ENDANGERED SPECIES BIOLOGICAL ASSESSMENT (ESBA)

for

Midway Road (County Road 712)
Project Development and Environment (PD&E) Study
From Glades Cut Off Road to Selvitz Road
St. Lucie County, Florida

Financial Management Number: 231440-3-22-01
ETDM Number: 14177

Prepared for:

Florida Department of Transportation
District IV
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309

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EXECUTIVE SUMMARY

This Biological Assessment was prepared in accordance with Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205) and the Florida Department of Transportation (FDOT) *Project Development and Environment* (PD&E) *Manual*, Part 2, Chapter 27 (revised October 1, 1991). An Endangered Species Biological Assessment (ESBA) was conducted for the proposed widening of Midway Road (CR 712) between Glades Cut Off Road and Selvitz Road in St. Lucie County, Florida. The project was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published on May 27, 2015 (ETDM #14177 - https://etdmpub.fla-etat.org/est/).

Section 7 of the ESA requires that all federal agencies ensure that any action they authorize, fund or execute will not jeopardize the continued existence of any endangered or threatened species (listed species) or result in the destruction or adverse modification of any critical habitat of such species. The proposed "action" under consideration is the widening of Midway Road (CR 712) from two to four lanes and the construction of stormwater management ponds. Two build alternatives were considered and compared to the No Build Alternative. Alternative 1 (Canal Avoidance) generally widens the road north of the existing while Alternative 2 (Box Culvert) generally widens the road to the south of the existing. Alternative 2 would result in culverting Canal 103 similar to the design currently under construction to the east between Selvitz Road and 25th Street.

Seven federally listed species were evaluated to determine if the proposed project will adversely affect these species. Based on review of available data, in conjunction with field reconnaissance and surveys, the following effects determinations have been made:

Common Name	Effect Determination
Audubon's crested caracara	May affect, not likely to adversely affect
Wood stork	May affect, not likely to adversely affect
Red-cockaded woodpecker	No effect
Everglade snail kite	No effect
Florida scrub jay	No effect
American alligator	No effect
Eastern indigo snake	May affect, not likely to adversely affect
Tiny polygala	No effect

Twenty-two additional state listed species were evaluated and adverse impacts are not anticipated, either because there is no habitat for the species along the corridor or habitat impacts are minimal and mitigation will be provided.

FDOT commits to the following measures to minimize and mitigate potential impacts to listed species:

- Prior to construction an updated caracara nest survey will be performed. Additional coordination will be conducted, if necessary with USFWS. Construction staging will be prohibited within the primary buffer of the caracara nest.
- An updated gopher tortoise survey will be conducted prior to construction. Gopher tortoises will be avoided or if they cannot be avoided, a permit will be obtained for relocation.
- The *Standard Protection Measures for the Eastern Indigo Snake* will be implemented during construction.

1.0 INTRODUCTION

This Biological Assessment was prepared in accordance with Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205) and the Florida Department of Transportation (FDOT) *Project Development and Environment* (PD&E) *Manual*, Part 2, Chapter 27 (revised October 1, 1991). An Endangered Species Biological Assessment (ESBA) was conducted for the proposed widening of Midway Road (CR 712) between Glades Cut Off Road and Selvitz Road in St. Lucie County, Florida. See ***Location Map - Figure 1***. The project was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published on May 27, 2015 (ETDM #14177 -https://etdmpub.fla-etat.org/est/).

Section 7 of the ESA requires that all federal agencies ensure that any action they authorize, fund or execute will not jeopardize the continued existence of any endangered or threatened species (listed species) or result in the destruction or adverse modification of any critical habitat of such species. . The proposed "action" under consideration is the widening of Midway Road (CR 712) from two to four lanes and the construction of stormwater management ponds.

2.0 PROJECT DESCRIPTION

The Midway Road (CR 712) project corridor is centrally located in the eastern part of St. Lucie County, Florida, and is owned and maintained by St. Lucie County. The project corridor extends approximately 1.6 miles along Midway Road (CR 712) (Roadway ID 94530000), from Glades Cut Off Road (Mile Post 5.813) (CR 709) to Selvitz Road (Mile Post 7.405) (CR 615). The project ties into the existing 4-lane section to the west of Glades Cut Off Road and to future 4-lane segments from Selvitz Road to just east of US Highway 1. The project corridor is located in unincorporated St. Lucie County but is the northern border to the City of Port St. Lucie (See ***Figure 1***).

Midway Road (CR 712) is a major east-west roadway that provides a vital connection to residents and commuters to and from Interstate 95 (I-95) to the commercial areas along US 1. Within the project limits, Midway Road (CR 712) is a two-lane undivided roadway with a varying posted speed from 35 to 45 miles per hour (mph). It is functionally classified as an Urban Principal Arterial and is designated as a hurricane evacuation route by the Florida Division of Emergency Management. The existing roadway typical section consists of two 12-foot lanes, one in each direction, and the existing right-of-way (R/W) varies with a minimum width of 70 feet. The land uses consist of residential, commercial, government, and industrial facilities, such as Tropicana Products, Inc., CEMEX, Packers of Indian River Ltd., US Post Office, St. Lucie County Sheriff's Office, and New Horizons of the Treasure Coast, Inc.

The study corridor includes a bridge (ID 940050) over Florida's Turnpike (SR 91). The Florida East Coast (FEC) railroad traverses the corridor by running adjacent and parallel to the Glades Cut Off Road. Canal 103, which was previously owned and maintained by the North St. Lucie Water Control District (NSLWCD) but is now owned and maintained by St. Lucie County, is the principal receiving water body for the project area and conveys stormwater from the west side of Florida's Turnpike through an existing concrete box culvert. The canal runs parallel along the south side of Midway Road (CR 712) and, after Selvitz Road, it diverges and continues southeasterly to discharge into the North Fork of the St. Lucie River (NFSLR or North Fork). Canal 103 is currently being culverted from Selvitz to 25th Street as part of St. Lucie County's widening of Midway Road in this segment. The North Fork is designated as an Outstanding Florida Water (OFW) and an Aquatic Preserve. It is the main collector water body in St.

Lucie County and discharges into the Indian River Lagoon. The canal, along with the adjacent vegetative buffer, provides a physical separation to the residential homes on the south side.

The Midway Road/CR 712 PD&E Study from Glades Cut Off Road to Selvitz Road will evaluate alternatives to widen the existing road from two to four lanes within the project limits in order to satisfy future traffic demand and capacity needs. The proposed study will also consider pedestrian, bicycle, and transit facilities and improvements to freight mobility, and it will evaluate operational improvements and access management into some commercial businesses along the project corridor. Additional right-of- way requirements will be evaluated during the PD&E study for offsite ponds in order to meet stormwater management requirements.

2.1 PURPOSE AND NEED

Based on recent traffic data from St. Lucie County, the facility does not adequately handle the existing traffic demand. Without capacity improvements, the traffic operations along the corridor will continue to deteriorate. The primary purpose for this project is to provide additional capacity to meet existing and future traffic needs, improve safety by alleviating existing roadway and capacity deficiencies, and allow opportunities for pedestrian, bicycle, and transit facilities. The additional capacity will also improve freight mobility and enhance emergency evacuation along the project corridor. The purpose and need of this project are further described below and include Transportation Demand, Capacity, Plan Consistency, Social Demands and Economic Development, Modal Interrelationships, and Roadway Deficiencies.

Transportation Demand

The US Census-designated Port St. Lucie-Fort Pierce Metropolitan Statistical Area has been identified as one of the fastest growing metropolitan areas in Florida, which includes all of Martin and St. Lucie counties. From 2000 to 2010, this metropolitan area has experienced population growth from 319,426 persons in 2000 to 424,107 persons in 2010, representing an annual increase of 2.9%. Evaluating the population growth for the City of Port St. Lucie by itself revealed an even greater percentage increase. According to the Bureau of Economic and Business Research, the City has grown from a population of 88,769 in 2000 to 164,603 in 2010, representing an annual increase of 6.4%.

This rapid population growth has resulted in a significant increase in surface transportation demand along major arterials such as the Midway Road (CR 712) corridor. The population of the Port St. Lucie-Fort Pierce metropolitan area is projected to increase from 424,107 persons in year 2010 to 648,600 persons in year 2035, representing a growth of approximately 53% (Bureau of Economic Business Research).

As the population in the metropolitan area continues to increase, the developments in St. Lucie County will continue to push westward. In addition, the county is anticipated to experience traffic growth from the Developments of Regional Impact (DRI). A review of the recent DRI applications in the Treasure Coast Regional Planning Council shows the following statuses for the DRIs in the vicinity of the project corridor:

Completed - Orange Blossom Mall and St. Lucie West

Approved - The Reserve

Pending Notice of Proposed Change - LTC Ranch

Withdrawn - Provences and Orchard Park

The DRI located along Midway Road (CR 712), which is LTC Ranch, would have the greatest impact on the project corridor if constructed. As currently approved, the development includes 4,000 dwelling units of residential, over 1,505,000 square feet (sq. ft.) of office space, 725,000 sq. ft. of retail, and 1,960,200 sq. ft. of industrial space. However, the status of this development is pending Notice of Proposed Change that may result in a change in the size of the approved development.

The approval of the LTC Ranch DRI will further increase the transportation demand resulting in congested conditions along the project corridor. Since Midway Road (CR 712) is one of the vital east-west corridors in St. Lucie County, it is critical to increase capacity to meet the anticipated future transportation demand.

