict the location of each wetland and other surface water impact per each alternative.

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Surface Water Impacts

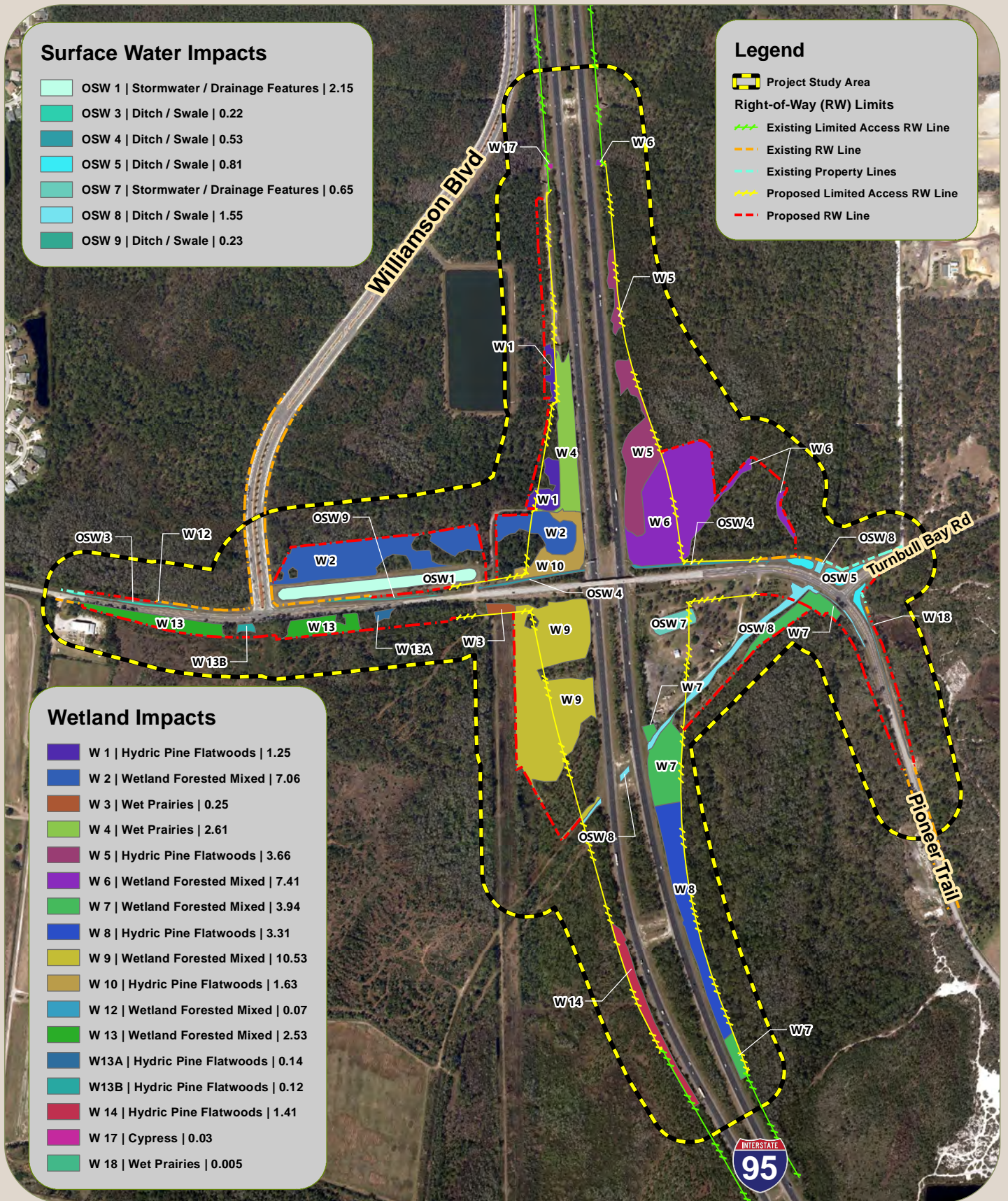
- OSW 1 | Stormwater / Drainage Features | 2.15
- OSW 3 | Ditch / Swale | 0.22
- OSW 4 | Ditch / Swale | 0.53
- OSW 5 | Ditch / Swale | 0.81
- OSW 7 | Stormwater / Drainage Features | 0.65
- OSW 8 | Ditch / Swale | 1.55
- OSW 9 | Ditch / Swale | 0.23

Legend

- Project Study Area
- Right-of-Way (RW) Limits**
- Existing Limited Access RW Line
- Existing RW Line
- Existing Property Lines
- Proposed Limited Access RW Line
- Proposed RW Line

Wetland Impacts

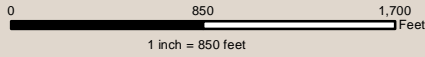
- W 1 | Hydric Pine Flatwoods | 1.25
- W 2 | Wetland Forested Mixed | 7.06
- W 3 | Wet Prairies | 0.25
- W 4 | Wet Prairies | 2.61
- W 5 | Hydric Pine Flatwoods | 3.66
- W 6 | Wetland Forested Mixed | 7.41
- W 7 | Wetland Forested Mixed | 3.94
- W 8 | Hydric Pine Flatwoods | 3.31
- W 9 | Wetland Forested Mixed | 10.53
- W 10 | Hydric Pine Flatwoods | 1.63
- W 12 | Wetland Forested Mixed | 0.07
- W 13 | Wetland Forested Mixed | 2.53
- W13A | Hydric Pine Flatwoods | 0.14
- W13B | Hydric Pine Flatwoods | 0.12
- W 14 | Hydric Pine Flatwoods | 1.41
- W 17 | Cypress | 0.03
- W 18 | Wet Prairies | 0.005



ALTERNATIVE 1 (DIAMOND) - WETLAND/OSW IMPACTS

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Surface Water Impacts

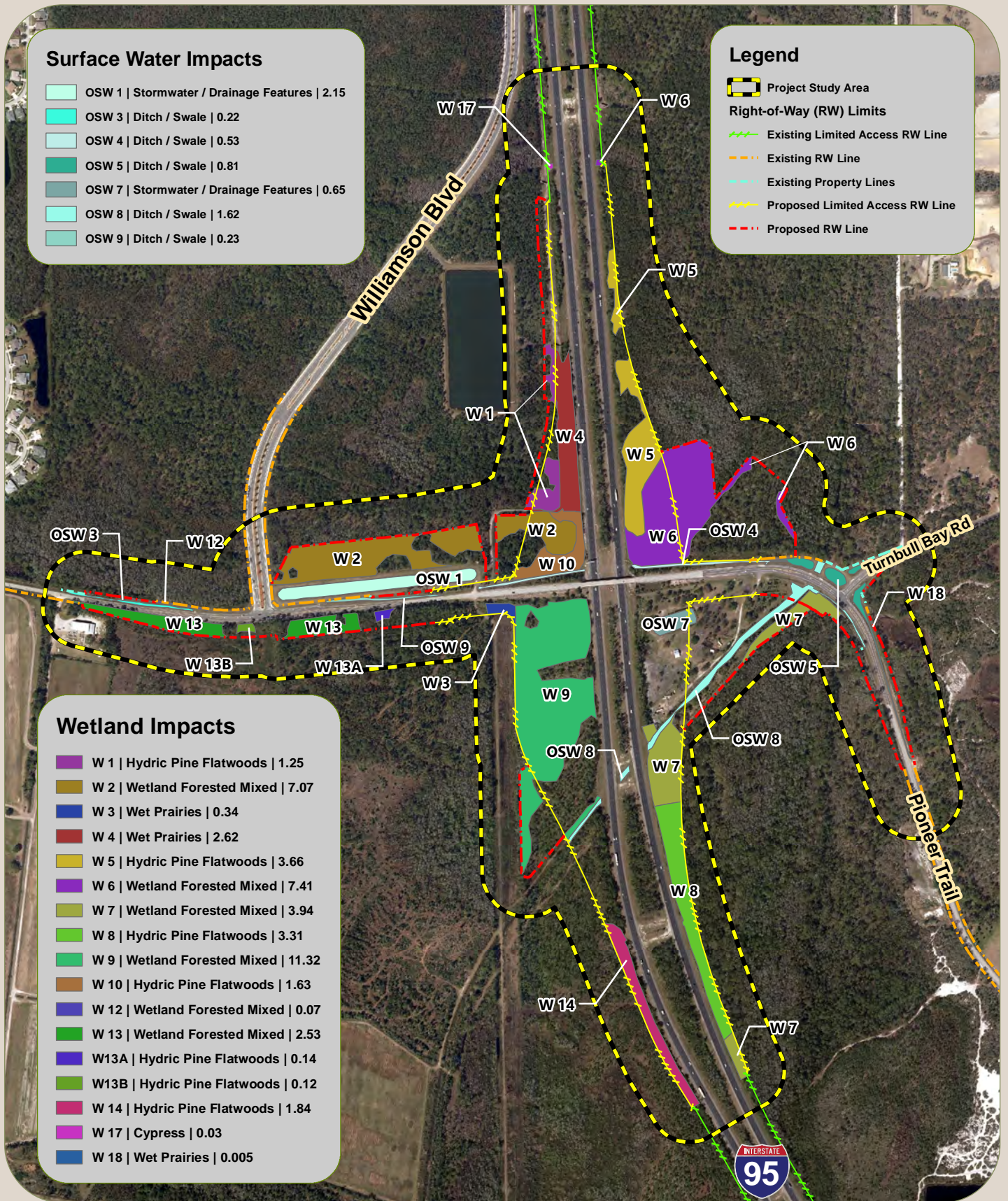
- OSW 1 | Stormwater / Drainage Features | 2.15
- OSW 3 | Ditch / Swale | 0.22
- OSW 4 | Ditch / Swale | 0.53
- OSW 5 | Ditch / Swale | 0.81
- OSW 7 | Stormwater / Drainage Features | 0.65
- OSW 8 | Ditch / Swale | 1.62
- OSW 9 | Ditch / Swale | 0.23

Legend

- Project Study Area
- Right-of-Way (RW) Limits**
- Existing Limited Access RW Line
- Existing RW Line
- Existing Property Lines
- Proposed Limited Access RW Line
- Proposed RW Line

Wetland Impacts

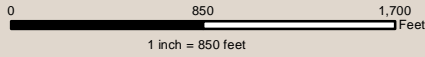
- W 1 | Hydric Pine Flatwoods | 1.25
- W 2 | Wetland Forested Mixed | 7.07
- W 3 | Wet Prairies | 0.34
- W 4 | Wet Prairies | 2.62
- W 5 | Hydric Pine Flatwoods | 3.66
- W 6 | Wetland Forested Mixed | 7.41
- W 7 | Wetland Forested Mixed | 3.94
- W 8 | Hydric Pine Flatwoods | 3.31
- W 9 | Wetland Forested Mixed | 11.32
- W 10 | Hydric Pine Flatwoods | 1.63
- W 12 | Wetland Forested Mixed | 0.07
- W 13 | Wetland Forested Mixed | 2.53
- W13A | Hydric Pine Flatwoods | 0.14
- W13B | Hydric Pine Flatwoods | 0.12
- W 14 | Hydric Pine Flatwoods | 1.84
- W 17 | Cypress | 0.03
- W 18 | Wet Prairies | 0.005



ALTERNATIVE 2 (PARCLO 1) - WETLAND/OSW IMPACTS

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Surface Water Impacts

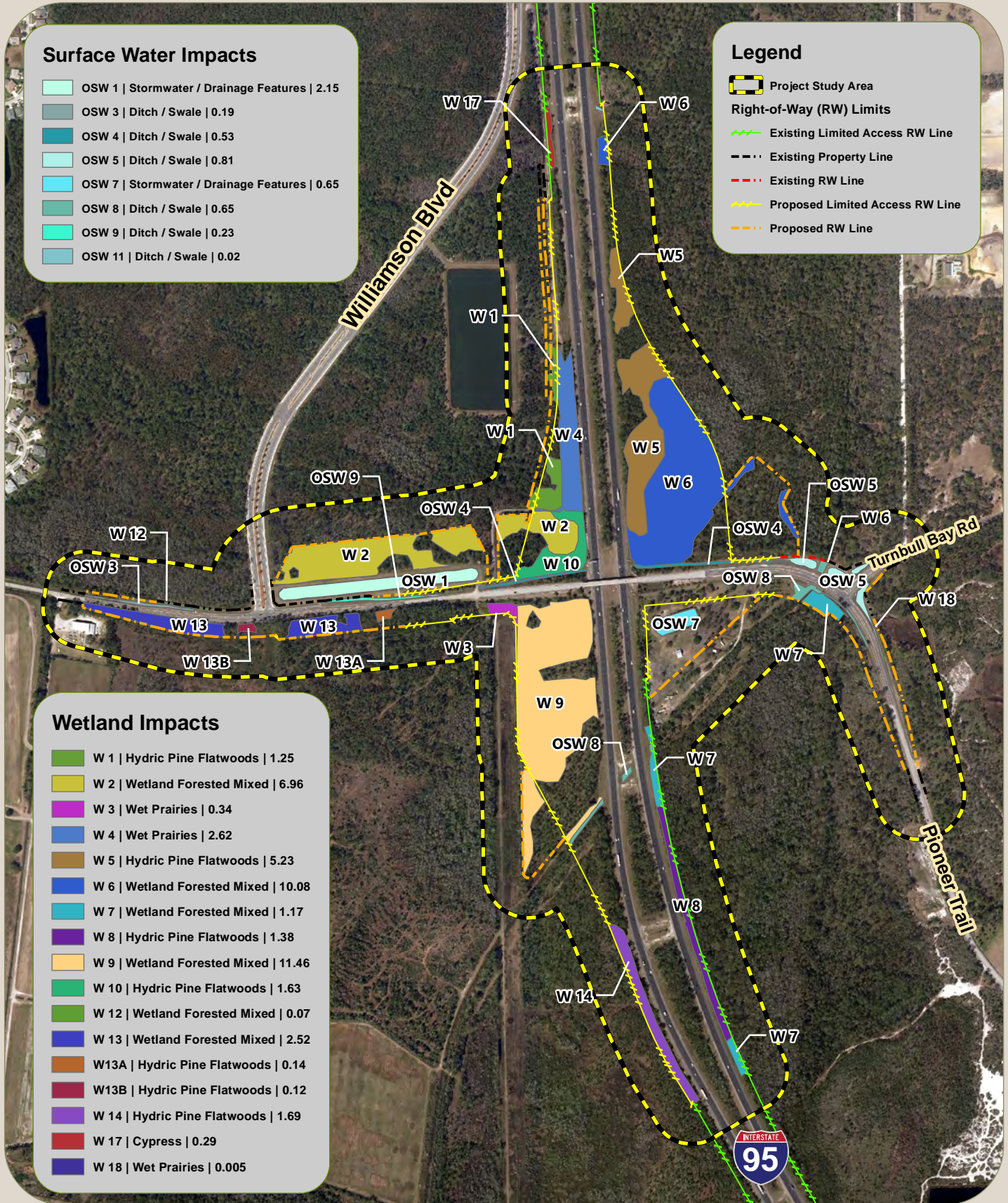
- OSW 1 | Stormwater / Drainage Features | 2.15
- OSW 3 | Ditch / Swale | 0.19
- OSW 4 | Ditch / Swale | 0.53
- OSW 5 | Ditch / Swale | 0.81
- OSW 7 | Stormwater / Drainage Features | 0.65
- OSW 8 | Ditch / Swale | 0.65
- OSW 9 | Ditch / Swale | 0.23
- OSW 11 | Ditch / Swale | 0.02

Legend

- Project Study Area
- Right-of-Way (RW) Limits**
- Existing Limited Access RW Line
- Existing Property Line
- Existing RW Line
- Proposed Limited Access RW Line
- Proposed RW Line

Wetland Impacts

- W 1 | Hydric Pine Flatwoods | 1.25
- W 2 | Wetland Forested Mixed | 6.96
- W 3 | Wet Prairies | 0.34
- W 4 | Wet Prairies | 2.62
- W 5 | Hydric Pine Flatwoods | 5.23
- W 6 | Wetland Forested Mixed | 10.08
- W 7 | Wetland Forested Mixed | 1.17
- W 8 | Hydric Pine Flatwoods | 1.38
- W 9 | Wetland Forested Mixed | 11.46
- W 10 | Hydric Pine Flatwoods | 1.63
- W 12 | Wetland Forested Mixed | 0.07
- W 13 | Wetland Forested Mixed | 2.52
- W13A | Hydric Pine Flatwoods | 0.14
- W13B | Hydric Pine Flatwoods | 0.12
- W 14 | Hydric Pine Flatwoods | 1.69
- W 17 | Cypress | 0.29
- W 18 | Wet Prairies | 0.005



ALTERNATIVE 3 (PARCLO 2) - WETLAND/OSW IMPACTS

Table 8: Wetland and Surface Water Impact Summary

No.	Habitat Type	Alt 1	Alt 2	Alt 3*
Wetlands				
1	Hydric Pine Flatwoods	1.25	1.25	1.25
2	Wetland Forested Mixed	7.06	7.07	6.96
3	Wet Prairie	0.25	0.34	0.34
4	Wet Prairie	2.61	2.62	2.62
5	Hydric Pine Flatwoods	3.66	3.66	5.23
6	Wetland Forested Mixed	7.41	7.41	10.08
7	Wetland Forested Mixed	3.94	3.94	1.17
8	Hydric Pine Flatwoods	3.31	3.31	1.38
9	Wetland Forested Mixed	10.53	11.32	11.46
10	Hydric Pine Flatwoods	1.63	1.63	1.63
11	Cypress	0.00	0.00	0.00
12	Wetland Forested Mixed	0.07	0.07	0.07
13	Wetland Forested Mixed	2.53	2.53	2.52
13A	Hydric Pine Flatwoods	0.14	0.14	0.14
13B	Hydric Pine Flatwoods	0.12	0.12	0.12
14	Hydric Pine Flatwoods	1.41	1.84	1.69
15	Wet Prairie	0.00	0.00	0.00
16	Wetland Forested Mixed	0.00	0.00	0.00
17	Cypress	0.03	0.03	0.29
18	Wet Prairie	0.005	0.005	0.005
Subtotal for Wetlands		45.96	47.29	46.96
Surface Waters				
1	Stormwater / Drainage Features	2.15	2.15	2.15
2	Stormwater / Drainage Features	0.00	0.00	0.00
3	Ditch / Swale	0.22	0.22	0.19
4	Ditch / Swale	0.53	0.53	0.53
5	Ditch / Stormwater / Drainage	0.81	0.81	0.81
6	Stormwater / Drainage Features	0.00	0.00	0.00
7	Stormwater / Drainage Features	0.65	0.65	0.65
8	Ditch / Swale	1.55	1.62	0.65
9	Ditch / Swale	0.23	0.23	0.23
10	Ditch / Swale	0.00	0.00	0.00
11	Ditch / Swale	0.00	0.00	0.02
Subtotal for Surface Waters		6.14	6.21	5.23
Total for Wetlands and Surface Waters		52.10	53.50	52.19

*Alternative 3 is the preferred alternative

4.2-C Avoidance and Minimization of Wetland Impacts

Avoidance and minimization measures are intended to avoid and/or reduce the adverse impacts of an action to wetlands and surface waters, which can include aquatic dependent wildlife and their habitat. During this PD&E Study, surveys were conducted to identify potential wetlands and wildlife concerns within the project study area. However, since the concept of the project is to place a new interchange at the intersection of I-95 and Pioneer Trail, there is no opportunity to look for alternative sites for the project. The location of the existing wetlands in relationship to the interstate and Pioneer Trail cannot be changed. The concept alternatives studied are primarily based upon engineering to be able to achieve the purpose of the project within the confines of the two roads.

The data and analyses from various reports and technical memorandums associated with the PD&E study for this project along with potential impacts and other factors associated with each proposed alternative have been summarized in an alternative evaluation matrix. Each Build alternative and the resulting evaluations were presented at the Alternatives Public Meeting on April 30, 2019 to area residents, public officials and other project stakeholders.

Although the No-Build Alternative would result in no direct impacts to the cultural, natural, and physical environment and would require no right of way acquisitions or relocations, it would not meet the purpose and need of the project. The No-Build Alternative would not address the existing and future traffic congestion levels at the adjacent interchanges along I-95. Additionally, the No-Build Alternative does not address regional mobility and evacuation needs due to the large spacing between the existing interchanges. Continued development and future growth is anticipated to occur in the region and without transportation improvements, slow travel speeds and safety concerns associated with the No-Build Alternative would have the potential to increase road user costs and transportation costs for local businesses and industries, potentially contributing to a decrease in economic stability for the area.

The alternatives evaluation matrix along with public and stakeholder input formed the basis of selection for the preferred Build alternative. Categories in the matrix that were expected to have equal or no impact among the three alternatives were eliminated from consideration. The alternatives evaluation matrix showed that the Diamond (Alt 1) and Partial Cloverleaf 2 (Alt 3) alternatives overall had a similar ranking with most factors that either ranked highest or lowest. Whereas, Partial Cloverleaf 1 (Alt 2) had factors mostly ranked in the middle or lowest. The pros of the Partial Cloverleaf 2 Alternative included minimal involvement with contaminated sites, best traffic operations and highest public support/preference.

Based on the engineering and environmental factors and public and agency input, the preferred alternative is the Partial Cloverleaf 2 Alternative as it provides the best balance between improved transportation service and minimization of the social, physical and natural impacts associated with the proposed roadway improvements while gaining the most public support.

4.2-D Uniform Mitigation Assessment Method: A Functional Assessment of Wetlands

The Uniform Mitigation Assessment Methodology (UMAM) was developed to establish a consistent assessment method to determine the amount of mitigation needed to offset adverse impacts to wetlands. It is designed to assess the functions provided by wetlands, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset these functional losses. This method is also used to determine the degree of improvement in ecological value created by mitigation activities.

The UMAM assessment includes a Qualitative Characterization (Part 1) as well as a Quantitative Assessment and Scoring (Part 2). An overall assessment of the wetlands that occur within the project study area was undertaken to provide an estimate of quality as well as mitigation needs. A UMAM assessment of the surface water impacts was not undertaken as impacts to these systems do not typically require mitigation.

4.2.D.1 UMAM Functional Loss Summary

The Quantitative Assessment scores the assessment area in its current and after alteration (theoretically) condition. **Table 9** provides the existing score of each wetland found within the project corridor and estimates a total functional loss of 27.53 units from the preferred alternative (Alternative 3). UMAM datasheets are provided in **Appendix F**.

Table 9: UMAM Analysis Results, Preferred Alternative

No.	Habitat Type	UMAM Components			UMAM Score	Impact (Ac)	Functional Loss
		Location & Support	Water Environment	Vegetation			
1	Hydric Pine Flatwoods	3	7	7	0.57	1.25	0.71
2	Wetland Forested Mixed	3	7	8	0.60	6.96	4.18
3	Wet Prairie	3	6	6	0.50	0.34	0.17
4	Wet Prairie	3	6	6	0.50	2.62	1.31
5	Hydric Pine Flatwoods	3	7	7	0.57	5.23	2.98
6	Wetland Forested Mixed	3	7	8	0.60	10.08	6.05
7	Wetland Forested Mixed	3	7	8	0.60	1.17	0.70
8	Hydric Pine Flatwoods	3	7	7	0.57	1.38	0.79
9	Wetland Forested Mixed	3	7	8	0.60	11.46	6.88
10	Hydric Pine Flatwoods	3	7	7	0.57	1.63	0.93
12	Wetland Forested Mixed	3	7	8	0.60	0.07	0.04
13	Wetland Forested Mixed	3	7	8	0.60	2.52	1.51
13A	Hydric Pine Flatwoods	3	7	7	0.57	0.14	0.08
13B	Hydric Pine Flatwoods	3	7	7	0.57	0.12	0.07
14	Hydric Pine Flatwoods	3	7	7	0.57	1.69	0.96
17	Cypress	3	7	8	0.60	0.29	0.17
18	Wet Prairie	3	6	6	0.50	0.005	0.00
Total						46.96	27.53

4.2-E Potential Mitigation Options for Unavoidable Wetland Impacts

The UMAM was utilized to assign a value to the wetlands within the study area. Mitigation options to offset wetland impacts may include the purchase of credits from a mitigation bank or the preservation, enhancement or creation of similar type systems sponsored either directly by FDOT or the SJRWMD FDOT Mitigation plan. Current federal and state policy prefer the purchase of mitigation credits when this option is available. Diverging from this preference is difficult unless there is a clear ecological benefit in the proposed mitigation option.

Both state and federal regulatory authorities generally require that impacts to wetland resources are offset within the same basin and/or at a mitigation bank that has a service area that includes the proposed area of impact.

For the USACOE, the basin is defined in accordance with the within the 8-digit Hydrologic Unit Code (HUC 8). The study area is wholly within the Daytona-St. Augustine 8-digit HUC code (0308201). The USACOE will accept credits for the project impacts areas from banks within the service area.

A total of five mitigation banks: Port Orange, Lake Swamp, Fishtail, St. Marks Pond and Brick Road occur within the Daytona-St. Augustine Basin. However, Brick Road, St. Marks Pond, and Fishtail do not have USACOE permitted service areas that overlap the project impacts. The Port Orange Mitigation Bank currently does not provide mitigation credits for projects outside of their City. Lake Swamp currently has available credits to offset this project. An additional bank (Farmton) is outside of the HUC Basin but has a Federally permitted service area that overlaps the project study area and currently has available credits. There are also an additional two mitigation banks (Pelicer Flats and Tiger Bay) within this HUC basin that are pending permit issuance and credit release that could also potentially offset wetland impacts associated with this project.

The State of Florida has established Cumulative Impact Basins that are incorporated under the cumulative impact requirements of subsections 373.414(8)(a), F.S., 40C-4.301 (3), F.A.C., and 12.28, ERP A.H. The project study area is located within the Halifax River Cumulative Impact Basin (Basin 17). A total of two state permitted banks occur within this basin (Farmton, and Lake Swamp). Please note that this basin loosely follows the USACOE HUC basin but has two distinct differences; one, the basin extends further to the south

and, two, it is cut off to the north around the Flagler County line rather than around St. Augustine. The State of Florida permitting regulations will only allow a mitigation bank that is outside the Cumulative Impact Basin that contains the impact when a Cumulative Impact Study has been conducted and approved.

At the time of this PD&E study, there are two permitted mitigation banks that meet both state and federal criteria to offset impacts associated with this project. FDOT will prepare a mitigation plan that meets the regulatory goals for both the federal and state programs during permitting.

4.2-F Cumulative Impact Evaluation

In accordance with the State of Florida's established cumulative impact requirements (subsections 373.414(8)(a), F.S., 40C-4.301 (3), F.A.C., and 12.28, ERP A.H.) the wetland impacts associated with this project will be offset within the same regulatory mitigation basin (Halifax River Basin) therefore meeting cumulative impact criteria.

4.2-G Wetland Findings

The impacts to wetlands within the project area were assessed as part of this PD&E study. Practicable alternatives were evaluated as part of this study; however, since the concept of the project is to place a new interchange at the intersection of I-95 and Pioneer Trail, the concept alternatives studied are confined to the limits of these two roads. Because of these confines, wetland impacts cannot be avoided for this project.

Based on the PD&E study, it was determined based on the engineering and environmental factors and public and agency input that the Partial Cloverleaf 2 Alternative (preferred alternative) provides the best balance between improved transportation service and minimization of the social, physical and natural impacts while gaining the most public support. Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344. As such, in accordance with the Protection of Wetlands (Executive Order 11990):

1. The proposed project will have no significant short-term or long-term adverse impacts to wetlands,
2. There is no practicable alternative to construction in wetlands, and
3. Measures have been taken to minimize harm to wetlands.

5.0 Essential Fish Habitat

The proposed I-95 Interchange at Pioneer Trail does not involve Essential Fish Habitat, thus impacts to this resource is not anticipated.

6.0 Anticipated Permits

6.1 Federal

6.1-A USACOE

Impacts to Waters of the U.S., will require a federal dredge and fill permit from the US Army Corps of Engineers.

6.2 State

6.2-A FDEP

A National Pollutant Discharge Elimination System (NPDES) Permit will be required as the project will disturb five acres or greater of land. This permit will be issued to the construction contractor once one is selected prior to construction.

6.2-B WMD

The project will be subject to the jurisdictional regulations of the St. Johns River Water Management District under state permitting rules. This permit will govern the stormwater drainage system and any wetland impacts that are proposed.

6.2-C FWC

A separate permit to address impacts to gopher tortoise burrows will be required at the time of construction, should there be any within 25 feet of the proposed construction zone. This will be under the regulations of the FWC and will be handled by an FWC permitted Authorized Agent within approximately 90 days of construction.

7.0 Conclusion

The purpose of this NRE Report, is to evaluate potential effects to protected species, habitat, and wetlands. The study analyzed the potential for six (6) federally protected animals and three (3) federally protect plants to occur within the study area. A “may affect, but not likely to adversely affect” determination was made for four (4) of the animal species (eastern indigo snake, Florida scrub-jay, bald eagle, and wood stork) and for two (2) of the plant species (Rugel’s pawpaw and Okeechobee gourd). A “no effect” determination was made for the Everglade snail kite, red-cockaded woodpecker and fragrant prickly apple. The project study area also potentially contains nine (9) state protected animals and 32 plants. No adverse effects are anticipated with any of these state protected plant or animals.

A total of 20 individual wetlands and 11 other surface waters (OSW) were located within the project study area. Seventeen wetlands and eight OSWs would be affected by the preferred alternative evaluated in the study. A UMAM analysis of each wetland impacted by the preferred alternative results in an estimated functional loss of 27.53 UMAM units associated with the project.

7.1 Implementation Measures/ Design Considerations

Implementation measures are actions that FDOT would be required to take per procedure, standard specifications, or other agency requirements that will be implemented at a later project phase, but which will help address or reduce project effects and that need to be relayed to the agencies during review of the NRE. The FDOT intends to implement the following for this study:

- Conduct gopher tortoise survey and complete permit for relocation of tortoise
- Conduct pre-construction survey for Florida sandhill cranes

7.2 List of Commitments

1. The Standard Protection Measures for the Eastern indigo snake will be implemented during construction.
2. Conduct a federally listed plant survey during the design phase.