Capacity

Traffic data obtained from the St. Lucie County Transportation Planning Organization (TPO) Traffic Counts and Level of Service Report shows that the 2012 Annual Average Daily Traffic (AADT) along Midway Road (CR 712) west of Selvitz Road is 16,820 vehicles. Evaluating this traffic data using the 2012 FDOT Quality/Level of Service Handbook, the LOS is F which is beyond the St. Lucie County's adopted LOS criteria of E. This traffic data shows that the existing volume is already exceeding the capacity of the corridor which indicates that the roadway is operating in oversaturated and undesirable conditions. Furthermore, due to the industrial properties along the corridor, it has a high truck percentage at over 7% (Florida Traffic Online).

The traffic is anticipated to increase to 29,200 AADT by 2040 and the corridor will continue to operate at LOS F with degraded traffic operation unless the capacity is increased. The future traffic projections are based on the FDOT District Four Design Traffic Technical Memorandum for the I-95 PD&E Study from north of Becker Road to south of SR 70. This project utilized the Greater Treasure Coast Regional Planning Model as the basis for the future traffic projections. Without improvements, the congestion on the Midway Road (CR 712) project corridor will continue to operate at unacceptable driving conditions for residents and commuters due to the increased traffic volumes.

Plan Consistency

Martin and St. Lucie counties have independent Metropolitan Planning Organization/Transportation Planning Organization (MPO/TPO) but share a common Regional Long Range Transportation Plan (RLRTP). The RLRTP establishes a unified strategy for transportation priorities and funding and creates a joint decision-making process regarding regional transportation issues.

The Midway Road (CR 712) project corridor extends from Glades Cut Off Road to Selvitz Road and is identified in the Martin and St. Lucie 2035 RLRTP. The project is identified in the St. Lucie County TPO 2035 Cost Feasible Plan (2016-2035) with a 2021-2025 implementation horizon. In addition, the project will be included in the next update to the State Transportation Improvement Program and the St. Lucie TPO Transportation Improvement Program. It should be noted that on the south side of the project corridor a multipurpose trail has been identified in the 2035 RLRTP in Table 4-9 of the Needs Plan Development.

Social Demands & Economic Development

Evacuation: Serving as part of the evacuation route network established by the Florida Division of Emergency Management, Midway Road (CR 712) plays an important role in facilitating traffic during emergency evacuation periods as it connects other major highways and arterials designated on the state

evacuation route network within the project limits. These facilities include Okeechobee Road (SR 70), I-95, Glades Cut Off Road (CR 709), Selvitz Road, South 25th Street (CR 615), Oleander Avenue (CR 605), and US 1. During a twelve-month period in 2004-2005, St. Lucie County was hit directly by three major hurricanes. Midway Road (CR 712) is one of the county's most critical east-west routes and serves as a vital evacuation route for hurricanes or any other disasters. Additionally, widening Midway Road (CR 712) will ease traffic flow between South 25th Street and I-95, which will minimize a bottleneck effect during an emergency. It would also improve the ability of the local emergency management organization to evacuate large portions of the Treasure Coast in an acceptable timeframe which will enhance the safety of residents.

Economic Development: The Treasure Coast Planning Council Alternative Infill Development Plan developed for Martin and St. Lucie counties has identified several regional workplace districts located along the Midway Road (CR 712) corridor. These regional workplace districts are locations where business and economic development would be focused in order to provide jobs for residents within this metropolitan area. The Midway Road (CR 712) project area is a high-growth area. Important state and federal offices and nonprofit centers are located along Midway Road (CR 712) or nearby streets. This includes the main St. Lucie County Branch of the US Post Office, St. Lucie County Sheriff's Office, St. Lucie County Health Department, St. Lucie County Fire District Office, Hospice of the Treasure Coast, and New Horizons of the Treasure Coast, Inc. (a mental health center which is currently expanding). Significant truck traffic from the nearby St. Lucie County Landfill, CEMEX, Packers of Indian River Ltd., and Tropicana Products, Inc. place additional demands on the roadway. Meanwhile, new residential units are planned nearby. The St. Lucie County Fairgrounds, the County's Emergency Operations Center, is just six miles west of the project site.

According to the Martin and St. Lucie 2035 RLRTP, "The Regional Workplace Districts in St. Lucie County are located along the I-95 and Florida’s Turnpike corridors and include the Treasure Coast Education Research Development Authority (TCERDA) area; the Crossroads Park of Commerce; the existing Rinker and Tropicana facilities along Glades Cut Off Road; the LTC Ranch Commerce Park; St. Lucie West Commerce Park; and Torrey Pines Institute south of Tradition and Gatlin Boulevard. These districts are well-situated for regional access, have ample room to grow, and can provide jobs for local residents." The Midway Road (CR 712) project corridor is anticipated to serve as the main transportation corridor linking residents of both Martin and St. Lucie counties to this business area. Increasing the capacity along the project corridor will improve mobility and support the economic development of these districts as well as stimulate major construction activities that will contribute to economic growth within this area.

Modal Interrelationships

The accessibility to bicyclists and pedestrians along the corridor is minimal with only two sections of sidewalk within the corridor. They are located on the north side of Midway Road (CR 712) from East Torino Boulevard to Glades Cut Off Road and along the frontage of the recently constructed New Horizons medical facility. There are no bicycle lanes. During a recent field review (February 7, 2014), pedestrians were noted walking on the grassed shoulder while pushing a child's stroller. Additionally, the existing bridge over the Florida's Turnpike does not have sufficient shoulder width to accommodate pedestrian or bicycle traffic. A review of the Martin and St. Lucie 2035 RLRTP identified a multipurpose trail in Table 4-9 of the Needs Development Plan that would run along the entirety of Midway Road (CR 712) to connect with the other proposed multipurpose trails located on Okeechobee Road, Shin Road, Glades Cut Off Road, Selvitz Road, and Midway Road to the east.

The 2035 Future Bus and Train Network identified a proposed bus route along the entirety of Midway Road (CR 712) to connect to existing bus routes. Moreover, the County's Transit Development Plan from February 2014 identified Midway Road (CR 712) as a priority corridor to implement transit. The project will create opportunities to include pedestrian, bicycle, and transit facilities along the project corridor.

Roadway Deficiencies

The Midway Road (CR 712) bridge structure (ID 940050) over the Florida's Turnpike is located at Mile Post 6.346 and was constructed in 1957. The last inspection of the bridge was performed on December 19, 2013. Although the report notes no structural deficiencies, the bridge is classified as functionally obsolete.

3.0 ALTERNATIVES CONSIDERED

Three build alternatives, including the Transportation System Management and Operations (TSMO) alternative, were developed and considered during the preliminary engineering phase of this study. The No-Build Alternative, TSMO Alternatives, and Build Alternative 1 (Canal Avoidance) and Build Alternative 2 (Box Culvert) are described below. See ***Appendix A – Typical Sections and Plans***.

No-Build Alternative

No improvements are made to Midway Road (CR 712) within the limits of the study.

Build Alternatives

Transportation System Management and Operations (TSMO) Alternatives

TSMO alternatives involve improvements designed to maximize the utilization and efficiency of the existing facility through improved system and demand management. The various TSMO options generally include traffic signal and intersection improvements, access management, and transit improvements. The additional capacity required to meet the projected traffic volumes along Midway Road (CR 712) in the design year cannot be provided solely through the implementation of TSMO improvements.

Build Alternative 1 (Canal Avoidance)

The typical section includes two, 11-foot travel lanes in each direction separated by a 22-foot median. Seven-foot buffered bike lanes would be provided in each direction located adjacent to the outside travel lanes. Type F curb and gutter is used along the inside and outside lanes and collects stormwater runoff which is then directed to stormwater retention ponds. A six-foot wide sidewalk would be provided on the north side of the roadway, and a 12-foot-wide shared-use path would be provided along the south side of the roadway. The alignment for this alternative would shift to the north to avoid impacts to Canal 103. This typical section requires a minimum of 153 feet of R/W. Since the existing County R/W width varies between 107 feet and 153 feet, from zero feet up to 46 feet of R/W would need to be acquired along the north side of the roadway. The design speed for this typical section would be 45 mph (See ***Appendix A***).

Build Alternative 2 (Box Culvert)

The roadway and pedestrian features of the typical section for this alternative are similar to Alternative 1 except that Canal 103 would be enclosed with a box culvert. The canal is located within R/W owned by both St. Lucie County and the City of Port St. Lucie. This typical section requires a minimum of 160 feet

of R/W. Approximately 25 feet to 32.5 feet of R/W would need to be acquired from the City of Port St. Lucie along the south side of the roadway. Additionally, up to 28 feet of R/W would need to be acquired along the north side of the roadway. The design speed for this typical section would be 45 mph (See ***Appendix A***).

4.0 EXISTING ENVIRONMENTAL CHARACTERISTICS

4.1 EXISTING AND FUTURE LAND USE

4.1.1 Existing Land Use

The project study area includes the existing R/W of Midway Road between Glades Cut Off Road and Selvitz Road (project corridor), as well as an approximately 500-foot buffer area surrounding the project corridor (***Figure 1***). For the purposes of Audubon's crested caracara surveys, this buffer was expanded to 1500 meters from the project study area to identify potential areas of caracara habitat. This is discussed further in *Section 6.0*. Existing land use within the project study area was determined through the interpretation of 1" = 100' scale aerial photography, review of land cover Geographic Information System (GIS) data obtained from the South Florida Water Management District (SFWMD), and field reconnaissance of the project corridor on July 2 and 15, 2015. Existing land use was mapped based on the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS) (FDOT, 1999) for the project area and is depicted in ***Figure 2***.