8.0 References

- *Florida Department of Transportation Project Development and Environment Manual, Part 2, Chapter 16 Protected Species and Habitat, January 14, 2019*
- *Florida Department of Transportation Natural Resources Evaluation Outline and Guidance, December 19, 2017*
- *U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12, June 2007;*
- *Florida Fish and Wildlife Conservation Commission, Florida's Endangered and Threatened Species, updated December 2018;*
- *Florida Fish and Wildlife Conservation Commission, Florida's Imperiled Species Management Plan, Amended December 2018;*
- *Florida Department of Agriculture and Consumer Services, Florida Forest Service, Florida's Federally Listed Plant Species website (<http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Florida-Statewide-Endangered-and-Threatened-Plant-Conservation-Program/Florida-s-Federally-Listed-Plant-Species>);*
- *Florida Fish and Wildlife Conservation Commission, Eagle Nest Locator website (<https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx>);*
- *Florida Fish and Wildlife Conservation Commission, Wading Bird Rookeries website (http://ocean.floridamarine.org/TRGIS/Description_Layers_Terrestrial.htm);*
- *U.S. Fish and Wildlife Service, Critical Habitat Portal website (<http://ecos.fws.gov/crithab/>);*
- *Florida Natural Areas Inventory (FNAI) Biodiversity Matrix Map Server (<http://www.fnai.org/biointro.cfm>);*
- *Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute Indigo Snake Occurrences in Florida; (<http://geodata.myfwc.com/pages/downloads>); and*
- *U.S. Fish and Wildlife Service, Wood Stork website (<http://www.fws.gov/northflorida/WoodStorks/wood-storks.htm>).*

APPENDIX A

AGENCY COORDINATION



Florida Department of Transportation

RON DESANTIS
GOVERNOR

719 S. Woodland Boulevard
DeLand, Florida 32720-6834

KEVIN J. THIBAUT, P.E.
SECRETARY

July 9, 2019

Mr. Larry T. Cole
U.S. Environmental Protection Agency, Region 4
Water Protection Division
Ground Water & UIC Section
61 Forsyth Street, S.W.
Mail Code 9T25
Atlanta, GA 30303-8960

SUBJECT: Request for Sole Source Aquifer Concurrence
Project Name: SR 9/I-95 Interchange at Pioneer Trail
ETDM#: 14193
Financial Project #: 436292-1-22-01
County: Volusia

Dear Mr. Cole:

The Florida Department of Transportation (FDOT) District Five is conducting a Project Development and Environment (PD&E) Study for a new proposed interchange at I-95 and Pioneer Trail in Volusia County, Florida (see attached project location map). The primary purpose of this project is to relieve traffic congestion on the two adjacent interchanges north and south of the project: I-95 at State Road 421/Dunlawton Avenue and I-95 at State Road 44/Lytle Avenue, respectively. The project is also intended to support economic development associated with existing and approved developments, including three Developments of Regional Impact (Farnton, Restoration, and Pavilion at Port Orange).

The project was reviewed through the FDOT'S Efficient Transportation Decision Making (ETDM) process where members of the Environmental Technical Advisory Team (ETAT) provide input/comments. The ETDM Preliminary Programming Screening Summary Report was published on November 3, 2017 (ETDM #14193) along with the Advance Notification package. This ETDM report, including agency comments, GIS analysis, and additional project information, can be accessed at the following website: <http://etdmpub.flas-etat.org/est>. The project's class of action is anticipated to be a Type 2 Categorical Exclusion.

ETDM Screening Comments

During the ETDM Programming Screen, comments were provided by the Saint Johns River Water Management District (SJRWMD), the Florida Department of Environmental Protection (FDEP), and the U.S. Environmental Protection Agency (EPA) under the "Water Quality and Quantity" section. The EPA assigned the degree of effect as "Moderate" while the other two agencies assigned a degree of effect of "None."

The EPA stated that the project is located within a 500-foot buffer of a principle aquifer, surficial aquifer system, recharge area; and Spruce Creek, an Outstanding Florida Water. The EPA also stated that the Surficial Aquifer System and Spruce Creek affect Florida water quality, so water quality and quantity degree of effect on these resources is "Moderate." For the environmental evaluation of the new interchange at I-95 at Pioneer Trail, the EPA recommended the following practices for direct water quality and quantity impacts:

- Explain how adequate sediment and erosion control measures will be used to prevent discharges.
- Use best management practices to control erosion, sediment release, and storm water surface runoff to minimize adverse impacts on water resources.
- Stabilize soils to reduce the effects of erosion, sedimentation, and runoff to maintain or improve water quality.
- Identify and quantify incremental and cumulative impacts on water quality as a result of the past, present, and reasonably foreseeable actions, including the proposed project and other land use actions.
- Reduce the impact of pollution runoff from the roadway.
- Construction plan should provide erosion and sediment control.
- Preventive maintenance plan to reduce the potential amount of waste generated.
- Recommend that contractors reduce the amount of hazardous and toxic materials used to the maximum extent possible.

The EPA also assigned a "Minimal" degree of effect for Contamination in the ETDM Programming Screen. The EPA recommended the following avoidance, minimization, and mitigation opportunities:

- Ensure that that contaminated groundwater and any other contaminated materials are managed, stored or disposed of appropriately in accordance to federal and state law.
- Preserve and maintain all existing and future monitoring wells, notify EPA and FDEP of any damaged monitoring wells, and receive approval from EPA and FDEP before removing or replacing any monitoring wells.
- Use best management practices (BMPs) that reduce environmental impact Additionally, the FDEP assigned a degree of effect of None for Contamination.

Water Quality

The study area lies within the jurisdiction of SJRWMD and specifically within Waterbody Identification Number 2679 (Upper East Coast). All projects located in the jurisdiction of SJRWMD are required to meet state water quality standards set forth in Chapter 62-302, Florida Administrative Code (FAC). The approach to meet water quality requirements is to provide treatment for the increase in impervious area and restore or replace existing permitted treatment facilities impacted by this project. A review of the drainage plans and permit information of the most recent widening of I-95 shows that runoff from the roadway lanes were sloped so that runoff is collected and treated in the median with wet retention ponds.

The attached Water Quality Impact Evaluation (WQIE) Checklist was completed for the project. The results confirm that the proposed stormwater facility design will include, at a minimum, the water quantity requirements for water quality impacts as required by the SJRWMD in Chapter 62-302 of the Florida Administrative Code. It is therefore anticipated that no adverse effects will occur to the water quality within the project area. The FDOT will continue to coordinate water quality and quantity

Mr. Larry T. Cole, EPA

July 9, 2019

Page 3

impacts and stormwater management with the appropriate regulatory agencies as required throughout the design and permitting phases of the project, as well as during and after construction. Water quality impacts resulting from erosion and sedimentation during construction activities will be controlled in accordance with FDEP's National Pollutant Discharge Elimination System (NPDES) Permit including the preparation of a Stormwater Pollution Prevention Plan (SWPPP); the latest edition of the FDOT Standard Specification for Road and Bridge Construction; and through the use of Best Management Practices (BMPs) including temporary erosion features (e.g., turbidity barriers) during construction.

Any dewatering operations in the vicinity of potentially contaminated areas shall be managed properly following SJRWMD/FDEP guidance and coordination. In the event that any hazardous material or suspected contamination is encountered during construction, or if any spills caused by construction-related activities should occur, the Contractor shall be instructed to stop work immediately and conduct the appropriate notification process with the FDOT District Five Construction Project Manager, Planning and Environmental Management Office, and appropriate regulatory agencies.

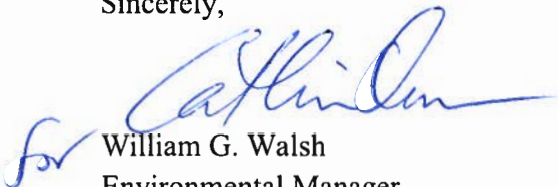
Sole Source Aquifer

The project limits lie within the boundaries of the Volusia-Floridan Sole Source Aquifer which includes all of Volusia County and portions of Flagler and Putnam Counties extending approximately 1,450 square miles. As such, the Sole Source Aquifer Checklist was completed for this project, and attached for your review. Geotechnical borings conducted during the study phase of the project indicate that the aquifer lays approximately 100 feet below the surface at the project location (boring taken at the existing bridge over I-95). The project is proposing a new bridge structure that will likely require new pilings to support the structure. The typical piling length for this type of bridge is expected to be considerably shorter than 100 feet in length so that any piles will not reach to the aquifer depth.

In accordance with the Sole Source Aquifer Program, authorized by Section 1424(e) of the Safe Drinking Water Act of 1974, the FDOT is requesting your concurrence that no adverse impacts to the Volusia Sole Source Aquifer are anticipated as a result of the proposed project.

If you have any questions, please feel free to contact me at 386-943-5411 or William.Walsh@dot.state.fl.us.

Sincerely,



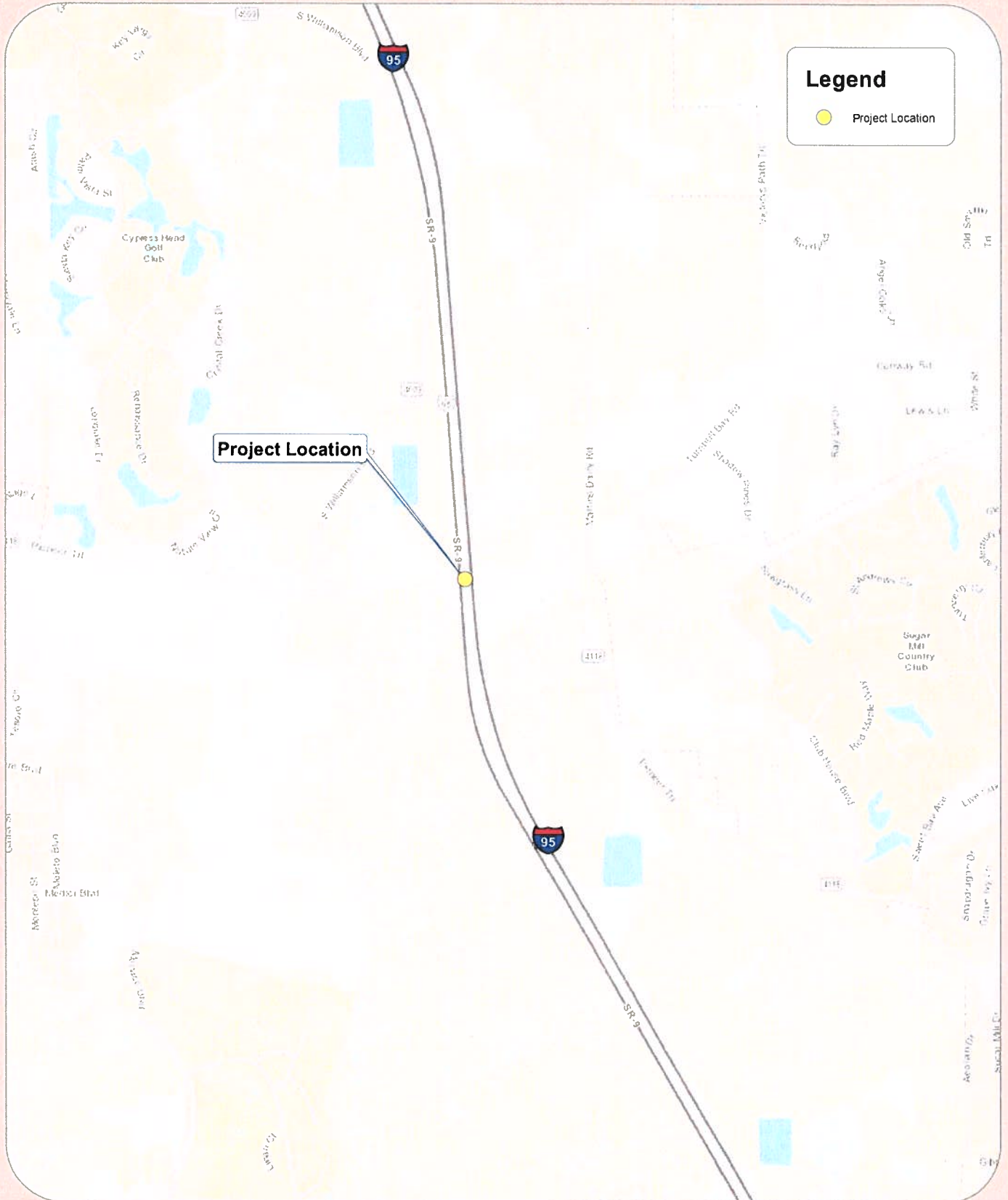
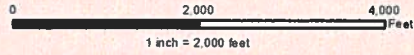
William G. Walsh
Environmental Manager
FDOT, District Five

cc: Catherine Owen, FDOT
Mike Dinardo, Stantec

Attachments

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
FPID No. 436292-1-22-01 | ETDM No. 14193



Project Location

Legend

- Project Location

PROJECT LOCATION

FIGURE 1

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
WATER QUALITY IMPACT EVALUATION CHECKLIST

650-050-37
ENVIRONMENTAL
MANAGEMENT
10/17

PART 1: PROJECT INFORMATION

Project Name:	SR 9/I-95 Interchange at Pioneer Trail PD&E Study
County:	Volusia
FM Number:	436292-1-22-01
Federal Aid Project No:	N/A
Brief Project Description:	New interchange to relieve traffic congestion on the two adjacent interchanges north and south of the project: I-95 at State Road 421 & I-95 at State Road 44.

PART 2: DETERMINATION OF WQIE SCOPE

Does project discharge to surface or ground water? Yes No

Does project alter the drainage system? Yes No

Is the project located within a permitted MS4? Yes No
Name: _____

If the answers to the questions above are no, complete the applicable sections of Part 3 and 4, and then check Box A in Part 5.

PART 3: PROJECT BASIN AND RECEIVING WATER CHARACTERISTICS

Surface Water

Receiving water(s) names: Spruce Creek

Water Management District: St. Johns River Water Management District (SJRWMD)

Environmental Look Around meeting date: [Click here to enter a date.](#)
Attach meeting minutes/notes to the checklist.

Water Control District Name (list all that apply): N/A

Groundwater

Sole Source Aquifer (SSA)? Yes No

Name Volusia Sole Source Aquifer

If yes, complete Part 5, D and complete SSA Checklist shown in Part 2, Chapter 11 of the PD&E Manual

Other Aquifer? Yes No
Name _____

Springs vents? Yes No
Name _____

Well head protection area? Yes No

Name _____
Groundwater recharge? Yes No
Name _____

Notify District Drainage Engineer if karst conditions are expected or if a higher level of treatment may be needed due to a project being located within a WBID verified as Impaired in accordance with Chapter 62-303, F.A.C.

Date of notification: [Click here to enter a date.](#)

PART 4: WATER QUALITY CRITERIA

List all WBIDs and all parameters for which a WBID has been verified impaired, or has a TMDL in [Table 1](#). This information should be updated during each re-evaluation as required.

Note: If BMAP or RAP has been identified in [Table 1](#), [Table 2](#) must also be completed. Attach notes or minutes from all coordination meetings identified in [Table 2](#).

EST recommendations confirmed with agencies? Yes No

BMAP Stakeholders contacted: Yes No

TMDL program contacted: _____ Yes No

RAP Stakeholders contacted: Yes No

Regional water quality projects identified in the ELA Yes No

If yes, describe:

Potential direct effects associated with project construction and/or operation identified? Yes No
If yes, describe:

Discuss any other relevant information related to water quality including Regulatory Agency Water Quality Requirements.

PART 5: WQIE DOCUMENTATION

- A. No involvement with water quality
- B. No water quality regulatory requirements apply.
- C. Water quality regulatory requirements apply to this project (provide Evaluator's information below). Water quality and stormwater issues will be mitigated through compliance with the design requirements of authorized regulatory agencies.
- D. EPA Ground/Drinking Water Branch review required. Yes No
Concurrence received? Yes No
If Yes, Date of EPA Concurrence: [Click here to enter a date..](#)
Attach the concurrence letter

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.

Evaluator Name (print): Mike Dinardo	
Title: Ecologist	
Signature:	Date: Click here to enter a date.

Table 1: Water Quality Criteria

Receiving Waterbody Name (list all that apply)	FDEP Group Number / Name	WBID(s) Numbers	Classification (I,II,III,IIIL,IV,V)	Special Designations*	NNC limits**	Verified Impaired (Y/N)	TMDL (Y/N)	Pollutants of concern	BMAP, RA Plan or SSAC
Upper East Coast	Group 5	2679	IIIF			No	No		

* ONRW, OFW, Aquatic Preserve, Wild and Scenic River, Special Water, SWIM Area, Local Comp Plan, MS4 Area, Other

** Lakes, Spring vents, Streams, Estuaries

Note: If BMAP or RAP has been identified in [Table 1](#), [Table 2](#) must also be completed.

PROJECT NAME:

NAME OF SOLE SOURCE AQUIFER: Volusia Sole Source Aquifer

- 1. Location of project:** Along I-95 approximately 2.7 miles north of the SR 44 interchange.
- 2. Project description.** New interchange connecting the Pioneer Trail to Interstate I-95.
- 3. Is there any increase of impervious surface? If so, what is the area?**
Yes, the new ingress/egress ramps will provide new impervious surfaces.
- 4. Describe how storm water is currently treated on the site?**
Currently, I-95 provides treatment into the median in accordance to the issued SJRWMD permit.
- 5. How will storm water be treated on this site during construction and after the project is complete?** Erosion/sedimentation will be treated in accordance with FDEP's NPDES Permit & Stormwater Pollution Prevention Plan. After construction, stormwater will be routed and treated in ponds.
- 6. Are there any underground storage tanks present or to be installed? Include details of such tanks.** No underground storage tanks are onsite or will be installed with the project.
- 7. Will there be any liquid or solid waste generated? If so how will it be disposed of?** No liquid or solid waste will be generated. Construction waste will be hauled to the appropriate waste collection facility.
- 8. What is the depth of excavation?** Excavation associated with the project will be associated with the creation of ponds.
- 9. Are there any wells in the area that may provide direct routes for contaminants to access the aquifer and how close are they to the project?**
There are no known wells within the project area.
- 10. Are there any hazardous waste sites in the project area, especially if the waste site has an underground plume with monitoring wells that may be disturbed? Include details.** There are no documented hazardous waste sites within a mile radius of the project area.
- 11. Are there any deep pilings that may provide access to the aquifer?**
Bridge ingress/egress piles may be associated with this project depending on the selected alternative.
- 12. Are Best Management Practices planned to address any possible risks or concerns?** Geotechnical borings indicate that the piles will intersect the aquifer.
- 13. Is there any other information that could be helpful in determining if this project may have an effect on the aquifer?**
Impacts to the aquifer are not anticipated as all stormwater will meet state water quality standards set forth in Chapter 62-302, Florida Administrative Code (FAC).
- 14. Does this Project include any improvements that may be beneficial to the aquifer, such as improvements to the wastewater treatment plan?** not at present

The EPA Sole Source Aquifer Program may request additional information if impacts to the aquifer are questionable after this information is submitted for review.

Figure 11-2 Sole Source Aquifer Checklist



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

SEP 05 2019

William G. Walsh
Environmental Manager
Florida Department of Transportation, District 5
719 South Woodland Boulevard
DeLand, FL 32720

Subject: Sole Source Aquifer Review for Proposed Project - SR 9/I-95 Interchange at Pioneer Trail, ETDM# 14193.

Dear Mr. Walsh:

The U.S. Environmental Protection Agency, Region 4 received your request dated July 09, 2019 to review the above referenced project pursuant to Section 1424(e) of the Safe Drinking Water Act. The assessment is to determine if the project lies within the boundaries (recharge and streamflow source zones) of an EPA designated Sole Source Aquifer (SSA), and to determine if the project poses potential adverse health or environmental impacts. A SSA is the sole or principal water source for a designated area. If the aquifer is contaminated, there could be a significant hazard to public health and an economic burden for those using the aquifer as a drinking water source.

The project has been determined to lie **inside** the designated boundaries of the Volusia Aquifer and based on the information provided, is not expected to cause a significant impact to the aquifer system. However, it is requested that all debris from any demolition of the existing structures are properly contained and removed from the site prior to construction of the new structure. If applicable, all county flood plain management plans and public notification processes should be followed. During construction, it is EPA's understanding and expectation that those responsible for the project will strictly adhere to all Federal, State, and local government permits, ordinances, planning designs, construction codes, operation & maintenance requirements, and engineering as well as any contaminant mitigation recommendations outlined by federal and state agency reviews. All best management practices for erosion and sedimentation control should be followed. State and County environmental offices should be contacted to address proper drainage and storm water designs. Additionally, the project manager should contact State and local environmental officials to obtain a copy of any local Wellhead Protection Plans. <http://www.dep.state.fl.us/swapp/Default.htm>

Please note that this "no significant impact" finding has been determined based on the information provided and under Section 1424(e) of the Safe Drinking Water Act only. If there are any significant changes to the project, it is requested that the EPA Region 4 office be notified for further review. Other regulatory groups within the EPA responsible for administering other programs may, at their own discretion and under separate cover, provide additional comments.

Thank you for your concern with the environmental impacts of this project. If you have any questions, please contact Mr. Khurram Rafi at 404-562-9283 or Rafi.Khurram@epa.gov or Mr. Larry Cole at 404-562-9474 or Cole.Larry@epa.gov.

Sincerely,



Alanna Conley, Chief
Ground Water, UIC and GIS Section
Safe Drinking Water Branch



Florida Department of Transportation

RON DESANTIS
GOVERNOR

719 S. Woodland Boulevard
Tallahassee, Florida 32304-6834

KEVIN J. THIBAUT I, P.E.
SECRETARY

February 25, 2020

Dr. Heath Rauschenberger, Deputy Field Superv
US Fish and Wildlife Service
North Florida Ecological Services Office
7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517


Attention: Zakia Williams

RE: Request for Section 7 Informal Consultation...
I-95 Interchange at Pioneer Trail PD&E Study
Volusia County, Florida
Financial Management Number: 436292-1-22-01



FWS Log No 2020-TA-0555

The Service concurs with your effect determination(s) for resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This finding fulfills the requirements of the Act.


Jay B. Herrington
Field Supervisor

3/26/2020
Date

The Florida Department of Transportation is conducting a Project Development and Environment (PD&E) Study to evaluate the proposed construction of a new interchange along I-95 at Pioneer Trail near milepost (MP) 19.032 in Volusia County. As part of the study a Natural Resources Evaluation (NRE) has been developed to assess the project for its impacts to wetlands and protected species. Based upon the individual species effects determinations, described below, that resulted from this evaluation, informal consultation with the U.S. Fish and Wildlife Service (USFWS) for potential impacts is required.

The study area is either partially or wholly within several consultation areas, however, there is no suitable habitat for the following species: Everglade snail kite (*Rostrhamus sociabilis plumbeus*), red-cockaded woodpecker (*Picoides borealis*), and fragrant prickly apple (*Harrisia fragrans*). As there is no suitable habitat and no documented occurrences, it has been determined that the project will have "no effect" for any of these species.

There are four (4) federally protected animal species (eastern indigo snake, Florida scrub-jay, bald eagle, and wood stork) and two (2) federally protected plant species (Rugel's pawpaw and Okeechobee gourd) that have the potential to occur within the project area. These species, and their associated effects determinations, are discussed below:

Eastern Indigo Snake (*Drymarchon corais couperi*)-Two gopher tortoise burrows (a primary source of shelter) were identified within the project study area during field reviews. The majority of the upland habitat within the study area has a high-water table that does not provide the well-

drained soil types typically used by gopher tortoise in north central Florida. The exception is the 4.37 acres of xeric oak community that occurs at the southeast terminus of the project. Documented occurrences of the eastern indigo snake were reviewed through our GIS databases and the closest documented sightings of the Eastern indigo snake is from 2003 within the New Smyrna coastal strand over 7 miles to the southeast.

The US Army Corps of Engineers (USACOE) and the FWS have a programmatic effect key for the indigo snake. Following this 2013 key, (A) the project is no located in open water or salt marsh, (B) the permit will be conditioned for use of the Services Standard Protection Measures For the Eastern Indigo Snake during site preparation and project construction, (C) there are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities, (D) the project will impact less than 25 acres of xeric habitat supporting less than 25 acres of active and inactive gopher tortoise burrows, and (E) any permit will be conditioned such that all gopher tortoise burrows, active or inactive will be excavated prior to site manipulation in the vicinity of the burrow. Based on use of the programmatic key, FDOT has determined that this project would result in a “may affect, but not likely to adversely affect” determination for this species.

Florida Scrub-Jay (*Aphelocoma coerulescens*)- Currently, the project study area contains approximately 4.37 acres of xeric oak at the southeast corner of the project study area. This habitat is suboptimal for the scrub jay as its relatively thick and the oak trees are mature and average over 10 feet in height making them too large for scrub-jay nesting. In addition, large pine trees within this community provide perches for scrub jay avian predators. Scrub jays were not observed during any field events.

A five-day scrub-jay survey was conducted during late July and early August of 2019. Survey stations were established along both sides of Pioneer Trail south of Turnbull Bay Road in areas of potential habitat. No scrub-jays were identified during the 5-day survey.

Based on the lack of observations during field surveys, FDOT has determined that this project is “may affect, but not likely to adversely affect” the Florida scrub-jay.

Wood Stork (*Mycteria americana*)-The FWS wood stork colony database was searched for active wood stork colonies located within 15-miles of the project area. According to the FWS wood stork colony website, the closest wood stork nesting colony is over 20 miles to the west (Hontoon Island). As such, the project study area does not occur within the core foraging radius of any wood stork rookery. Wood storks were not observed during field surveys.

The USACOE and the FWS have a programmatic Effect Determination Key for the Wood Stork in Central and North Peninsular Florida (FWS 2008). Based on this key, since the project study area does not occur within the core foraging radius of any wood stork rookery and no wood

Dr. Heath Rauschenberger
February 25, 2020

storks were observed during field reviews the FDOT has determined that the project “may affect, but not likely to adversely affect” the wood stork.

Bald eagle (*Haliaeetus leucocephalus*)-Bald eagle nests within Florida are closely monitored by the FWC that maintains a website of known bald eagle nest locations, which is current through the 2015-2016 nesting season. According to this database, there are no documented nest sites within one (1) mile of the project corridor. The closest documented eagle nest (VO121) is approximately 2.5 miles to the east of the project study area. The project study area is not located within the primary and secondary protection zone of any active bald eagle nest. Because the project’s corridor is located outside of the 660-foot zone of any nest site, no additional coordination with FWS with respect to the eagle is required. As a result, FDOT has been determined that the project is “may affect, but is not likely to adversely affect” the bald eagle.

Rugel’s pawpaw (*Deeringothamnus rugelii*)-No specimens of Rugel’s pawpaw were documented within a mile of the project study area. There is habitat (pine flatwoods) within the project study area that could support this species if it was properly managed with fire or even mowed. However, in its current condition, the pine flatwoods are far too overgrown. Field surveys were carried out to ascertain whether this species is within the corridor. No species of pawpaw were observed within the study area. It is FDOT’s determination that the project “may affect, but is not likely to adversely affect” the Rugel’s pawpaw.

Okeechobee Gourd (*Cucurbita okeechobeensis* spp. *okeechobeensis*)-The project corridor is over 20 miles east of the St. Johns River. Nonetheless, the large wetland forests within the floodplain area were inspected for this gourd. No specimens of Okeechobee gourd were found during field surveys. It is FDOT’s determination that the project is “not likely to adversely affect” the Okeechobee gourd.

We ask that USFWS review the enclosed NRE for this project and provide concurrence with FDOT’s determinations for these species. We appreciate the coordination effort and input already provided and look forward to continued consultation on this project. If you have any questions, feel free to contact either Heather Chasz at (386) 943-5393, heather.chasz@dot.state.fl.us or me at (386) 943-5411, william.walsh@dot.state.fl.us at your convenience. Thank you for your assistance with this project.

Sincerely,



William G. Walsh
Environmental Manager
FDOT, District Five

From: admin@fla-etat.org <admin@fla-etat.org>
Sent: Thursday, October 22, 2020 9:17 AM
To: zakia_williams@fws.gov
Cc: Chasez, Heather <Heather.Chasez@dot.state.fl.us>
Subject: Document Review Confirmation for 436292_NRE_final21Sept20

EXTERNAL SENDER: Use caution with links and attachments.

A review was received for the following:

Event: Pioneer Trail Interchange NRE

Document: 436292_NRE_final21Sept20

Submitted By: Zakia Williams

Global: Yes

Comments:

The Service commented on the draft NRE on March 26, 2020 and concurred with the FDOT's findings for listed species. In regards to the final NRE, the service concurs with the FDOT's findings for listed species and FWS has no further comments for the I-95 Interchange at Pioneer Trail.

Thank you

From: admin@fla-etat.org <admin@fla-etat.org>
Sent: Friday, October 23, 2020 8:12 PM
To: Randy Turner <randy.l.turner@usace.army.mil>
Cc: Chasez, Heather <Heather.Chasez@dot.state.fl.us>
Subject: Document Review Confirmation for 436292_NRE_final21Sept20

EXTERNAL SENDER: Use caution with links and attachments.

A review was received for the following:

Event: Pioneer Trail Interchange NRE
Document: 436292_NRE_final21Sept20
Submitted By: Randy Turner
Sections: 4.0
Pages: 49-50
Paragraphs: 4.2-E

Comments:

The Corps generally concurs with the Wetlands and Surface Waters portions of the document and provides additional comments on the following Sections of the NRE document with the exception of the following:

Wetlands and Surface Waters:

Section 4.2-E: There is a total of three federally approved (permitted) mitigation banks that

has service areas that cover the proposed project's area of impacts to waters of the U.S.:

Farmton Mitigation Bank (WRAP Credits)

Palustrine: 4,563.17

Lake Swamp Mitigation Bank (UMAM Credits)

Palustrine Emergent: 0.72

Palustrine Forested: 29.39

Port Orange Mitigation Bank (WRAP Credits)

Palustrine Forested: 209.59

All banks are assessed in either WRAP or UMAM. Any unavoidable wetland impacts should be assessed using WRAP or UMAM dependent on the functional assessment of the bank that is proposed.

From: Lee Kissick <lkissick@sjrwmd.com>
Sent: Friday, September 25, 2020 10:50 AM
To: Dinardo, Mike <mike.dinardo@stantec.com>
Cc: Chasez, Heather <Heather.Chasez@dot.state.fl.us>
Subject: RE: FDOT FM# 436292-1 Pioneer Trail Interchange NRE

EXTERNAL SENDER: Use caution with links and attachments.

Successfully downloaded, Thanks.

From: Dinardo, Mike <mike.dinardo@stantec.com>
Sent: Friday, September 25, 2020 10:30 AM
To: Lee Kissick <lkissick@sjrwmd.com>
Cc: Chasez, Heather <heather.chasez@dot.state.fl.us>
Subject: FDOT FM# 436292-1 Pioneer Trail Interchange NRE

Hi Lee,

The above mentioned report is located on the below ftp site. Please let me know if you have an issues downloading the document or if you have any questions about the report.

Have a nice weekend!

Michael Dinardo
Project Manager/Ecologist
Mobile: 407-242-8650
Office: 407-710-3378

Stantec Consulting Services, Inc.
300 Primera Boulevard | Suite 300
Lake Mary FL 32746-2145

Your directory has successfully been created!

Please use the link below to access your directory with the username and password provided.

NOTE: FTP directories are not included in Stantec daily backups and are only intended to be used as a means of transferring large files between offices, clients, etc.

Login Information

Browser link: <https://tmpsftp.stantec.com>
FTP Client Hostname: tmpsftp.stantec.com **Port:** 22 (can be used within an FTP client to view and transfer files and folders; e.g., FileZilla)
Login name: s1009081518
Password: 5859357
Disk Quota: 2GB
Expiry Date: 10/9/2020

From: Chasez, Heather <Heather.Chasez@dot.state.fl.us>
Sent: Thursday, September 24, 2020 4:51 PM
To: lkissick@sjrwmd.com
Cc: Dinardo, Mike <mike.dinardo@stantec.com>
Subject: FDOT FM# 436292-1 Pioneer Trail Interchange NRE

Hello Lee,

Hope all is well with you.