The project study area that extends south from Midway Road is located within the city limits of the City of Port St. Lucie and the area that extends north of Midway Road is located within unincorporated St. Lucie County. The project study area can be generally characterized by existing roadways, medium and low density residential developments, food processing and industrial facilities (e.g. Tropicana Packers of Indian River, Cemex, etc.), governmental facilities (e.g. U.S. Post Office, St. Lucie County Sherriff's Office, Health Department, and Fire District), medical and health care (e.g. New Horizons of the Treasure Coast and Okeechobee), and wholesale and retail sales and services. Undeveloped land uses include freshwater marshes, improved pastures, and pine flatwoods. Existing roads and highways; however, make up the largest single land use within the project study area. The majority of the natural land uses observed within the project study area are located south of Midway Road within the residential developments or surrounding Jenkins Road, north of Midway Road.

4.1.2 Future Land Use

Future land use was determined based on a review of the St. Lucie County and City of Port St. Lucie Future Land Use (FLU) Maps (***Figure 3***). According to the St. Lucie County FLU map the project study area to the north of Midway Road is primarily Industrial (IND), Residential Suburban (RS), Public Facilities (P/F), Mixed Use (MXD), and Commercial (COM). According to the City of Port St. Lucie FLU map the project study area south of Midway Road is primarily Residential (RL), Open Space Conservation (OSC), Institutional (I), Service Commercial (CS), General Commercial (CG), Open Space-Recreational (OSR).

Within the study area, the Industrial FLU is located along the northwestern portion of the project adjacent to Florida's Turnpike and Glades Cut Off Road, Residential and Open Space Conservation FLU runs along the entire southern portion of the project as well as the northeastern project terminus. Public

Facilities and Mixed Use FLU are centrally located approximately 1200 feet northwest of the Selvitz Road/Midway Road intersection. Commercial FLU is primarily found southwest of the Glades Cut Off Road/Midway Road intersection and north of the Selvitz Road/Midway Road intersection.

4.2 Natural and Biological Features

The assessment of natural and biological features within the corridor included the review of the following data and documents:

- US Department of Agriculture Soil Conservation Service (USDA/SCS) *Soil Survey of St. Lucie County Area, Florida* (1980)
- Aerial photography (2012) obtained from FDOT
- Historical aerial photography from the FDOT Aerial Photo Look-up System (APLUS) and Publication of Archival Library and Museum Materials (PALMM)
- Habitat and species-specific information obtained from the US Fish and Wildlife Service (USFWS), the Florida Fish and Wildlife Conservation Commission (FWC), Florida Fish and Wildlife Research Institute (FWRI), Florida Geographic Data Library (FGDL), the Florida Natural Areas Inventory (FNAI), and St Lucie County.
- The Hydric Soils of Florida Handbook (2007)
- The US Geological Survey (USGS) 7.5-Minute Quadrangle Maps (2703 – Ankona; 2704 – Fort Pierce SW; 2803 – Fort Pierce; 2804 – Fort Pierce NW)
- The USFWS National Wetland Inventory (NWI) maps
- The USGS Groundwater Atlas of the United States
- The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM)
- FNAI Biodiversity Matrix for the Midway Road study area included in ***Appendix B***
- Review of books and other technical reports for each of the listed species evaluated in this biological assessment.
- Caracara Survey Results 2015 for FM #436646-1-52-01 SR 9/I95 over Midway Road and SR 9/Interstate 95 over Gatlin Boulevard interchanges, FDOT 2015.
- Review of the ETDM Programming Summary Report (Published May 27, 2015) –ETDM Summary Report comments for Wildlife and Habitat is included in ***Appendix C.***

In addition to the review of databases, reports and other resources, general field reconnaissance of the project study area was performed on July 2, 2015 and July 15, 2015. Based on a review of the caracara report referenced above, updated caracara surveys were conducted for this PD&E from January – April 2016. Details regarding the specific surveys are provided in *Section 5.3*.

4.2.1 Upland Land Cover

Upland communities were observed within the project study area and habitat classifications have been assigned according to the FLUCFCS. The upland communities observed are depicted in ***Figure 2.*** A description of the observed communities, by FLUCFCS type, and calculated total acreages are provided in ***Table 1***.

The upland land cover was approximately 21.9% of the land cover in the study area and includes five (5) undeveloped, natural upland communities: undeveloped land within urban areas (FLUCFCS 191),

improved pastures (FLUCFCS 211), pine flatwoods (FLUCFCS 411), Brazilian pepper (FLUCFCS 422), and hardwood-conifer mixed (FLUCFCS 434).

Pine flatwoods occupied the largest area, approximately 28.8 acres of the vegetated uplands within the study area and the dominant vegetation observed within these areas included slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*) and numerous vines (e.g. *Smilax* spp. and *Vitis rotundifolia*). Exotic and nuisance vegetation including Australian pine (*Casuarina equisetifolia*), Brazilian pepper (*Schinus terebinthifolius*), and earleaf acacia (*Acacia auriculiformis*) were also observed within these areas.

The hardwood-conifer mixed land cover occupied approximately 9.9 acres of the study area along the southern banks of Canal 103 between Jenkins Road and Selvitz Road, and southwest of the Florida's Turnpike. Vegetation in these areas was dominated by laurel oak (*Quercus laurifolia*) and slash pine, with water oak (*Q. nigra*), live oak (*Q. virginiana*), cabbage palm, saw palmetto, red maple (*Acer rubrum*), Australian pine, Brazilian pepper, and earleaf acacia as associate species.

The undeveloped land within urban areas land cover occupied approximately 6.0 acres of the project study area and consisted of mowed and maintained bahia grass areas that were primarily located south of Midway Road within the residential developments.

The Brazilian pepper communities consisted of dense monocultures of the invasive tree species with sparse live oak and cabbage palm in the understory. These upland communities were generally located along the Florida East Coast (FEC) railroad corridor within the northwestern portion of the project study area.

The improved pastures land cover occupied approximately 0.25 acres of the project study area and consisted of actively grazed cattle pastures located at the southwest corner of the Midway Road and Glades Cut Off Road intersection (western terminus). Vegetation consisted primarily of bahia grass with isolated patches of slash pine, cabbage palm and Brazilian pepper.

Table 1 - Summary of Upland Land Cover Within the Project Study Area

FLUCFCS Code	FLUCFCS Type	Description	Acres
111	Residential, Low Density - Fixed Single Family Units	This category includes residential fixed single family unit housing, with less than two dwelling units per acre. Includes residences to the north of Midway Road, approximately 800 feet west and immediately east of Selvitz Road.	4.70
121	Residential, Medium Density - Fixed Single Family Units	This category includes residential fixed single family unit housing. Two to five dwelling units per acre. These residences are primarily located south of Midway Road between the FEC railroad and Florida's Turnpike and between Milner Drive and Selvitz Road within the project study area.	36.6
141	Retail Sales and Services	This category is primarily devoted to the sale of products and services. This land cover includes the Mobil gas station at the northeast corner of Midway Road and Selvitz Road.	2.13

Table 1 - Summary of Upland Land Cover Within the Project Study Area			
FLUCFCS Code	**FLUCFCS Type**	**Description**	**Acres**
142	Wholesale Sales and Services	This category is associated with the storage and wholesale distribution of products and materials. This land cover includes All Scape Supply, LLC located approximately 800 feet west of Jenkins Road, north of Midway Road.	3.55
151	Food Processing	This land cover category includes citrus processing plants such as Tropicana and Packers of Indian River located north of Midway Road.	8.72
156	Other Heavy Industrial	This category is associated with ship building and repair, pre-stressed concrete plants, metal fabrication plants, and cement plants such as the CEMEX facility located between Glades Cut Off Road and Florida's Turnpike, north of Midway Road.	18.3
174	Medical and Health Care	This category includes all buildings and grounds that compose medical facilities such as the New Horizons of Treasure Coast and Okeechobee facility.	6.61
175	Governmental	This category includes all buildings and facilities which are identifiable as non-military governmental, such as the St. Lucie County Sheriff's Office and the U.S. Post Office.	13.2
191	Undeveloped Land within urban areas	This category includes undeveloped land within urban areas. Normally does not exhibit any structures or indication of intended use. Includes vacant grass areas immediately surrounding the residential developments south of Midway Road.	6.05
211	Improved Pastures	This category is composed of land which has been cleared, tilled, and reseeded with specific grass types. Land is periodically improved with brush control and fertilizer application. Within project study area, this land cover is located southwest of the intersection of Glades Cut Off Road and Midway Road.	0.25
411	Pine Flatwoods	This category is dominated by either slash pine, longleaf pine, or both. The common understory species include saw palmetto, wax myrtle, gallberry and a wide variety of herbs and brush. This land cover primarily includes areas north and south of Midway Road adjacent to Jenkins Road, and the northwest corner of the Midway Road and Selvitz Road intersection.	28.8
422	Brazilian Pepper	This category includes Brazilian pepper dominated areas located adjacent to the FEC Railroad.	1.45
434	Hardwood - Conifer Mixed	This category is composed of forested areas in which neither upland conifers nor hardwoods have achieved a 66 percent crown canopy dominance. This land cover includes areas located south of Midway Road along Canal 103.	9.93
812	Railroads	This category includes the FEC Railroad.	1.84