The Florida Department of Transportation is conducting a Project Development and Environment (PD&E) Study to evaluate the proposed construction of a new interchange along I-95 at Pioneer Trail near milepost (MP) 19.032 in Volusia County. As part of the study a Natural Resources Evaluation (NRE) has been developed to assess the project for its impacts to wetlands and protected species. This report is being provided for your reference and to help fulfill our goal of continued agency coordination as the project moves forward. As the document is too large to send via email, Mike Dinardo with Stantec will be sending it through their FTP site.

If you have any questions, feel free to contact either me at (386) 943-5393, heather.chasez@dot.state.fl.us or Bill Walsh at (386) 943-5411, william.walsh@dot.state.fl.us at your convenience. Thank you for your assistance with this project.

Cheers,

Heather Chasez
Environmental Specialist IV
Project Compliance Coordinator
FDOT District Five
719 S. Woodland Blvd.
DeLand, FL 32720
Phone: (386) 943-5393

We value your opinion. Please take a few minutes to share your comments on the service you received from the District by clicking this [link](#)

Notices

- Emails to and from the St. Johns River Water Management District are archived and, unless exempt or confidential by law, are subject to being made available to the public upon request. Users should not have an expectation of confidentiality or privacy.
- Individuals lobbying the District must be registered as lobbyists (§112.3261, Florida Statutes) Details, applicability and the registration form are available at <http://www.sjrwmd.com/lobbyist/>

APPENDIX B

IPAC ANALYSIS REPORT

IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service

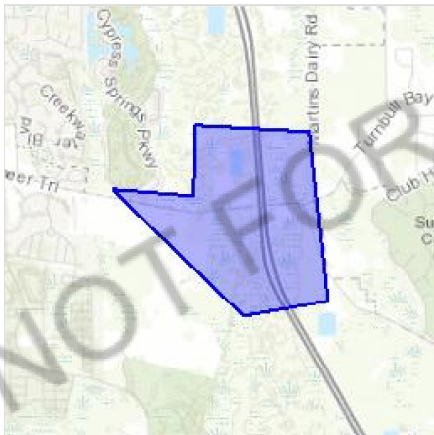
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Volusia County, Florida



Local office

North Florida Ecological Services Field Office

☎ (904) 731-3336

📅 (904) 731-3045

7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
 2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Southeastern Beach Mouse <i>Peromyscus polionotus niveiventris</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3951	Threatened
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4469	Threatened Marine mammal

Birds

NAME	STATUS
Eastern Black Rail <i>Laterallus jamaicensis</i> ssp. <i>jamaicensis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Proposed Threatened
Everglade Snail Kite <i>Rostrhamus sociabilis plumbeus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7713	Endangered
Florida Scrub-jay <i>Aphelocoma coerulescens</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6174	Threatened
Piping Plover <i>Charadrius melodus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7614	Endangered
Wood Stork <i>Mycteria americana</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8477	Threatened

Reptiles

NAME	STATUS
Atlantic Salt Marsh Snake <i>Nerodia clarkii taeniata</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7729	Threatened
Eastern Indigo Snake <i>Drymarchon corais couperi</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/646	Threatened
Gopher Tortoise <i>Gopherus polyphemus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6994	Candidate
Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle <i>Eretmochelys imbricata</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3656	Endangered
Leatherback Sea Turtle <i>Dermochelys coriacea</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle <i>Caretta caretta</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1110	Threatened

Flowering Plants

NAME	STATUS
Okeechobee Gourd <i>Cucurbita okeechobeensis</i> ssp. okeechobeensis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5999	Endangered
Rugel's Pawpaw <i>Deeringothamnus rugelii</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5355	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY

BREED IN YOUR PROJECT AREA
SOMETIME WITHIN THE
TIMEFRAME SPECIFIED, WHICH IS A
VERY LIBERAL ESTIMATE OF THE
DATES INSIDE WHICH THE BIRD
BREEDS ACROSS ITS ENTIRE
RANGE. "BREEDS ELSEWHERE"
INDICATES THAT THE BIRD DOES
NOT LIKELY BREED IN YOUR
PROJECT AREA.)

<p>American Kestrel <i>Falco sparverius paulus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Apr 1 to Aug 31
<p>American Oystercatcher <i>Haematopus palliatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935</p>	Breeds Apr 15 to Aug 31
<p>Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626</p>	Breeds Sep 1 to Jul 31
<p>Black Skimmer <i>Rynchops niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234</p>	Breeds May 20 to Sep 15
<p>Clapper Rail <i>Rallus crepitans</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Apr 10 to Oct 31
<p>Common Ground-dove <i>Columbina passerina exigua</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Feb 1 to Dec 31
<p>Dunlin <i>Calidris alpina arcticola</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds elsewhere
<p>Least Tern <i>Sterna antillarum</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Apr 20 to Sep 10

Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Magnificent Frigatebird <i>Fregata magnificens</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Oct 1 to Apr 30
Nelson's Sparrow <i>Ammodramus nelsoni</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Reddish Egret <i>Egretta rufescens</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7617	Breeds Mar 1 to Sep 15
Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Saltmarsh Sparrow <i>Ammodramus caudacutus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Semipalmated Sandpiper <i>Calidris pusilla</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

Swallow-tailed Kite *Elanoides forficatus*

Breeds Mar 10 to Jun 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8938>

Whimbrel *Numenius phaeopus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

Willet *Tringa semipalmata*

Breeds Apr 20 to Aug 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wilson's Plover *Charadrius wilsonia*

Breeds Apr 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

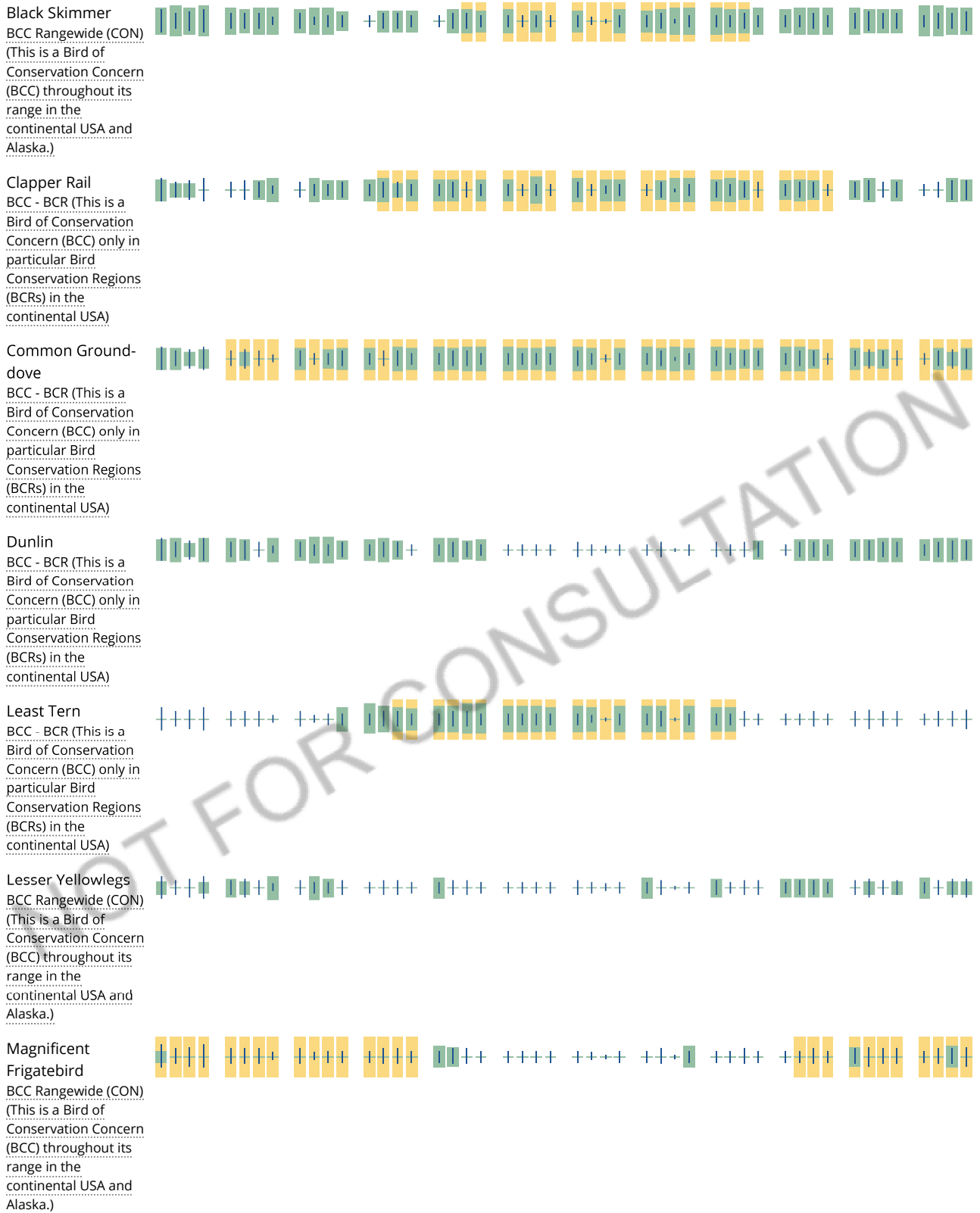
No Data (-)

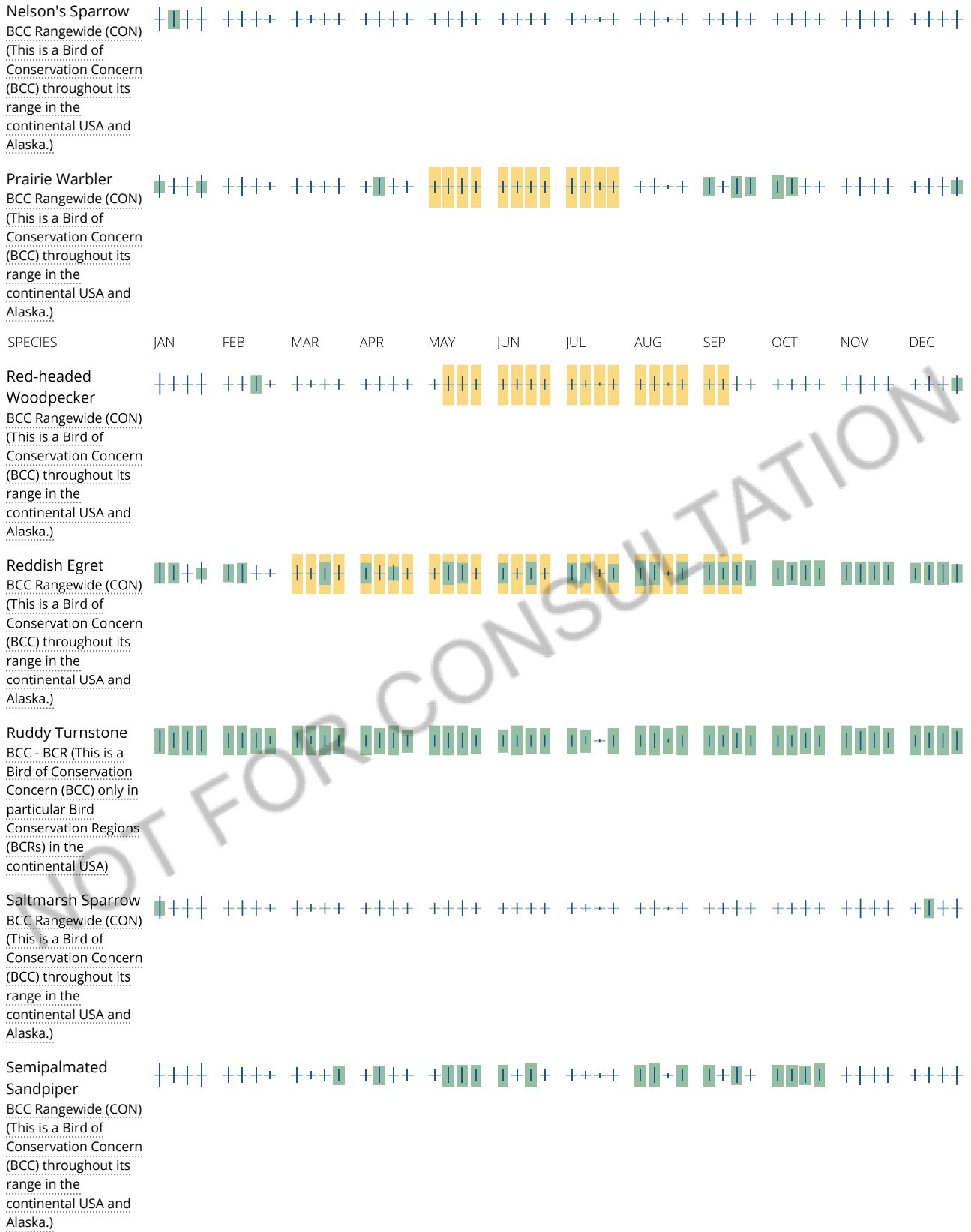
A week is marked as having no data if there were no survey events for that week.

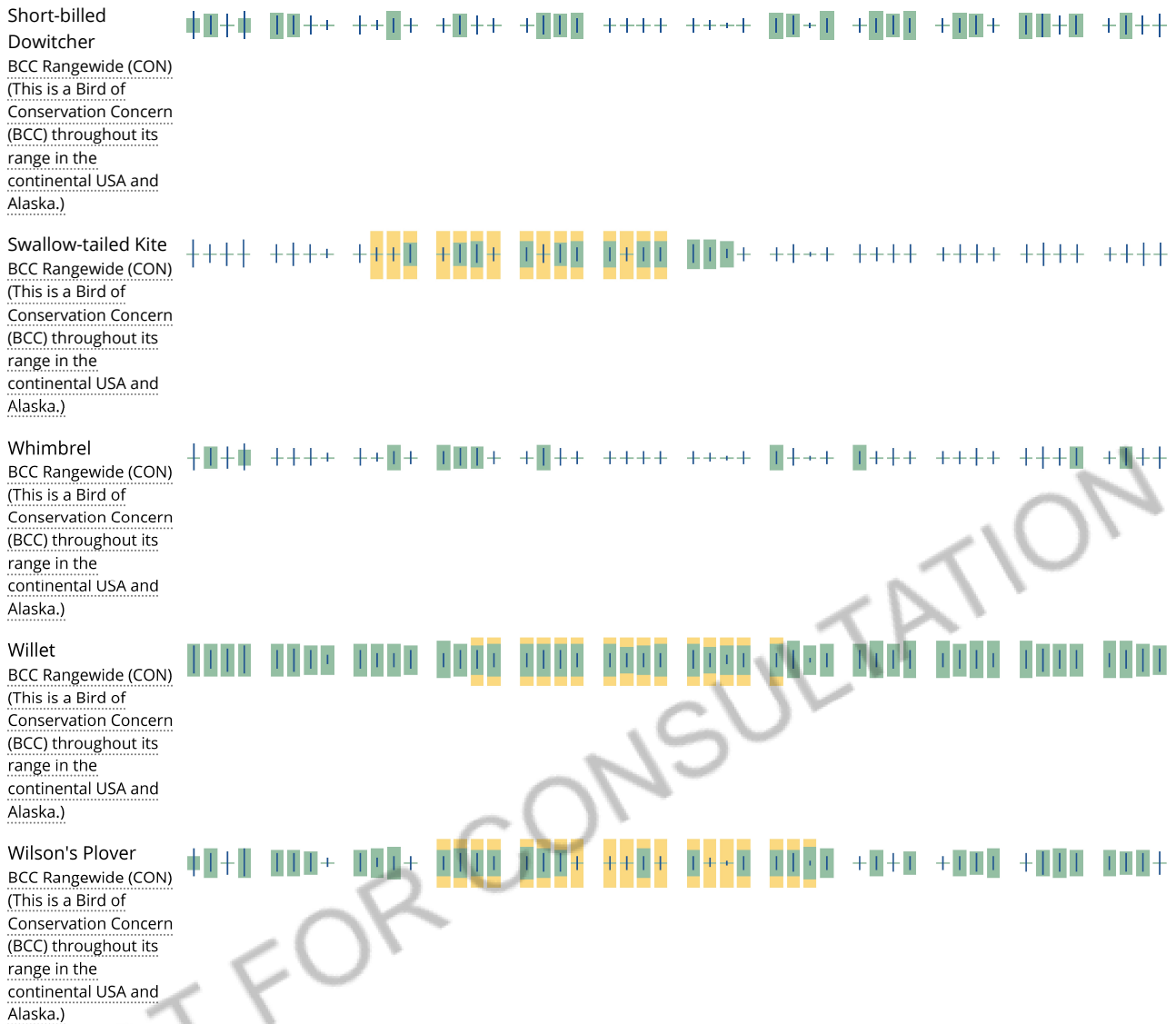
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.









Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects,

and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Marine mammals

Marine mammals are protected under the [Marine Mammal Protection Act](#). Some are also protected under the Endangered Species Act

¹ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora².

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries

³ [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the [Marine Mammals](#) page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take (to harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill) of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

1. The [Endangered Species Act](#) (ESA) of 1973.
2. The [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME

West Indian Manatee *Trichechus manatus*
<https://ecos.fws.gov/ecp/species/4469>

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or

local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX C

2013 USFWS PROGRAMMATIC KEY FOR THE EASTERN INDIGO SNAKE



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 requested²..... "may affect"

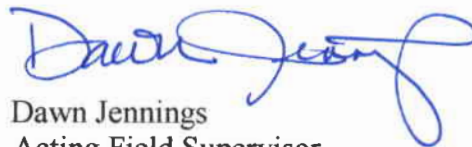
On Page 5

The following replaces footnote #3:

“³If 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

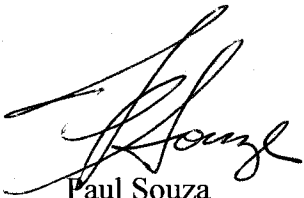
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located in all referenced counties in our respective geographic work areas leads the Service to concur with the Corps' determination of "may affect, not likely to adversely affect" (MANLAA) for the Eastern indigo snake. The biological rationale for 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 guanhumii*) 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 necessary¹. 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 requested² "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 activitiesgo 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 requested²..... “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 burrow³. 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 requested² ”may affect”

¹With 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.

²Consultation 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.

APPENDIX D

FLORIDA SCRUB-JAY TECHNICAL MEMORANDUM

FLORIDA SCRUB-JAY SURVEY TECHNICAL MEMORANDUM

Florida Department of Transportation

District 5

I-95 Interchange at Pioneer Trail

Project Development and Environment (PD&E) Study

Williamson Boulevard to Turnbull Bay Road

Volusia County, Florida

Financial Management Number: 436292-1-22-01

EDTM Number: 14193

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.

November 2019

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1.0 INTRODUCTION

The Florida Department of Transportation is conducting a PD&E Study to evaluate the proposed construction of a new interchange along I-95 at Pioneer Trail near milepost (MP) 19.032 in Volusia County. The proposed interchange is located between two existing interchanges along I-95 at State Road (SR) 44 located near MP 16.287, approximately 2.74 miles to the south and SR 421 (Dunlawton Avenue) located near MP 23.300, approximately 4.26 miles to the north. **Figure 1** depicts the location of the proposed interchange. The project study is located in Section 9: Township 17 South: Range 33 East.

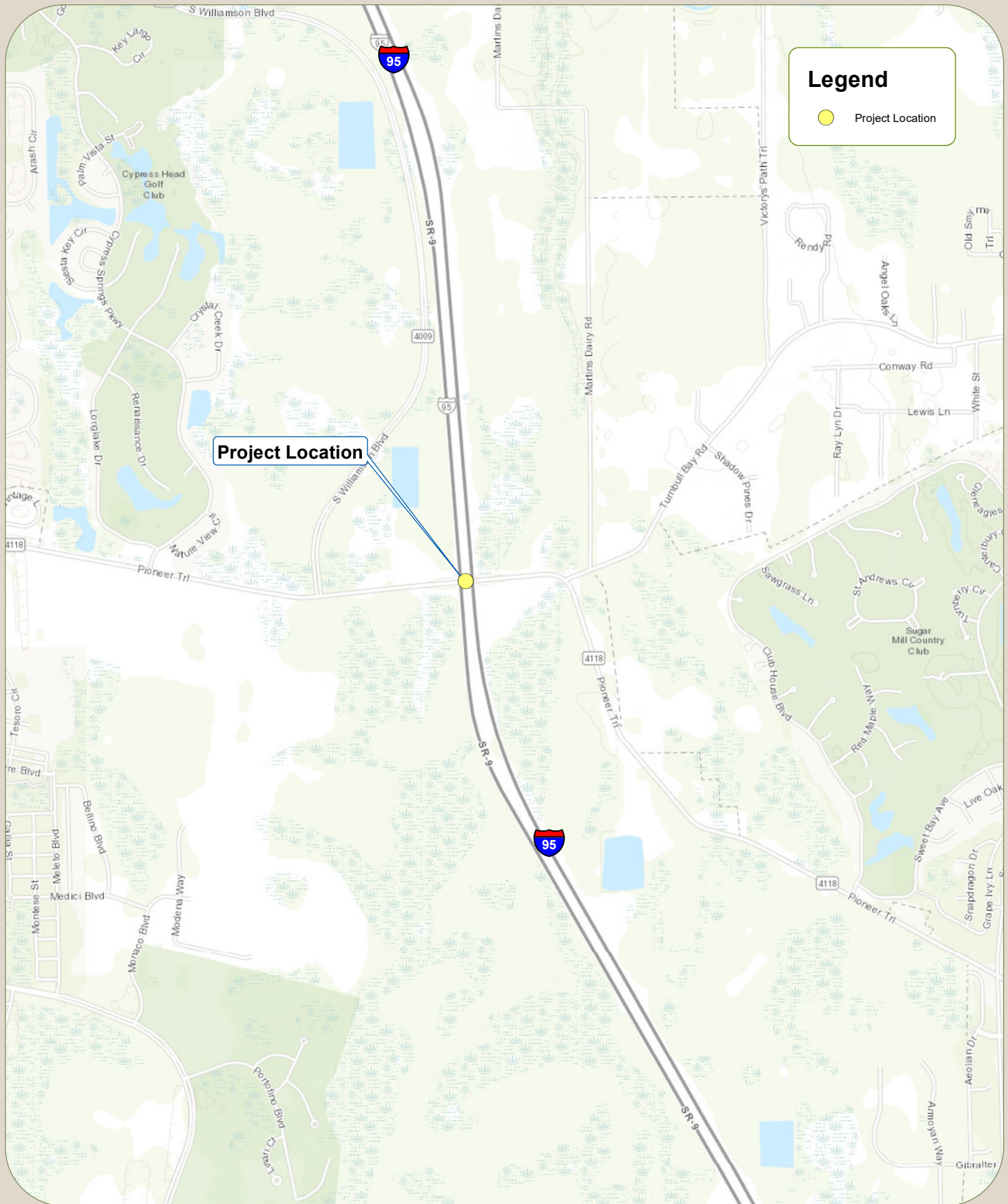
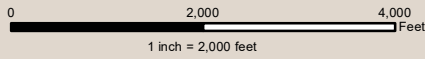
The proposed I-95 interchange at Pioneer Trail is intended to reduce traffic congestion, enhance regional mobility, and provide a viable alternative for emergency evacuations for this area in southern Volusia County. Congestion relief is focused at the two adjacent interchanges to the north and south of the project: I-95 at SR 421 (Dunlawton Ave) and I-95 at SR 44, respectively. Additionally, the proposed interchange is anticipated to support existing and approved economic developments, including three Developments of Regional Impact (DRI); Farmton, Restoration, and Pavilion at Port Orange.

An environmental assessment was conducted to document and analyze existing natural features such as land use, soils, wetlands, wildlife, and habitat with the selected area of study. The analysis of the identified environmental features included the evaluation for potential impacts proposed by three proposed Build Alternatives and the No-Build Alternative.

The entire study is located within the US Fish and Wildlife Service (FWS) Consultation Area for the Florida scrub-jay (*Aphelocoma coerulescens*) and occurs in a region documented to contain this species. As such, surveys were carried out in accordance with FWS protocol to determine if the proposed project will affect the Florida scrub-jay. The purpose of this technical memorandum is to summarize the results of the specific species survey conducted along the project corridor.

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
FPID No. 436292-1-22-01 | ETDM No. 14193



Project Location

Legend

● Project Location

PROJECT LOCATION

2.0 FLORIDA SCRUB-JAY

2.1 Protection Status

The Florida scrub-jay (herein “scrub-jay”) was federally listed as threatened in 1987 primarily because of habitat fragmentation, degradation, and loss (52 FR 20715). A recovery plan was issued in 1990 (FWS 1990). The most recent 5-year review was completed in 2007, which resulted in no change to the status of the species, but the review found that an updated recovery plan was needed (FWS 2007b). No critical habitat has been designated for this species. The FWS has designated Consultation Areas for the Florida scrub-jay which include the project study area. Consultation Areas encompass all areas where specific species populations exist. If a project falls within the consultation area, impacts to the designated species should be assessed and consultation with FWS should be initiated.

2.2 Species Description

This bird is similar to the common blue jay in size and shape, but with a pale blue crestless head, nape, wings, and tail. Sexes cannot be distinguished by plumage; however, immature birds have a dusty brown head and neck.

The Florida scrub-jay is a habitat specialist, primarily inhabiting xeric oak scrub habitats. Other habitats utilized include sand pine scrub, xeric pines, and agricultural or residential lands where scrub oaks have been retained. Scrub-jays prefer areas with open sandy patches to cache large quantities of scrub oak acorns, their principal plant food (Woolfenden and Fitzpatrick 1984; Fitzpatrick et al. 1991).

Scrub-jays typically nest from late February through June. Nests are typically constructed in shrubby oaks, at a height of 1.6 to 8.2 feet (Woolfenden 1974) and are constructed of course twigs as the outer layer with tightly wound palmetto or cabbage palm fibers in the interior. Nests typically have one to five eggs and incubate in 17 days. Scrub-jay young remain with the parents to help as part of a cooperative family group. Family groups average 25 acres and are aggressively defended from other family groups.

2.3 Documented Regional Occurrences

As previously mentioned, the project corridor is within the USFWS Consultation Area for the Florida scrub jay. The Consultation Area for this species ranges from Collier and Palm Beach Counties to the south to Marion, Putnam and Flagler Counties to the north. The largest populations of this species are presently in Brevard, Highlands and Marion County.

Prior to establishing survey call stations, the project areas were reviewed for habitat that may potentially be used by scrub-jays. Because the survey areas are currently in a natural state and are not actively managed for habitat, the most important aspect of the assessment was the locations and type of scrub oak species within and adjacent to the corridor.

A statewide scrub-jay census (sponsored by FWS and carried out by Archbold Biological Station) was last conducted in 1992 and 1993 and included mapping scrub-jay families as well as scrub habitat.

The 1992-1993 statewide survey documented habitat for this species at the southeast corner of the project study area. In addition, the FWC study documented Florida scrub-jays approximately 0.95 miles northeast of the interchange of Pioneer Trail and Turnbull Bay Road. The study area is located within the FWS Merritt Island metapopulation.

Volusia County Environmental Permitting maintains maps that include “Landcover with Florida scrub-jays and Scrub Natural communities. These data maps include habitat east of I-95 on both the north and south side of Pioneer Trail.

3.0 EXISTING CONDITIONS

The project study area contains approximately 4.37 acres of xeric oak at the southeast corner of the project study area. The canopy of this community ranges from mature and thick to open with sandy patches. It is known that this area was subjected to a wildfire within the past few years.

This habitat is generally suboptimal for the scrub-jay as it is relatively thick, and the oak trees are mature and average over 10 feet in height making them too large for scrub-jay nesting. In addition, large pine trees within this community provide perches for scrub-jay avian predators.

Areas within or adjacent to the presence of scrub oak species were further assessed to ascertain the most suitable locations and offsets for call stations. The project study area contains a xeric oak community to the east of I-95 dominated by sand live oak (*Quercus geminata*) and associated shrub species. Shrub species include bluejack oak (*Quercus margaretta*), turkey oak (*Quercus laevis*), and sand post oak (*Quercus margaretta*). The subcanopy within these areas is dominated by saw palmetto with smaller amounts of gallberry (*Ilex glabra*), winged sumac (*Rhus copallinum*) and beautyberry (*Callicarpa americana*). The groundcover consists of a wide variety of vegetation including wiregrass (*Aristida stricta*), broomgrass (*Andropogon* spp.) and shiny blueberry (*Vaccinium myrsinites*). Large mature sand pine (*Pinus clausa*) and slash pine (*Pinus elliottii*) are also interspersed within this community.

Table 1: Habitat Assessment

Call Station No.	Reviewer	Location	FLUCFCS Code	Canopy (include % Scrub Oak)	Shrub (% Scrub Oak)	Herbaceous
1-17	MDI, MDr, ML	Volusia	4210	30 - 45% - xeric scrub oaks, 25 - 35% - sand and slash pine 20%, 1% - cabbage palm	~40 % xeric oak species, ~40% saw palmetto, 5% winged sumac, 5% gallberry	grapevine, smilax sp, pawpaw, gopher apple, shiny blueberry, spike moss, bracken fern

4.0 METHODS

The scrub-jay surveys were conducted on August 5, 6, 7, 8, and 14, 2019 per the guidelines set forth by FWS and carried out by qualified biologists experienced in surveying for this species and familiar with the behavior of this species. Seventeen stations were initially set up though one of the stations were eliminated in the field due to poor conditions and wetland areas encroaching into the xeric habitat. **Figure 2 (Survey Stations)** depicts the onsite habitat types and scrub-jay call stations. Scrub-jay territorial scolding was broadcasted at each approved call station for a minimum of one