Table 1 - Summary of Upland Land Cover Within the Project Study Area			
FLUCFCS Code	**FLUCFCS Type**	**Description**	**Acres**
814	Roads and Highways	This category includes portions of roads and highways such as Midway Road (CR 712), Glades Cut Off Road (CR 709), Florida's Turnpike (SR 91), Selvitz Road, Milner Drive, and Jenkins Road.	54.6
		Grand Total	196.73

Compiled by Kimley-Horn and Associates, Inc. 2015

4.2.2 Soils

Based on a review of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) *Soil Survey for St. Lucie County*, there are seven (7) major soil types within the project study area (See soils map ***Figure 4***). In general, the soils found within the project study area are derived from sandy marine sediments, are gently sloping, and are poorly drained. According to the *Hydric Soils of Florida Handbook, Fourth Edition* (Florida Association of Environmental Soil Scientists, 2007), Riviera fine sand, 0 to 2 percent slopes is considered a hydric soil and Wabasso sand, 0 to 2 percent slopes has hydric soil inclusions greater than ten (10) percent. Hydric soils and hydric soil inclusions are one indicator of the presence of wetlands, and the areas where these soils (i.e. Wabasso sand) are mapped correspond to the locations of freshwater marsh wetlands that were observed within the project study area during field reconnaissance. ***Table 2*** includes a summary of the soil types found in the project study area.

Table 2 - Soil Types Mapped Within the Project Study Area								
Soil ID Number	**Soil Name**	**Parent Material**	**Drainage Class**	**Water Storage Capacity**	**Hydraulic Conductivity**	**Depth to Restrictive Feature**	**Water Table Depth**	**Acres**
25	Nettles and Oldsmar sands	Sandy and loamy marine deposits	Poorly drained	Very low	Moderately low to moderately high	31 to 50 inches	6 to 18 inches	80.5
26	**Oldsmar sand, depressional**	**Sandy and loamy marine deposits**	**Very poorly drained**	**Low**	**Moderately low to moderately high**	**> 80 inches**	**0 inches**	**0.10**
31	Pepper and EauGallie sands	Sandy and loamy marine deposits	Poorly drained	Moderate	Moderately low to high	> 80 inches	6 to 18 inches	28.3
38	**Riviera fine sand, 0 to 2 percent slopes**	**Sandy and loamy marine deposits**	**Poorly drained**	**Low**	**Moderately high to high**	**> 80 inches**	**0 to 12 inches**	**2.96**
44	Tantile and Pomona sands	Sandy and loamy marine deposits	Poorly drained	Very low	Moderately low to moderately high	18 to 31 inches	6 to 18 inches	1.39
48	**Wabasso sand, 0 to 2 percent slopes**	**Sandy and loamy marine deposits**	**Poorly drained**	**Very low**	**Moderately low to moderately high**	**9 to 50 inches**	**6 to 18 inches**	**77.1**
50	Waveland and Immokalee fine sands	Sandy marine deposits	Poorly drained	Very low	Moderately low to moderately high	31 to 50 inches	6 to 18 inches	20.8
Bold text denotes hydric soils or soils with hydric inclusions greater than 10% of the soil mapping unit.								

Compiled by Kimley-Horn and Associates, Inc. 2015

4.2.3 Floodplains/Drainage Patterns/ Groundwater

The project study area is located entirely within FEMA flood zone X, areas determined to be outside the 0.2% annual chance floodplain (i.e. 500-year floodplain). See attached FEMA Flood Zone Map (***Figure 5***). A review of available hydrogeological maps and the USGS Ground Water Atlas of the United States indicated that the underlying hydrogeological units in this geomorphic zone of St. Lucie County include the surficial aquifer system and the Floridan aquifer system.

The Surficial Aquifer System (SAS) is typically less than 50 feet in thickness and is comprised of beds of unconsolidated sand, shelly sand, and shell material. In St. Lucie County, the SAS has limestone, sandstone, shell and clay lenses within the unconsolidated quartz sand layers (Lukasiewicz, 1995). Ground water in the Surficial Aquifer system is unconfined and is generally used for domestic, commercial, or small municipal water supplies rather than public consumption. Groundwater within the Surficial Aquifer System in St. Lucie County generally moves in a lateral direction eastward towards areas of lower elevation and the Atlantic Ocean. Additionally, because the surficial aquifer system extends under the Atlantic Ocean, saltwater intrusion can occur in these coastal areas.

The Floridan Aquifer system is a large, productive, artesian aquifer covering approximately 100,000 square miles in southeastern Georgia, southern South Carolina, and all of Florida. It is contained within the underlying limestone formation and is characterized by very high permeability limestone and dolomite formations. The Floridan Aquifer system is divided into upper and lower units. The Upper Floridan is the target aquifer for domestic water wells and is considered the most important aquifer in this region, while much of the Lower Floridan contains saline water and is not a suitable water supply. Regionally, the Upper Floridan Aquifer is approximately 500 feet thick and is separated from the SAS by a thick confining layer called the Hawthorn Group that is comprised of fine sands, silts and clays (Lukasiewicz, 1995). Generally, groundwater flows east-southeast in this portion of St. Lucie. Groundwater is expected to move east towards the NFSLR, which flows from the convergence of Five Mile Creek and Ten Mile Creek, approximately two miles northeast of the project study area, to the south where it drains into the St. Lucie Estuary and eventually into the Atlantic Ocean via the St. Lucie Inlet. Groundwater and surface water movement may also be influenced by localized depressional features such as freshwater marshes and canals such as Canal 103.

4.3 Essential Fish Habitat

Essential fish habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Federal agencies that permit, fund, or undertake activities that may adversely impact EFH must undertake an EFH consultation with the National Marine Fisheries Service (NMFS). No areas within the project study area were designated as EFH. NMFS indicated during the EDTM that *through hydrological connections, wetlands within the project study area contribute plant material and other useable nutrients (both dissolved and particulate organic matter) into aquatic food webs that include recreationally, commercially, and ecologically important species within downstream estuaries. Based on these considerations it is recommended that best management practices be employed during construction to prevent siltation of downstream estuarine habitats, and that stormwater treatment systems be designed to meet approved criteria to prevent degraded water from entering downstream estuarine habitats, if appropriate. No further EFH consultation is required*.

4.4 Wetlands and Surface Waters

A wetland evaluation was also conducted for the project. A detailed description of the wetlands and surface waters observed within the project corridor and the results of the evaluation are provided in the *Wetland Evaluation Report* prepared for this project. The surface waters within the project area included Canal 103 which extends along the south side of Midway Road, existing ponds, and swales.

There were two wetland community types within the study area: exotic wetland hardwoods (FLUCFCS 619), and freshwater marshes (FLUCFCS 641). The most abundant wetland communities within the study area were freshwater marshes. Vegetation found within the freshwater marshes included corkwood (*Stillingia aquatica*), rosy camphorweed (*Pluchea rosea*), spadeleaf (*Centella asiatica*), duck potato (*Sagittaria lancifolia*), beakrush (*Rhynchospora* spp.), white top sedge (*Rhynchospora colorata*), St. John's wort (*Hypericum fasciculatum*), common reed (*Phragmites australis*), spike rush (*Eleocharis* spp.) broomsedge (*Andropogon* spp.), groundseltree (*Baccharis halimifolia*), and wax myrtle. These communities were located along the east shoulder of Florida's Turnpike, north of Midway Road to the east and west of Jenkins Road, and south of Midway Road approximately 0.25 mile west of Selvitz Road.

The exotic wetland hardwoods (FLUCFCS 619) wetland community type within the project study area occupied approximately 2.0 acres of the study area. Vegetation primarily consisted of Brazilian pepper, Carolina willow (*Salix caroliniana*), primrose willow (*Ludwigia peruviana*), earleaf acacia, pickerel weed (*Pontederia cordata*), duck potato, groundseltree, shield fern (*Dryopteris ludoviciana*), and white top sedge. The exotic wetland hardwoods were located in three areas within the project study area, including a depressional area between the FEC railroad and Glades Cut Off Road and within the drainage swales that run along the west side of Florida's Turnpike, and south of Midway Road and a small depressional area south of Midway Road.

A summary of the wetlands and surface waters within the project area is provided in ***Table 3***. ***Figure 6*** shows the wetlands ands and surface waters.

Table 3 – Summary of Wetlands and Surface Waters within Project Study Area

Wetland Number	FLUCFCS Description	FLUCFCS Code	Size (acres)
SW1 (Canal 103)	Streams and Waterways	510	3.86
SW2	Reservoirs less than 10 acres	534	0.23
SW3	Streams and Waterways	510	0.12
SW4	Streams and Waterways	510	0.87
SW5	Reservoirs less than 10 acres	534	0.53
SW6	Reservoirs less than 10 acres	534	0.30
SW7	Reservoirs less than 10 acres	534	1.89
SW8	Streams and Waterways	510	0.06
SW9	Reservoirs less than 10 acres	534	1.35
SW10	Reservoirs less than 10 acres	534	0.73
SW11	Streams and Waterways	510	0.09
SW12	Reservoirs less than 10 acres	534	1.04
SW13	Streams and Waterways	510	0.09

Table 3 – Summary of Wetlands and Surface Waters within Project Study Area			
Wetland Number	**FLUCFCS Description**	**FLUCFCS Code**	**Size (acres)**
WL1	Exotic Wetland Hardwoods	619	0.88
WL2	Exotic Wetland Hardwoods	619	0.41
WL3	Exotic Wetland Hardwoods	619	0.40
WL4	Freshwater Marshes	641	0.20
WL5	Freshwater Marshes	641	1.25
WL6	Freshwater Marshes	641	1.47
WL7	Exotic Wetland Hardwoods	619	0.30
WL8	Freshwater Marshes	641	0.19
		Total Acres	**16.26**

5.0 Methodology

5.1 Data Collection

Information on the potential occurrence of federal and state listed species within the project corridor was qualitatively assessed based on a review of available literature, database review, and on site reconnaissance that was conducted along the corridor on July 2, 2015 and July 15, 2015 and January – April 2016 (caracara surveys). Survey methods are described in Section 5.3. Literature reviews were conducted and data was collected from numerous regulatory agencies including the USFWS, NRCS, Florida Department of Agriculture and Consumer Services (FDA), Florida Fish and Wildlife Conservation Commission (FWC), Florida Fish and Wildlife Research Institute (FWRI), FWC's Eagle Nest Locator Database (https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx, accessed 06/18/2015), FWC's Waterbird Colony Locator (http://atoll.floridamarine.org/WaterBirds/, accessed 06/18/2015), and the South Florida Water Management District (SFWMD). The biodiversity matrix was also obtained from the Florida Natural Areas Inventory (FNAI) and GIS data were obtained from the aforementioned agencies, FNAI, and the Florida Geographic Data Library (FGDL).

Based on a review of this data, the project corridor is located within the Core Foraging Areas of three active wood stork nesting colonies (*Sewall's Point MC2-Bird Island, Cypress Creek Bluefield Road, North Fork St. Lucie River*) and the USFWS designated Consultation Areas for the Audubon's crested caracara (caracara) (*Polyborus plancus audubonii*), red-cockaded woodpecker (RCW) (*Picoides borealis*), Florida scrub-jay (scrub-jay) (*Aphelocoma coerulescens*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), and Florida grasshopper sparrow (*Ammodramus savannarum floridanus*) The project study area is not located within the USFWS Critical Habitat for any species.

FNAI reports no documented or historic occurrences of state or federal listed species in the project area. FWC reports one bald eagle nest, SL 006, approximately 1.73 miles from the beginning of the project (Glades Cut Off Road and Midway Road). This nest is located in a preserve area north of the Walmart Distribution Center. According to FWC, it was last surveyed in 2012 and was active at that time.

ETDM comments from USFWS and FWC are summarized below:

> FWC stated that several species occur or may occur within the project area including, gopher frog, gopher tortoise, American alligator, Eastern indigo snake, Florida pine snake, Audubon's crested caracara, Florida burrowing owl, Southeastern American kestrel, Florida sandhill crane, least tern, wood stork, limpkin, little blue heron, tricolored heron, roseate spoonbill, snowy egret, white ibis, and Sherman's fox squirrel. Additionally, the project area is within U.S. Fish and Wildlife Service Consultation Areas for Audubon's crested caracara, Florida grasshopper sparrow, red-cockaded Woodpecker, Florida scrub-jay, and snail kite, and is within the core foraging area of four wood stork colonies [Note: Based on the GIS review of wood stork CFAs and the USFWS comments (see below) the project is within only three CFAs]. Primary wildlife issues associated with this project include: potential adverse effects to a moderate number of species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened or Species of Special Concern; potential water quality degradation as a result of additional stormwater runoff from the expanded roadway surface draining into adjacent waterways and wetlands; and potential for increased wildlife roadkill. Based on the project information provided, FWC believes that direct and indirect effects of this project could be minimal, provided that all roadway construction is confined to the existing ROW, any new DRAs are not constructed within areas of natural habitat, and degradation of adjacent or downstream water quality is avoided via inclusion of Best Management Practices in the project design.
>
> USFWS stated that federally listed species that occur on or adjacent to study area are: wood stork, Florida scrub-jay, Audubon's crested caracara, and eastern indigo snake. Surveys should be conducted for Florida scrub-jay and Audubon's crested caracara to determine extent of wildlife use, especially nesting habitat. The project corridor is located within the Core Foraging Areas (CFA) (within 18.6 miles) of three active nesting colonies of the endangered wood stork. Wetlands are also located within the project area and appropriate mitigation should be provided. This mitigation could suffice for impacts to the CFA of the wood stork. For projects that impact 5 or more acres[1] of wood stork foraging habitat, USFWS requires a functional assessment be conducted using the "Wood Stork Foraging Analysis Methodology" on the foraging habitat to be impacted and the foraging habitat provided as mitigation.

5.2 Listed Species

Pursuant to Section 7(c) of the Endangered Species Act of 1973, the project corridor was evaluated for the potential occurrence of federal listed threatened and endangered species and species classified by federal agencies as candidates for listing. In addition, state species were evaluated and are discussed as part of this assessment. The likelihood of species occurrences considered for the study area were determined based on several factors including whether the species were positively identified by project biologists during field surveys, suitable habitat was observed or is known to occur, species life history, and local knowledge. Based on the data and literature review and subsequent field reconnaissance, state and federally listed species that may occur in the project area are identified in ***Table 4***.

[1] The project does not have more than 5 acres of impact to wood stork foraging habitat. Foraging analysis not required.

Table 4 – Potential Federal and State Listed Species				
Scientific Name	**Common Name**	**Federal Status**	**State Status**	**Likelihood of Occurrence**
Mammals				
Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC	High
Birds				
*Polyborus plancus audubonii**	Audubon's Crested Caracara	T	T	High
*Mycteria americana**	Wood Stork	E	E	High
Picoides borealis	Red-cockaded Woodpecker	E	E	Low
Rostrhamus sociabilis plumbeus	Everglade Snail Kite	E	E	Low
Aphelocoma coerulescens	Florida Scrub Jay	T	T	Low
Haliaeetus leucocephalus[1]	Bald Eagle	N	N	High
Athene cunicularia floridana	Florida Burrowing Owl	N	SSC	Low
Sternula antillarum	Least Tern	N	T	None
Aramus guarauna	Limpkin	N	SSC	None
Egretta caerulea	Little Blue Heron	N	SSC	Moderate
Egretta tricolor	Tricolored Heron	N	SSC	Moderate
*Grus canadensis pratensis**	Florida Sandhill Crane	N	T	High
Platalea ajaja	Roseate spoonbill	N	SSC	Low
Egretta thula	Snowy Egret	N	SSC	Low
*Eudocimus albus**	White Ibis	N	SSC	Moderate
*Falco sparverius paulus**	Southeastern American Kestrel	N	T	Moderate
Reptiles				
*Alligator mississippiensis**	American Alligator	T(S/A)	T(S/A)	High
Drymarchon corais couperi	Eastern Indigo Snake	T	T	Moderate
*Gopherus polyphemus**	Gopher Tortoise	C	T	High
Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC	Low
Amphibians				
Rana capito	Gopher frog	N	SSC	Moderate
Plants				
Coelorachis tuberculosa	Piedmont Jointgrass	N	T	Low
Conradina grandiflora	Large-flowered Rosemary	N	T	Low
Glandularia maritima	Coastal Vervain	N	E	Low

Table 4 – Potential Federal and State Listed Species				
Scientific Name	**Common Name**	**Federal Status**	**State Status**	**Likelihood of Occurrence**
Lechea cernua	Nodding Pinweed	N	T	Low
Linum carteri var. smallii	Small's Flax	N	E	Low
Nemastylis floridana	Celestial Lily	N	E	Low
Polygala smallii	Tiny Polygala	E	E	Low
Pteroglossaspis ecristata	Giant Orchid	N	T	Low

E = Endangered T = Threatened T(S/A) = Listed Threatened due to similarity of appearance SSC = Species of Special Concern
N = Not Listed *Observed or reported within the project corridor.
[1] The Bald Eagle is no longer listed, but is protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and FWC's bald eagle rule (F.A.C. 68A-16.002).

5.3 Field Survey Methods

General corridor surveys were conducted in July 2015. These surveys were conducted to identify potential habitat for listed species and to determine listed species habitat utilization within the existing and proposed R/W, where accessible. The field surveys for wildlife and listed species consisted of observations from a slow-moving vehicle along the road shoulder in areas where the R/W was entirely cleared. In areas where the R/W was forested or contained shrubby vegetation, random, meandering pedestrian transects were conducted. Evidence of federal or state listed species habitat utilization included tracks, scats, calls, distinctive soil or vegetation disturbances, burrows, nests, and direct observations.

Based on initial database review, species specific surveys were conducted for gopher tortoises. Gopher tortoise burrows were field located with a hand-held global positioning system (GPS). Per the Florida Fish and Wildlife Conservation Commission gopher tortoise permitting regulations, approximately 15% of the suitable gopher tortoise habitat within the project corridor was surveyed, and included the open, mowed road shoulders and accessible areas within the Midway Road (CR 712) R/W. See ***Figure 7*** for the location of listed species noted during the field surveys.

An updated caracara survey was also conducted but was expanded from the previous survey to include suitable habitat north of Midway Road east and west of Selvitz. A copy of the survey locations is included in ***Appendix D*** along with a detailed summary report of the caracara surveys.