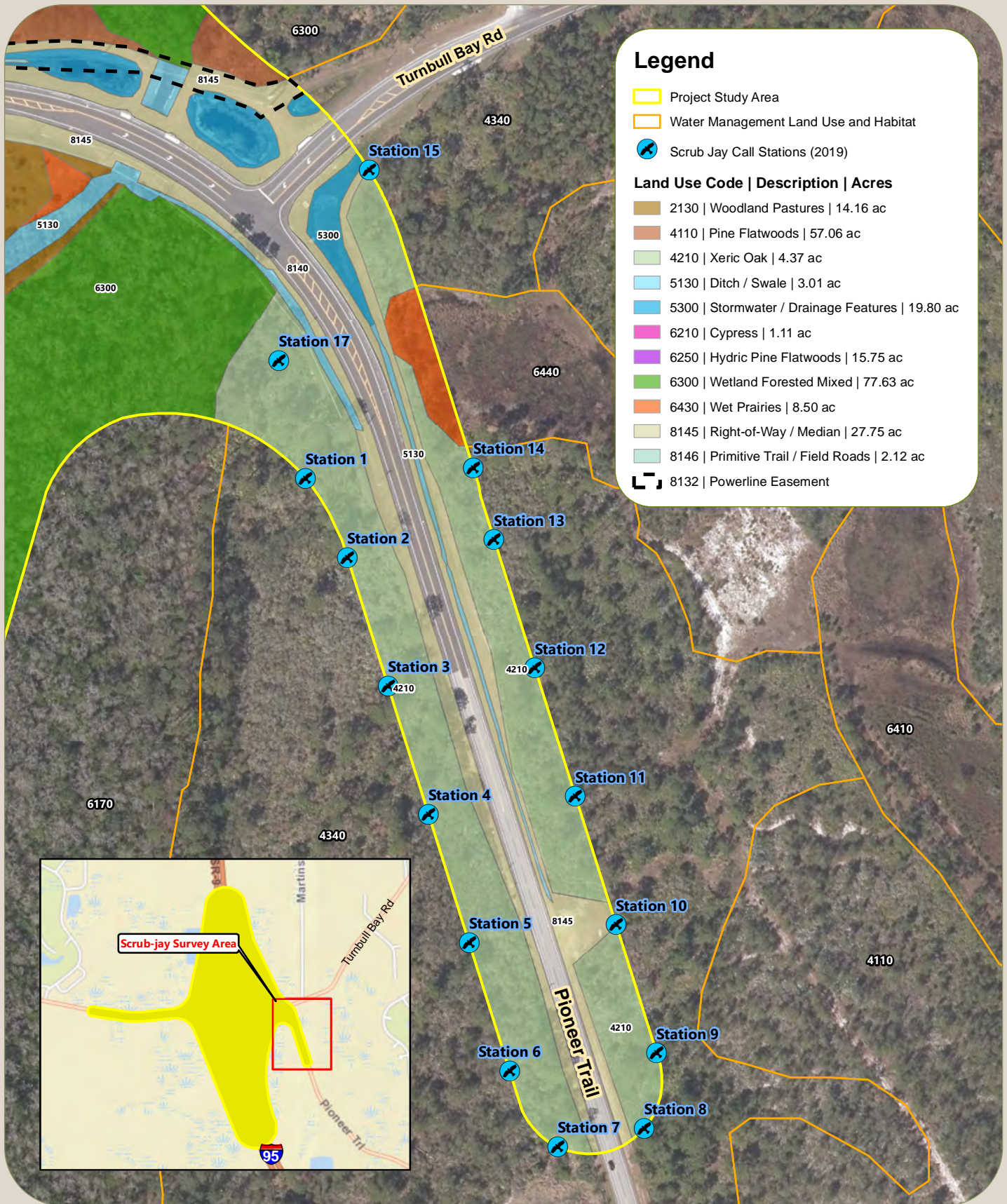
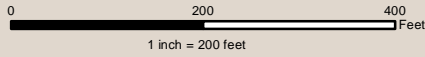
minute at all four cardinal directions. Surveys were suspended in instances where predatory bird species such as hawks or eagles were observed in the region. Surveys were also halted to allow large semitrucks or other loud noises to cease. Additionally, surveys were not conducted when winds exceeded 8 mph or if conditions were not conducive for observations such as rain or fog. Surveys began approximately 1 hour after sunrise and were stopped prior to the mid-day heat. All of the survey stations were sampled for a minimum of five days.

5.0 SURVEY RESULTS

Appendix A provides a summary table of the data sheets for each of the call stations. No scrub-jays were observed during the surveys or during any of the field events during the entire study. Based on the results of the survey, scrub jays are not nesting or utilizing the project corridor.

I-95 at Pioneer Trail Interchange PD&E Study

West of Williamson Boulevard to East of Turnbull Bay Road
 FPID No. 436292-1-22-01 | ETDM No. 14193



Legend

- Project Study Area
- Water Management Land Use and Habitat
- ↖ Scrub Jay Call Stations (2019)

Land Use Code | Description | Acres

2130	Woodland Pastures	14.16 ac
4110	Pine Flatwoods	57.06 ac
4210	Xeric Oak	4.37 ac
5130	Ditch / Swale	3.01 ac
5300	Stormwater / Drainage Features	19.80 ac
6210	Cypress	1.11 ac
6250	Hydric Pine Flatwoods	15.75 ac
6300	Wetland Forested Mixed	77.63 ac
6430	Wet Prairies	8.50 ac
8145	Right-of-Way / Median	27.75 ac
8146	Primitive Trail / Field Roads	2.12 ac
8132	Powerline Easement	

SCRUB-JAY SURVEY STATIONS 2019

6.0 SUMMARY

The Florida Department of Transportation is conducting a PD&E Study to evaluate the proposed construction of a new interchange along I-95 at Pioneer Trail near milepost (MP) 19.032 in Volusia County. The proposed interchange is located between two existing interchanges along I-95 at State Road (SR) 44 located near MP 16.287, approximately 2.74 miles to the south and SR 421 (Dunlawton Avenue) located near MP 23.300, approximately 4.26 miles to the north. The project is located within the FWS Consultation Area for the scrub-jay and potential suitable habitat has been observed. Scrub-jays were previously documented to the northeast of the project during the 1992-1993 statewide survey. A five-day survey was conducted per FWS guidelines to determine presence. No Florida scrub-jays were observed during the survey (or during any other field activities). Based on these results, FDOT has determined that this project “may affect, but is not likely to adversely affect” the Florida scrub-jay.

Appendix A – Survey Data Sheets (2019)

Appendix A-Survey Data Summary

Station No.	Staff	Survey Date	Survey Time	Temperature	Wind Direction	Wind Speed	Weather	Precipitation	Scrub-jay Observed
1	MRD	8/2/2019	08:09 am	80	E	0-2 mph	Partly Sunny/Cloudy	0%	No
1	MLD	8/5/2019	07:47 am	78	W	0-2 mph	Clear/Sunny	0%	No
1	MLD	8/6/2019	09:10 am	78	N	0-2 mph	Clear/Sunny	0%	No
1	MRD	8/7/2019	08:51 am	78	N	0-2 mph	Partly Sunny/Cloudy	0%	No
1	MRD	8/8/2019	09:18 am	81	SW	0-2 mph	Clear/Sunny	0%	No
2	MRD	8/2/2019	08:21 am	81	E	0-2 mph	Mostly Clear/Sunny	0%	No
2	MLD	8/5/2019	07:58 am	78	SW	0-2 mph	Clear/Sunny	0%	No
2	MLD	8/6/2019	09:17 am	86	W	2-4 mph	Clear/Sunny	0%	No
2	MRD	8/7/2019	08:57 am	78	W	0-2 mph	Partly Sunny/Cloudy	0%	No
2	MRD	8/8/2019	09:11 am	81	W	0-2 mph	Clear/Sunny	0%	No
3	MRD	8/2/2019	08:44 am	81	E	0-2 mph	Mostly Clear/Sunny	0%	No
3	MLD	8/5/2019	08:16 am	78	W	0-2 mph	Clear/Sunny	0%	No
3	MLD	8/6/2019	09:24 am	86	W	0-2 mph	Clear/Sunny	0%	No
3	MRD	8/7/2019	09:04 am	81	W	4-6 mph	Partly Sunny/Cloudy	0%	No
3	MRD	8/8/2019	09:03 am	78	SW	0-2 mph	Clear/Sunny	0%	No
4	MRD	8/2/2019	08:58 am	80	SE	0-2 mph	Partly Sunny/Cloudy	0%	No
4	MLD	8/5/2019	08:32 am	77	S	0-2 mph	Clear/Sunny	0%	No
4	MLD	8/6/2019	09:31 am	87	W	2-4 mph	Clear/Sunny	0%	No
4	MRD	8/7/2019	09:12 am	81	W	0-2 mph	Mostly Cloudy	0%	No
4	MRD	8/8/2019	08:55 am	78	W	0-2 mph	Clear/Sunny	0%	No
5	MRD	8/2/2019	09:06 am	80	SE	0-2 mph	Partly Sunny/Cloudy	0%	No
5	MLD	8/5/2019	08:46 am	79	SW	0-2 mph	Clear/Sunny	0%	No
5	MLD	8/6/2019	09:38 am	87	W	0-2 mph	Clear/Sunny	0%	No
5	MRD	8/7/2019	09:18 am	81	W	4-6 mph	Mostly Cloudy	0%	No
5	MRD	8/8/2019	08:48 am	78	SW	0-2 mph	Clear/Sunny	0%	No
6	MRD	8/2/2019	09:17 am	80	SE	0-2 mph	Mostly Cloudy	0%	No
6	MLD	8/5/2019	09:10 am	80	SW	0-2 mph	Clear/Sunny	0%	No
6	MLD	8/6/2019	09:46 am	88	W	0-2 mph	Clear/Sunny	0%	No
6	MRD	8/7/2019	09:24 am	81	W	4-6 mph	Cloudy	0%	No
6	MRD	8/8/2019	08:38 am	77	SW	0-2 mph	Clear/Sunny	0%	No
7	MRD	8/2/2019	09:29 am	80	SE	0-2 mph	Mostly Cloudy	0%	No
7	MLD	8/5/2019	09:18 am	81	SW	0-2 mph	Clear/Sunny	0%	No
7	MLD	8/6/2019	10:04 am	90	W	0-2 mph	Clear/Sunny	0%	No
7	MRD	8/7/2019	09:32 am	82	W	0-2 mph	Partly Sunny/Cloudy	0%	No
7	MRD	8/8/2019	08:20 am	77	SW	0-2 mph	Clear/Sunny	0%	No
8	MRD	8/2/2019	09:46 am	80	SE	0-2 mph	Mostly Cloudy	0%	No

Appendix A-Survey Data Summary

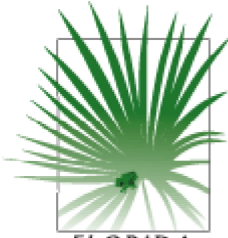
8	MLD	8/5/2019	09:36 am	81	SW	0-2 mph	Clear/Sunny	0%	No
8	MLD	8/6/2019	10:04 am	90	W	0-2 mph	Clear/Sunny	0%	No
8	MRD	8/7/2019	07:45 am	77	W	0-2 mph	Partly Sunny/Cloudy	0%	No
8	MRD	8/8/2019	08:30 am	77	SW	0-2 mph	Clear/Sunny	0%	No
9	MRD	8/2/2019	10:04 am	80	W	0-2 mph	Mostly Cloudy	0%	No
9	MLD	8/5/2019	09:46 am	82	SW	0-2 mph	Clear/Sunny	0%	No
9	MLD	8/6/2019	10:11 am	90	W	0-2 mph	Clear/Sunny	0%	No
9	MRD	8/7/2019	07:55 am	77	W	0-2 mph	Clear/Sunny	0%	No
9	MRD	8/8/2019	10:11 am	86	W	0-2 mph	Mostly Clear/Sunny	0%	No
10	MRD	8/2/2019	10:13 am	80	W	0-2 mph	Mostly Cloudy	0%	No
10	MLD	8/5/2019	10:04 am	82	SW	0-2 mph	Clear/Sunny	0%	No
10	MLD	8/6/2019	10:18 am	90	W	2-4 mph	Clear/Sunny	0%	No
10	MRD	8/7/2019	08:00 am	77	W	0-2 mph	Clear/Sunny	0%	No
10	MRD	8/8/2019	10:05 am	86	W	4-6 mph	Mostly Clear/Sunny	0%	No
11	MRD	8/2/2019	10:33 am	80	W	0-2 mph	Cloudy	>20%	No
11	MLD	8/5/2019	10:16 am	83	SW	0-2 mph	Clear/Sunny	0%	No
11	MLD	8/6/2019	10:29 am	91	W	0-2 mph	Clear/Sunny	0%	No
11	MRD	8/7/2019	08:10 am	77	W	0-2 mph	Clear/Sunny	0%	No
11	MRD	8/8/2019	09:58 am	85	W	4-6 mph	Mostly Clear/Sunny	0%	No
12	MRD	8/2/2019	10:44 am	80	W	0-2 mph	Cloudy	>20%	No
12	MLD	8/5/2019	10:30 am	83	SW	0-2 mph	Clear/Sunny	0%	No
12	MLD	8/6/2019	08:29 am	77	N	0-2 mph	Clear/Sunny	0%	No
12	MRD	8/7/2019	08:17 am	77	W	0-2 mph	Clear/Sunny	0%	No
12	MRD	8/8/2019	09:52 am	85	W	4-6 mph	Mostly Clear/Sunny	0%	No
12	MLD	8/14/2019	08:56 am	82	S	0-2 mph	Clear/Sunny	0%	No
13	MLD	8/5/2019	10:40 am	84	SW	0-2 mph	Clear/Sunny	0%	No
13	MLD	8/6/2019	08:21 am	77	N	0-2 mph	Clear/Sunny	0%	No
13	MRD	8/7/2019	08:23 am	77	W	0-2 mph	Mostly Clear/Sunny	0%	No
13	MRD	8/8/2019	09:45 am	84	W	4-6 mph	Mostly Clear/Sunny	0%	No
13	MLD	8/14/2019	09:09 am	86	SW	0-2 mph	Clear/Sunny	0%	No
14	MLD	8/5/2019	10:52 am	84	SW	2-4 mph	Clear/Sunny	0%	No
14	MLD	8/6/2019	08:13 am	76	N	0-2 mph	Clear/Sunny	0%	No
14	MRD	8/7/2019	08:30 am	77	SW	0-2 mph	Mostly Clear/Sunny	0%	No
14	MRD	8/8/2019	09:38 am	84	W	4-6 mph	Mostly Clear/Sunny	0%	No
14	MLD	8/14/2019	09:19 am	86	SE	0-2 mph	Clear/Sunny	0%	No
15	MLD	8/5/2019	11:08 am	85	SW	0-2 mph	Clear/Sunny	0%	No
15	MLD	8/6/2019	08:07 am	76	N	0-2 mph	Clear/Sunny	0%	No

Appendix A-Survey Data Summary

15	MRD	8/7/2019	08:36 am	77	SW	0-2 mph	Partly Sunny/Cloudy	0%	No
15	MRD	8/8/2019	09:32 am	84	W	4-6 mph	Mostly Clear/Sunny	0%	No
15	MLD	8/14/2019	09:33 am	87	W	0-2 mph	Clear/Sunny	0%	No
17	MLD	8/5/2019	11:15 am	85	SW	0-2 mph	Clear/Sunny	0%	No
17	MLD	8/6/2019	07:59 am	76	N	0-2 mph	Clear/Sunny	0%	No
17	MRD	8/7/2019	08:45 am	77	W	4-6 mph	Partly Sunny/Cloudy	0%	No
17	MRD	8/8/2019	09:25 am	81	W	0-2 mph	Mostly Clear/Sunny	0%	No
17	MLD	8/14/2019	09:52 am	88	E	0-2 mph	Clear/Sunny	0%	No

APPENDIX E

FNIA BIOMATRIX REPORT



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

FLORIDA
Natural Areas
 INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 4/5/2019

(Contact the FNAI Data Services Coordinator at 850.224.8207 or kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 4 Matrix Units: 54444 , 54445 , 54762 , 54763

	<p>Descriptions</p> <p>DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.</p> <p>DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.</p> <p>LIKELY - The species or community is <i>known</i> to occur in this vicinity, and is considered likely within this Matrix Unit because:</p> <ol style="list-style-type: none"> 1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; or 2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit. <p>POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.</p>
--	---

Matrix Unit ID: 54444

0 Documented Elements Found

0 Documented-Historic Elements Found

5 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Aphelocoma coerulescens Florida Scrub-Jay	G2	S2	LT	FT

<i>Mesic flatwoods</i>	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
<i>Scrub</i>	G2	S2	N	N
Ursus americanus floridanus Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 54445

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

6 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Aphelocoma coerulescens Florida Scrub-Jay	G2	S2	LT	FT
<i>Mesic flatwoods</i>	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
<i>Scrub</i>	G2	S2	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE
Ursus americanus floridanus Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 54762

1 **Documented** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Scrub</i>	G2	S2	N	N