Non-listed species observed within the project corridor included mockingbird (*Mimus polyglottos*), great egret (*Ardea alba*), warblers, squirrels (*Sciurus carolinensis*), glossy ibis (*Plegadis falcinellus*), laughing gull (*Leucophaeus atricilla*), black (*Coragyps atratus*) and turkey vultures (*Cathartes aura)*, red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), great blue heron (*Ardea Herodias*), wild turkey (*Meleagris gallopavo*), American kestrel (*Falco sparverius*), eastern meadowlark (*Sturnella magna*), American robin (*Turdus migratorius*), osprey (*Pandion haliaetus*), belted kingfisher (*Megaceryle alcyon*), red-bellied woodpeckers (*Melanerpes carolinus*), and various duck species. The results of all plant and animal surveys are summarized in *Section 6.2*.

6.0 Habitat Impacts

6.1 Roadway and Pond Impacts

Impacts to the natural communities present along the project corridor are anticipated to be minimal because the majority of the improvements will occur within the existing R/W. Additionally, much of the uplands along the corridor have been impacted by past and present agricultural activities as well as residential, commercial and industrial development. A summary of the proposed impacts within the project study area are presented in ***Table 5***.

Table 5 – Habitat Impacts (acres)

FLUCFCS Code	FLUCFCS Type	Alternative 1	Alternative 2	Ponds
411	Pine Flatwoods	1.40	1.52	2.96
422	Brazilian Pepper	0.10	0.18	-
434	Hardwood – Conifer Mixed	0.74	4.56	1.92
510	Streams and Waterways	1.14	3.53	-
534	Reservoirs less than 10 acres	0.01	-	-
619	Exotic Wetland Hardwoods	0.07	0.06	-
641	Freshwater Marshes	0.29	0.01	-
Total		**3.75**	**9.86**	**4.88**

Note: Wetland impacts (FLUCFCS 619 and 641) include both direct and secondary impacts. Several pond alternatives are being considered for each drainage basin and there are existing ponds which can accommodate some of the storm water runoff. Thus, the impacts from ponds could be less during final design.

6.2 Listed Species Survey Results and Effects

Provided below is a discussion of the listed species that may occur within the project area and the potential impacts to these species resulting from project implementation. The descriptions of the species and their habitat requirements were excerpted from multiple resources. Listings of the resources used in these descriptions are provided in *Section 9.0* of this report.

6.2.1 Federally Listed Fauna Species

Audubon's crested caracara

Caracara is listed as threatened by both the USFWS and the FWC. Caracaras are long legged birds with a black crown or crest, red facial skin, white and black banded tail with a wide, dark terminal band and have black and white barring at the base of the primaries. Immature caracaras are similar in appearance but duller in color. Caracaras prefer open land including pastures and dry prairie with cabbage palm and/or live oak hammocks and shallow ponds or sloughs. Nesting occurs within cabbage palm trees or live oaks, if cabbage palms are not present. Two to three eggs are laid in late winter and typically a pair will maintain the same territory for several years. They feed on reptiles, birds, mammals and carrion. Loss of habitat from improved pastures and citrus has contributed to the species decline. A detailed summary of the caracara surveys conducted for this project is included in ***Appendix D***. FDOT conducted

a survey in 2015 as part of potential interchange improvements at the Midway Road and Gatlin Boulevard interchanges with I-95. This survey documented a nest north of Midway Road adjacent to I-95. This nest location was used as a starting point for the 2016 survey, but an additional observation point was added north of Midway Road along Selvitz Road as habitat was observed and the area was within the secondary buffer (1500 meters).

The 2016 survey results showed that the previously identified nest (2015) has moved approximately 190 meters northeast. No other nests were identified. The primary buffer (300 meters) lies outside the project area. The secondary (1500 meters) buffer overlaps the western end of the project area at Glades Cut Off Road. However, there is no new construction at the intersection with Glades Cut Off Road. The proposed widening ends east of Glades Cut Off, so construction would consist of "tie in" to the existing four lanes. The FDOT commits to the following during construction to minimize impacts to the caracara:

- Construction staging will be prohibited within the primary buffer.
- Prior to construction an updated caracara nest survey will be performed. Additional coordination will be conducted, if necessary with USFWS.

Based on the lack of construction in the primary or secondary buffers and the implementation of the commitments listed above, FDOT has determined that the project m*ay affect, but is not likely to adversely affect* the Audubon's crested caracara.

Wood Stork

The wood stork is listed as threatened by both the USFWS and the FWC. Wood storks are typically found in marshes, cypress swamps, and mangrove swamps, but their presence in artificial ponds, seasonally flooded roadside or agricultural ditches, and managed impoundments has become common. Wood stork breeding areas extend from South Florida through Georgia and along the coastal areas of South Carolina. Large, colonial nesting areas are typically established in swamps or islands surrounded by broad, open water areas. The same colony site may be used over many years, provided the site remains undisturbed and sufficient foraging habitat is available, and wood storks are known to nest with other wading bird species, including white ibis, tricolored herons, snowy egrets, and great blue herons. Foraging habitat consists of nearly any calm, shallow water area (between 10 and 25 centimeters) or wetland depression that concentrates fish and is not overgrown with dense, aquatic vegetation. Some examples of foraging sites include freshwater marshes, stocked ponds, shallow ditches, narrow tidal creeks, shallow tidal pools, and depressional areas of cypress heads and swamp sloughs provide foraging habitat. The project area is located within the 18.6 mile core foraging area of three active wood stork nesting colonies. A copy of the USFWS's *Florida Wood Stork Colonies Core Foraging Areas Map* is included in ***Appendix E***.

Potential wood stork foraging habitat (e.g. mixed wetland hardwoods, gum swamps, saltmarshes, stream and lake swamps, and streams and waterways) occurs within the project corridor. Direct and secondary impacts to wetlands that could be used for foraging range from 0.36 acres (Alternative 1) to 0.07 acres (Alternative 2). Direct impacts to surface waters that could be utilized for foraging range from 0.01 acres (Alternative 1) to 0 acres (Alternative 2). Although Alternative 2 would result in filling of Canal 103, this canal consists of steep banks and exotic and nuisance vegetation (Brazilian pepper, earleaf acacia, and Australian pine) overgrowing the banks. Water levels in this canal are generally high, thus, precluding foraging by wood storks. Wood storks were observed west of the project in wet swales and drainage areas. Wetland impacts will be avoided and minimized to the extent practical and compensatory mitigation will be provided at Bluefield Ranch mitigation bank, a USFWS approved mitigation bank.

Based on these considerations, and in accordance with *The Corps Of Engineers, Jacksonville District, U. S. Fish And Wildlife Service, Jacksonville Ecological Services Field Office And State Of Florida Effect Determination Key For The Wood Stork In Central And North Peninsular Florida*, the project *may affect, but is not likely to adversely affect* wood storks.

Red-cockaded Woodpecker

RCW is listed as endangered by USFWS and FWC due to habitat fragmentation and poor management of appropriate habitat, which includes, longleaf pine flatwoods, and mixed longleaf and slash pine. These woodpeckers are highly specialized in their habitat requirements and typically prefer mature, old-growth long leaf pine ecosystems with relatively open understories over dense pine/hardwood forest communities (Red-cockaded woodpecker recovery, http://www.fws.gov/rcwrecovery/rcw.html). These habitats are preferred because the pines often suffer from a fungus called red heart disease that softens the heartwood and allows for cavity excavation. The RCW is the only North American woodpecker to excavate roost and nest cavities in living pine trees.

RCW were not observed during field reconnaissance. Potential RCW habitat observed within the Midway Road (CR 712) R/W including upland coniferous forests, pine flatwoods, upland hardwood forests, and mixed hardwood-coniferous forest do not meet the USFWS habitat suitability definition "…a pine or pine/hardwood stand of forest, woodland, or savannah in which 50 percent or more of the dominant trees are pines and the dominant pine trees are generally 60 years in age or older" (Red-cockaded Woodpecker South Florida Survey Protocol [adapted from Service 2003]). Although the project area is located within the USFWS Consultation Area for RCW, because no suitable habitat or RCW individuals were observed within the project area, and the proposed roadway improvements are located primarily within existing cleared R/W, the project will have *no effect* the red-cockaded woodpecker.

Everglades Snail Kite

The Everglades snail kite is listed as endangered by both the USFWS and the FWC. This medium-sized raptor is dark slate gray to black with a white tail and a long, hooked bill. Snail kites inhabit large, open, freshwater marshes and lakes from the St. Johns River headwaters south. They prefer relatively shallow water (less than 4 feet) and a low density of emergent vegetation. Their primary food source is the apple snail which they catch at the water's surface. Snail kites usually nest over the water in a low tree or shrub. Although the project is located within the USFWS Consultation Area for the Everglades snail kite, the project area is not located within critical habitat and no snail kites or their habitat were observed in the project area. Thus, the project will have *no effect* on the Everglades snail kite.

Florida Scrub Jay

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

Scrub-jays are similar in size and shape to its relative, the blue jay, but they differ strikingly in color pattern. The scrub-jays are subtly marked as opposed to the blue jay. They have a pale blue head, nape, wings and tail and are pale gray on the back and belly. A white eyebrow blends with a frosted white forehead. The throat and upper breast are faintly striped and bordered by pale blue, forming a distinct

bib. The scrub-jay is relatively sedentary and rarely sustains a flight of more than a kilometer. The Florida scrub jay is a non-migratory species and is endemic to Florida.

The project area is within the USFWS Consultation Area for the scrub-jay, but there is no scrub-jay habitat in the project area or immediate vicinity. As such, there project will have *no effect* on the Florida scrub-jay.

American Alligator

The American alligator is listed as endangered by the USFWS and FWC due to its similarity of appearance to more endangered crocodilians. The range of the American alligator extends from east Texas and southeast Oklahoma, throughout Florida and east to North Carolina. Alligators typically inhabit freshwater lakes, wetlands and slow moving rivers, but are sometimes found in brackish water habitats. Juvenile alligators primarily consume insects, amphibians, small fish, and other invertebrates. Adult alligators eat rough fish, snakes, turtles, small mammals, and birds.

There is habitat for the American alligator within open water areas including existing ponds and Canal 103. However, the project area is outside the known range of the American crocodile. As such, it is anticipated that this project will have *no effect* on this species.

Eastern Indigo Snake

The eastern indigo snake is listed as threatened by both the USFWS and the FWC due to a decline in population caused by habitat loss or degradation. The eastern indigo snake occurs in a range of habitats, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats. Eastern indigo snakes in the northern Florida region are typically found in in strong association with gopher tortoises, but are also known to use the burrows of armadillos, cotton rats, and land crabs (in coastal areas). These snakes require large tracts of land for survival and are typically restricted to xeric habitats on pine-oak sandhills. Indigo snakes forage in hydric habitats, often along wetland ecotones. Gopher tortoise burrows provide EIS with shelter from cold winter temperatures and relief from desiccation (Multi-Species Recovery Plan for South Florida, FWS).

According to USFWS and FNAI data, potential habitat for the eastern indigo snake may be present within the project corridor. No specific surveys were conducted for indigo snakes during this PD&E study and no individuals were observed during surveys for other species and/or during wetlands evaluations. However one potentially active gopher tortoise burrows, was documented during field reconnaissance. The burrow is located on the south side of Midway Road and immediately west of Milner Drive adjacent to upland hardwood forest and hardwood-coniferous mixed forest habitats that may provide habitat for this species. Due to the presence of potential habitat within the study area, there is a moderate likelihood for the species to occur within the project corridor. The *Standard Protection Measures for the Eastern Indigo Snake* will be implemented during construction. Based on the *North and South Florida Ecological Services Field offices Programmatic Concurrence for the Eastern Indigo Snake Key*, the project *may affect, but is not likely to adversely affect* the eastern indigo snake. A copy of these standard measures are included in ***Appendix E***.

Other Federally Protected Species

Bald Eagle

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

As mentioned in Section 5.1, eagle nest SL006 is located approximately 1.73 miles northwest of the intersection of Florida's Turnpike (US 91) and Midway Road (CR 712). The data also report that the nest was last surveyed in 2012 and was documented as being active. Bald eagles are frequently observed feeding over the St. Lucie landfill and were observed in the pasture west of the project corridor during the surveys conducted for the caracara. No additional nests were observed during field surveys conducted for this PD&E study. Based on the USFWS *National Bald Eagle Management Guidelines* and the FWC *Bald Eagle Management Plan*, construction activities proposed at least 660 feet from an eagle nest do not require an Eagle Permit from the FWC/USFWS. Based on these guidelines, and the nest location as reported by FWC, potential impacts to bald eagles and/or their nests will not occur. Thus, *adverse effects* on bald eagles are not anticipated.

State Listed Fauna Species

Sherman's Fox Squirrel

The Sherman's fox squirrel is one of ten subspecies of the eastern fox squirrel, is 1 of 4 subspecies occurring in Florida and is the largest in size. This large tree squirrel (measuring 600 to 700 mm/ 23 to 28 inches in length) has a highly variable dorsal fur color ranging from all black to silver with variations of black over silver and silver over black. The underside is tan and the head is generally black with varying amounts of white on the rostrum and ears. Preferred habitat is mature, open, fire-maintained longleaf pine and turkey oak sandhills and pine flatwoods. To accommodate the large home range and seasonally fluctuating food sources, they also inhabit lower slopes of sandhills. They can be found in mixed hardwood pine, mature pine forests, cypress domes, pastures, the ecotone between bayheads and pine flatwood and other open lands with pines and oaks. Fox squirrels usually nest in turkey oak trees but also use longleaf pine, live oak, post oak, laurel oak and slash pine, though slash pine are used less frequently. They rely on a variety of oak trees for seasonal food as well as longleaf pine cones and seeds. There is no habitat within the existing R/W for this species. There is marginal habitat (pine flatwoods) adjacent to the corridor and west of the corridor (pastures), but these areas are small and fragmented by development. Furthermore, there is no management of these areas. Sherman's fox squirrels or nests were not observed in the project corridor area. Thus, the project is not expected to have adverse effects on this species.

Gopher Frog

The gopher frog is a member of the true frog family (Ranidae) and is listed by FWC as a species of special concern, primarily due to habitat destruction. It is a medium-sized, boldly spotted frog with a chunky appearance. The body is short and plump and the head is large with somewhat rounded snout. The legs are relatively short. The back has a somewhat warty appearance and a prominent, often bronze-

colored longitudinal ridge on each side behind the eye. A pattern of irregularly shaped dark spots on a background that may be cream, gray, or brown is visible on the back. The chin and throat are spotted and the belly is usually unmarked posteriorly. Adults are approximately 2.5 to 4 inches excluding the legs. The call resembles a deep snore. In Florida, gopher frogs occur in a variety of habitats including sandhills, upland pine forests, scrub, xeric hammock, mesic and scrubby flatwoods, dry prairie, mixed hardwood-pine communities, pastures and other disturbed habitats that have gopher tortoise burrows. This species appears to be closely associated with gopher tortoise burrows, but will use other burrows including pocket gophers, small mammal burrows, crayfish burrows, stump holes, hollow logs etc. Breeding sites include wetlands that are shallow, fishless and temporary or semi-permanent in nature. Breeding has been documented in depression marshes, basin marshes, wet prairies, dome swamps, upland sandhill lakes, sinkhole ponds, ditches and borrow pits. No suitable habitat or individuals were observed within the project area. Thus, the project is not expected to have adverse effects on this species.

Gopher Tortoise

The gopher tortoise is listed as threatened by FWC and is a candidate species for listing with the USFWS. The gopher tortoise ranges throughout the southeastern U.S. and occurs in suitable habitat in all Florida counties. The gopher tortoise excavates extensive underground burrows and spends the majority of its life in these burrows. Gopher tortoise habitat generally has the following characteristics: well drained, sandy soils; abundant groundcover; relatively open canopy and sparse shrub cover.

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

Potential gopher tortoise habitat (e.g. upland hardwood and mixed hardwood-coniferous forest communities) exists along portions of the project area and one potentially active burrow was observed within the project R/W west of Milner Road and south of Midway Road (CR 712) (***Figure 7***). Because there is potential gopher tortoise habitat and burrows were documented, FWC gopher tortoise permitting guidelines will be implemented and pre-construction surveys within suitable habitat will be conducted. Following surveys, a relocation permit will be required by the FWC for any burrows being impacted by the proposed alignment. Because gopher tortoise burrows will be avoided or gopher tortoises will be relocated, it is anticipated that this project will have no adverse effects on this species.

Florida Pine Snake

The Florida pine snake is listed by FWC as a species of special concern and is found throughout the state, excluding the Florida Keys, the Everglades, extreme southwest Florida, and immediately north of Lake Okeechobee. This snake requires dry sandy soils for burrowing. It is found most often in open, pine-turkey oak woodlands and abandoned fields, and also in scrub, sandhills, and longleaf pine forest. Florida pine snakes spend most of their time underground in pocket gopher or gopher tortoise burrows. Threats include collection for pets (now restricted); highway mortality, habitat loss and fragmentation from development, intensive agriculture and mining.

The Florida pine snake is a large, stocky, tan or rusty colored snake with an indistinct pattern of large blotches on a lighter background. The body is muscular, with keeled scales. The head is relatively small

and the snout is somewhat pointed with four prefrontal scales; the rostral scale extends upward between the internasal scales. Adults grow to 4 - 7 feet or longer.

No Florida pine snakes were observed during surveys of the corridor and there are no historic occurrences noted in FNAI. The proposed impacts to upland mixed coniferous hardwoods and pine flatwoods habitats ranges from approximately 2.14 acres (Alternative 1) to 6 acres (Alternative 2) and potentially 4.9 acres for ponds. Direct impacts to the habitat of the Florida pine snake will be minimized to the greatest practicable extent. Based on these considerations, it is anticipated that the project will have no adverse impacts to this species.

Burrowing Owl

The Florida burrowing owl is listed as a species of special concern by the FWC. This small, ground-dwelling owl is boldly spotted and barred with brown and white. This is one of Florida's smallest owls, averaging nine inches in height. The burrowing owl lacks ear tufts, has bright yellow eyes and white chin. Long legs provide additional height for better view from the typical ground-level perch. This species occurs throughout the state though its distribution is local and spotty. Habitat includes open, native prairies and cleared areas that provide short ground cover such as pastures, agricultural fields, golf courses, airports and vacant lots in residential areas. They often dig their own burrow and line the entrance with decorative materials prior to laying eggs at the bottom of the burrow. The nest in single breeding pairs or in loose colonies with two or more families. They are active both day and night and are often seen in the day standing erect at the burrow mouth or on a nearby post. When agitated, they bob their heads and make a chattering or clucking call. They use their burrows year around – roosting during winter and raising young during breeding season (February – July). There is no habitat in the study area, though there is marginal habitat west of the study area (pastures). However, neither burrowing owls nor their burrows, were observed within the study area. Thus, the project will have no effect on this species.