0 **Documented-Historic** Elements Found

4 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Aphelocoma coerulescens Florida Scrub-Jay	G2	S2	LT	FT
Deeringothamnus rugelii Rugel's Pawpaw	G1	S1	LE	E
<i>Mesic flatwoods</i>	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT

Matrix Unit ID: 54763

1 **Documented** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Scrub</i>	G2	S2	N	N

0 Documented-Historic Elements Found

3 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Aphelocoma coerulescens Florida Scrub-Jay	G2	S2	LT	FT
<i>Mesic flatwoods</i>	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT

Matrix Unit IDs: 54444 , 54445 , 54762 , 54763

24 Potential Elements Common to Any of the 4 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Calopogon multiflorus Many-flowered Grass-pink	G2G3	S2S3	N	T
Centrosema arenicola Sand Butterfly Pea	G2Q	S2	N	E
<i>Chamaesyce cumulicola</i> Sand-dune Spurge	G2	S2	N	E
<i>Conradina grandiflora</i> Large-flowered Rosemary	G3	S3	N	T
Corynorhinus rafinesquii Rafinesque's Big-eared Bat	G3G4	S2	N	N
Deeringothamnus rugelii Rugel's Pawpaw	G1	S1	LE	E
Drymarchon couperi Eastern Indigo Snake	G3	S3	LT	FT
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Grus canadensis pratensis Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Heterodon simus Southern Hognose Snake	G2	S2	N	N
<i>Lechea cernua</i> Nodding Pinweed	G3	S3	N	T
Lechea divaricata Pine Pinweed	G2	S2	N	E
Lithobates capito Gopher Frog	G3	S3	N	SSC
Lupinus aridorum Scrub Lupine	G1	S1	LE	E
<i>Matelea floridana</i> Florida Spiny-pod	G2	S2	N	E
<i>Mustela frenata peninsulae</i> Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana Celestial Lily	G2	S2	N	E
Neofiber alleni Round-tailed Muskrat	G3	S3	N	N
<i>Nolina atopocarpa</i> Florida Beargrass	G3	S3	N	T
<i>Peucaea aestivalis</i> Bachman's Sparrow	G3	S3	N	N
Pteroglossaspis ecristata Giant Orchid	G2G3	S2	N	T
	G3	S3	N	T

<i>Pycnanthemum floridanum</i> Florida Mountain-mint				
Salix floridana Florida Willow	G2	S2	N	E
Ursus americanus floridanus Florida Black Bear	G5T2	S2	N	N

Disclaimer

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

Unofficial Report

These results are considered unofficial. FNAI offers a [Standard Data Request](#) option for those needing certifiable data.

APPENDIX F

UMAM ASSESSMENTS

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

Site/Project Name I-95 Interchange at Pioneer Trail		Application Number	Assessment Area Name or Number Wetland 1, 5, 8, 10	
FLUCCs code 6250	Further classification (optional) Hydric Pine Flatwoods		Impact or Mitigation Site?	Assessment Area Size
Basin/Watershed Name/Number Basin 17 -Halifax River	Affected Waterbody (Class) Class III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) N/A		
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Regionally, the project study area is less than a mile from The Doris Leeper Spruce Creek Preserve that is managed by Volusia County. No other resource occurs within a mile of the study area. The New Smyrna Beach Municipal Airport occurs approximately 3 miles direct to the east of the project study area.</p>				
<p>Assessment area description The hydric pine flatwood habitat within the project study area have a canopy that is dominated by slash pine with small amounts of loblolly bay, red maple and dahoon holly are also present. The shrub layer is a mix of fetter-bush, wax myrtle, saltbush, and gallberry. The groundcover is composed of hatpins, beakrush, red root, and yellow-eyed grass.</p>				
<p>Significant nearby features In the larger landscape, I-95, Pioneer Trail and Williamson Bld are located in the immediate vicinity.</p>		<p>Uniqueness (considering the relative rarity in relation to the regional landscape.) Hydric flatwoods are common in this region.</p>		
<p>Functions Receives runoff from the adjacent uplands, water storage; flow attenuation.</p>		<p>Mitigation for previous permit/other historic use</p>		
<p>Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Frogs(tree, spring peeper, chorus,); Turtles(chicken, redbelly, cooter); snakes (banded water, cottonmouth); Birds(songbirds, heron, ibis); raccoon, opossum Amphibians/reptiles - feeding, resting, breeding, nesting Birds - feeding, nesting</p>		<p>Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) It is anticipated that this project area could be utilized by state listed wading birds including the little blue heron, snowy egret or the sandhill crane. Although there have been no evidence of such, the project study ara could be utilized by wood stork and the eastern indigo snake.</p>		
<p>Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):</p>				
<p>Additional relevant factors: The large wetlands within the corridor provide cover, substrate, and refuge; breeding, nesting, denning, and nursery areas; food chain support; and natural water storage, natural flow attenuation, and water quality improvement, for fish and wildlife. The wetlands within the project study provide diminished function in regards to corridors for wildlife movement and listed species utilization as the area is already significantly fragmented by existing roads and highways as well as residential development. ☐</p>				
<p>Assessment conducted by: Mike Dinardo</p>		<p>Assessment Date: 5/9/2019</p>		

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

Site/Project Name I-95 Interchange at Pioneer Trail	Application Number	Assessment Area Name or Number Wetland 1
Impact or Mitigation Impact	Assessment conducted by: M. Dinardo	Assessment date: 5/9/2019

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
--	--	---	--

<p>.500(6)(a) Location and Landscape Support</p> <p>v/o pres or current</p> <table border="1"> <tr> <td>3</td> <td>with</td> <td>0</td> </tr> </table>	3	with	0	<p>Utility easement and/or large stormwater (wet) ponds in close proximity. Larger undeveloped region is subject to off-road vehicle usage and unauthorized dumping activities. Large mammal usage is limited because the area is surrounded by roadways.</p> <p>The existing condition of these wetlands within the project study area have a diminish score based on the proximity of I-95, Pioneer Trail and Williamson Blvd. Wildlife is somewhat limited based on the positions of these roadways.</p>
3	with	0		
<p>.500(6)(b)Water Environment (n/a for uplands)</p> <p>v/o pres or current</p> <table border="1"> <tr> <td>7</td> <td>with</td> <td>0</td> </tr> </table>	7	with	0	<p>Water levels are higher than expected for this type of system. This score contemplates the reduction of fire, signs of hydrologic stress or dead mature pine trees from untypical water levels, and drainage from manmade ditching.</p>
7	with	0		
<p>.500(6)(c)Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>v/o pres or current</p> <table border="1"> <tr> <td>7</td> <td>with</td> <td>0</td> </tr> </table>	7	with	0	<p>These wetlands are thick (fire suppressed) hydric flatwood systems that grade into higher elevations of flatwoods and/or mixed forested wetland at the lower elevations. From a qualitative perspective, these wetlands are fire suppressed which result in an overgrown system that does not exhibit the diverse groundcover that is typical of hydric flatwoods. Vegetation is mostly appropriate. Tree density is way too high for this type of system. Severely fire suppressed. Brazilian pepper has been observed.</p>
7	with	0		

Score = sum of above scores/30 (if uplands, divide by 20)	
current	
or w/o pres	
with	
0.56667	0

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

For impact assessment areas
FL = delta x acres =

Delta = [with-current]
0.57

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

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

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

Site/Project Name I-95 Interchange at Pioneer Trail		Application Number	Assessment Area Name or Number Wetland 2, 6, 7, 9, 11, 12, 13, WE	
FLUCCs code 6300	Further classification (optional) Wetland Forested Mixed		Impact or Mitigation Site?	Assessment Area Size
Basin/Watershed Name/Number Basin 17 -Halifax River	Affected Waterbody (Class) Class III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) N/A		
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Regionally, the project study area is less than a mile from The Doris Leeper Spruce Creek Preserve that is managed by Volusia County. No other resource occur within a mile of the study area. The New Smyrna Beach Municipal Airport occurs approximately 3 miles direct to the east of the project study area.</p>				
<p>Assessment area description These mixed forested wetland systems have a canopy that is dominated by an overstory of bald cypress and swamp tupelo. Loblolly bay, swamp bay, red maple, sweet bay, sugarberry, cabbage palm, American elm, laurel oak and water oak are also intermixed within this system. Slash pine is along the periphery of these systems or on hummocks. The ground cover within this wetland included swamp fern, cinnamon fern, royal fern, duck potato, soft rush, primrose, and maidencane.</p>				
<p>Significant nearby features In the larger landscape, I-95, Pioneer Trail and Williamson Bld are in close proximity.</p>		<p>Uniqueness (considering the relative rarity in relation to the regional landscape.) Mixed forested wetland communities are common in this region.</p>		
<p>Functions Receives runoff from the adjacent uplands, water storage; flow attenuation.</p>		<p>Mitigation for previous permit/other historic use</p>		
<p>Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Frogs(tree, spring peeper, chorus,); Turtles(chicken, redbelly, cooter); snakes (banded water, cottonmouth); Birds(songbirds, heron, ibis); raccoon, opossum Amphibians/reptiles - feeding, resting, breeding, nesting Birds - feeding, nesting</p>		<p>Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) It is anticipated that this project area could be utilized by state listed wading birds including the little blue heron, snowy egret or the sandhill crane. Although there have been no evidence of such, the project study ara could be utilized by wood stork and the eastern indigo snake.</p>		
<p>Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): None</p>				
<p>Additional relevant factors: The large wetlands within the corridor provide cover, substrate, and refuge; breeding, nesting, denning, and nursery areas; food chain support; and natural water storage, natural flow attenuation, and water quality improvement, for fish and wildlife. The wetlands within the project study provide diminished function in regards to corridors for wildlife movement and listed species utilization as the area is already significantly fragmented by existing roads and highways as well as residential development. □</p>				
<p>Assessment conducted by: Mike Dinardo</p>		<p>Assessment Date: 5/9/2019</p>		

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

Site/Project Name I-95 Interchange at Pioneer Trail	Application Number	Assessment Area Name or Number Wetland 2, 6, 7, 9, 11, 12, & 13
Impact or Mitigation Impact	Assessment conducted by: M. Dinardo	Assessment date: 5/9/2019

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

.500(6)(a) Location and Landscape Support v/o pres or current <table border="1"> <tr> <td>3</td> <td>0</td> </tr> </table>	3	0	The existing condition of these wetlands within the project study area have a diminish score based on the proximity of I-95, Pioneer Trail and Williamson Blvd. Wildlife is somewhat limited based on the postions of these roadways. Utility easements, stormwater (wet) ponds, and roadways are in close proximity to these systems. Larger undeveloped region is subject to off-road vehicle usage and unauthorized dumping activities. Large mammal usage is limited as these wetlands are surrounded by roadways.
3	0		
.500(6)(b)Water Environment (n/a for uplands) v/o pres or current <table border="1"> <tr> <td>7</td> <td>0</td> </tr> </table>	7	0	Water levels are higher than expected for this type of system. Potential impounding happening.This score contemplates the reduction of fire, signs of hydrologic stress or dead mature pine trees from untypical water levels, and drainage from manmade ditching.
7	0		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community v/o pres or current <table border="1"> <tr> <td>8</td> <td>0</td> </tr> </table>	8	0	These wetlands are comprised of a forested wetlands that grade into to hydric or upland flatwoods or stormwater (wet) ponds. rom a qualitative perspective, these wetlands have Brazilian pepper as a minor component within the sub canopy. From a qualitative perspective, these wetlands are moderate high quality but do have Brazilian pepper as a minor component within the sub canopy. Additional areas along the periphery have disturbance from past clearing efforts. The quality of the wetland degrades as these systems approach disturbed areas.Vegetation is mostly appropriate.
8	0		

Score = sum of above scores/30 (if uplands, divide by 20)	
current	with
0.60	0

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

For impact assessment areas
FL = delta x acres =

Delta = [with-current]
0.60

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

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

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

Site/Project Name I-95 Interchange at Pioneer Trail		Application Number	Assessment Area Name or Number Wetland 3, 4, & 18	
FLUCCs code 6430	Further classification (optional) Wet Prairie		Impact or Mitigation Site?	Assessment Area Size
Basin/Watershed Name/Number Basin 17 -Halifax River	Affected Waterbody (Class) Class III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) N/A		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Regionally, the project study area is less than a mile from The Doris Leeper Spruce Creek Preserve that is managed by Volusia County. No other resource occur within a mile of the study area. The New Smyrna Beach Municipal Airport occurs approximately 3 miles direct to the east of the project study area.				
Assessment area description These wetlands are wet prairie habitat has maidencane, beakrush and St. John's wort dog fennel, swamp smartweed, meadow beauty, water hyssops, broomsedge. Wetland 4 and 5 occurs within the utility corridor that that occurs west of I-95 and includes an access road that is used presumably during the dry season. It appears that portions of this system were excavated to provide fill for the utility access roads. Wetland 18 is the periphery of a freshwater marsh that occurs offsite at the southeast corner of the project study area.				
Significant nearby features In the larger landscape, I-95, Pioneer Trail and Williamson Bld are located in the immediate vicinity.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Hydric flatwoods are common in this region.		
Functions Receives runoff from the adjacent uplands, water storage; flow attenuation.		Mitigation for previous permit/other historic use		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Frogs(tree, spring peeper, chorus,); Turtles(chicken, redbelly, cooter); snakes (banded water, cottonmouth); Birds(songbirds, heron, ibis); raccoon, opossum Amphibians\reptiles - feeding, resting, breeding, nesting Birds - feeding, nesting		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) It is anticipated that this project area could be utilized by state listed wading birds including the little blue heron, snowy egret or the sandhill crane. Although there have been no evidence of such, the project study ara could be utilized by wood stork and the eastern indigo snake.		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):				
Additional relevant factors: The wetlands within the corridor provide cover, substrate, and refuge; breeding, nesting, denning, and nursery areas; food chain support; and natural water storage, natural flow attenuation, and water quality improvement, for fish and wildlife. The wetlands within the project study provide diminished function in regards to corridors for wildlife movement and listed species utilization as the area is already significantly fragmented by existing roads and highways as well as residential development. □				
Assessment conducted by: Mike Dinardo		Assessment Date: 5/9/2019		

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

Site/Project Name I-95 Interchange at Pioneer Trail	Application Number	Assessment Area Name or Number Wetland 3, 4, & 18
Impact or Mitigation Impact	Assessment conducted by: M. Dinardo	Assessment date: 5/9/2019

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

.500(6)(a) Location and Landscape Support v/o pres or current <table border="1"> <tr> <td>3</td> <td>0</td> </tr> </table>	3	0	The existing condition of these wetlands within the project study area have a diminish score based on the proximity of I-95, Pioneer Trail and Williamson Blvd.
3	0		
.500(6)(b) Water Environment (n/a for uplands) v/o pres or current <table border="1"> <tr> <td>6</td> <td>0</td> </tr> </table>	6	0	Water levels are higher than expected for this type of system. This score contemplates the reduction of fire, signs of hydrologic stress or dead mature pine trees from untypical water levels, and drainage from manmade ditching.
6	0		
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community v/o pres or current <table border="1"> <tr> <td>6</td> <td>0</td> </tr> </table>	6	0	These wetlands are comprised of wet prairie that that grade into higher elevations of flatwoods or mixed forested wetland at the lower elevations. From a qualitative perspective, these Wetlands 3 and 4 was historically forested wetlands or uplands that were disturbed by the utility lines and maintenance roads. Currently, these wetlands are maintained as an herbaceous system either mechanically or with chemicals. Wetland 18 is a fairly undisturbed system. Vegetation is mostly appropriate. Tree density is way too high for this type of system. Severely fire suppressed. Brazilian pepper has been observed.
6	0		

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	
with	
0.50	0

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

For impact assessment areas
FL = delta x acres =

Delta = [with-current]
0.50

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

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