Least tern

The least tern is listed as threatened by the FWC and is listed as endangered by the USFWS in Midwest and Great Plains states. Least tern is the smallest North American tern. Breeding adults are light gray above with white or grayish breast and underparts. They also have a black cap and nape, a white forehead, and a black line that runs from their crown through the eye to base of bill. Their bill is yellow-orange in color and is often tipped in black (non-breeding adults). The tail is short and deeply forked, the legs and feet are yellowish-orange, and the outer primaries have dark edges that are easily observed in flight. Juveniles have a dark bill and black eye-line and are mottled above with more dark on upper wing. Least tern habitat consists of coastal areas throughout Florida, including beaches, lagoons, bays, and estuaries. This species often nests on gravel rooftops and other artificial nest sites such as spoil islands, dredged material deposits, construction sites, causeways, and mining lands. Nesting areas have a substrate of well-drained sand or gravel and usually have little vegetation. Suitable nesting habitat does not occur within the project area and any potential nesting habitat is located more than 8 miles from the project area. Thus, the project will have no effect on this species.

Limpkin

The limpkin is listed by FWC as a species of special concern. This species is a marsh bird known for its characteristic limping gate. They are a medium sized bird (56 to 74 cm; 22 to 29 in) in length. Plumage is dark brown with white spotting and streaking. Males and females are indistinguishable. They have long legs and neck and a heavy, yellowish bill slightly curved downward. Suitable habitat for foraging,

resting, and breeding include freshwater sloughs and marshes, wooded swamps, springs and spring runs, edges of rivers and ponds, low-salinity estuarine wetlands and human-created impoundments and canals. Their primary food source is the apple snail and suitable foraging habitat will contain a healthy population of this food source. Other food sources include insects, frogs, lizards, crustaceans and mussels. No limpkins or apple snails were observed in the project area and habitat is minimal (freshwater marshes). Also, due to the suburban nature of the project area, there is a low likelihood of this species being present in the corridor. Thus, the project will have no effect on this species.

Little Blue Heron, Snowy Egret, Tricolored Heron and White Ibis

Little blue heron, snowy egret, tricolored heron, and white ibis are listed by the FWC as species of special concern. These birds are opportunistic feeders and travel to find areas where conditions are suitable and food is abundant. They feed in shallow freshwater, brackish, and saltwater habitats. The largest nesting colonies occur in coastal areas, but these species prefer foraging in freshwater lakes, marshes, swamps, and streams. These birds nest in a variety of woody vegetation types, including cypress, willow, maple, black mangrove, and cabbage palm. They usually breed in mixed-species colonies in flooded vegetation or on islands. For snowy egrets, a wide variety of wetland types must be available within 5 - 7 miles to support breeding colonies. The breeding success of snowy egrets and tricolored herons is tied to water-level fluctuations. White ibis adults prefer foraging in freshwater areas when feeding young. Based on a review of the FWC water bird locator and field reconnaissance there is no nesting habitat or known nesting colonies in the project area or in the immediate vicinity. White ibis were observed foraging in the pastures west of the project area and it is anticipated that all of these species could forage from time to time within the wet swales and freshwater marshes along the corridor. Direct and secondary impacts to wetlands range from 0.36 (Alternative 1) to 0.07 (Alternative 2). The direct impacts to surface waters that could be utilized for foraging range from 0.01 acres (Alternative 1) to 0 acres (Alternative 2). Though Alternative 2 would result in filling of Canal 103, this canal consists of steep banks and exotic and nuisance vegetation (Brazilian pepper, earleaf acacia, and Australian pine) overgrowing the banks. Water levels in this canal are generally high, thus, precluding foraging most of the time for these species. As such, adverse impacts to these species are not anticipated.

Florida Sandhill Crane

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

Sandhill crane nests were not observed in the freshwater marshes located in the project area. There is foraging habitat (pastures) west of the project area and sandhill cranes were observed foraging on multiple occasions during the caracara surveys (See ***Figure 7*** – Listed Species Observations Map). The project will not impact wetlands with nesting cranes or the pastures west of the project. Thus, the project will have no adverse effect on the sandhill crane.

Roseate Spoonbill

The roseate spoonbill is a state listed species of special concern by FWC. Adult roseate spoonbills have bright pink bodies, contrasting white necks, and flat, spoon-like bills. Immature birds are whitish, acquiring the pink coloration as they mature. Roseate spoonbills are the only spoonbill native to the Western Hemisphere and the only pink bird that breeds in Florida. Their primary nesting sites include coastal mangrove islands or in Brazilian pepper on man-made dredge spoil islands near suitable foraging habitat. Roseate spoonbills typically forage in shallow water of variable salinity, including marine tidal flats and ponds, coastal marshes, mangrove-dominated inlets and pools, and freshwater sloughs and marshes. They have also been observed foraging in stormwater ponds and canals when water levels are low.

Most of the known breeding sites occur within federally owned national parks and wildlife refuges and National Audubon Society sanctuaries. Nests are found in Florida from Tampa Bay on the Gulf coast and Brevard County on the Atlantic coast, south to northern Florida Bay. There are no known nesting colonies for this species in St. Lucie County and no spoonbills were observed during field reconnaissance. It is possible that spoonbills could occasionally forage within the wetlands and surface waters within the project corridor, but the habitat is marginal. The impacts to wetlands and surface waters are minimal. Thus, adverse impacts to this species are not anticipated.

Southeastern American Kestrel

The southeastern American kestrel is listed as threatened by the FWC as a result of natural nesting and foraging habitat declines. The SE American kestrel is 1 of 17 subspecies of the American kestrel and is the only non-migratory, permanent resident in Florida; however, the northern subspecies (*F.s. sparverius*) occurs in Florida as a migrant and winter visitor. The male kestrel has blue-gray wings, while the female is larger and has a more uniformly rufous back and wings. Both sexes have a mustached black-and white facial pattern with strong perpendicular lines extending below the eye and ear, and a black band at the base of the rufous tail. The alarm call is highly distinguishable and given frequently in flight.

The kestrel's range is limited by nest and perch site availability, foraging habitat and food supply all in close proximity to one another. Kestrels utilize a wide variety of habitats. Type I Habitat is defined as upland plant communities (e.g. grassland and pasture) with less than 10% canopy cover and with at least 60% herbaceous ground cover less than 25 cm in height (Stys, 1993). Type II habitat is described as open woodland communities with greater than 10% but less than 25% woody canopy cover and with at least 60% herbaceous ground cover less than 25 cm in height (Stys, 1993). Kestrels are secondary cavity nesters using abandoned woodpecker cavities. Kestrels nest in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. Nest sites are located in tall dead trees or utility poles generally with an unobstructed view of surroundings. Sandhill habitats seem to be preferred, but kestrels have been observed in flatwoods. Open patches of grass or bare ground are necessary for kestrels to effectively utilize flatwoods, since thick palmettos may prevent detection of prey.

An American kestrel was observed on multiple occasions at observation station 4 during the caracara surveys (approximately 1 mile north of Midway Road, west of Selvitz Road) (See ***Figure 7*** – Listed Species Observations Map). Because the caracara surveys were conducted during the period when the northern migrants are present, it is not possible to positively determine if this observation was the SE American kestrel. However, surveys conducted along the corridor in June 2015, revealed no SE American kestrels or potential nest cavities. Thus, adverse impacts to this species are not anticipated.

Listed Plant Species

A review of the online FNAI database, indicates that one federally listed plant species and seven state-listed plant species have the potential to occur within the project area.

Tiny Polygala

The Tiny polygala is listed as endangered by the FWC and USFWS. This species is relatively short-lived (germinating and dying within one year) species grows to a height of approximately 4 inches tall, has one to four unbranched stems, and a fragrant tap root. The plant is also characterized by 2 inch long, lance-shaped leaves that extend radially from the base. Flowers are greenish-yellow in color, small and numerous, forming a crowded head at the top of the stem, with two (2) wing-like sepals, three (3) small sepals, and petals fused into a keel with a projecting fringe.

The St. Lucie County population occurs on a scrubby flatwoods knoll in Hobe Sand soils. Site elevation is 2.0 to 3.0 m and gently slopes to a mesic flatwoods and marsh area. Canopy trees include sand pine, slash pine, and scrub live oak. Habitat is not present along the corridor for this species. Thus, the project will have *no effect* on this species.

Small's Flax

Small's flax is listed as endangered by FWC. This annual herb reaches a height of 4-24 inches, with smooth, narrowly wing-angled stems. Leaves are up to 1.2 inches long, very narrow, alternate, and do not have red glands at the base of the leaf, like Carter's flax. Small's flax has a 5 petal, yellow-orange flower, typically 0.5 inches wide. Habitat includes pine rocklands, pine flatwoods, and adjacent disturbed areas. Habitat for small's flax does not occur within the study area and no individuals were observed during field reconnaissance. Therefore, the proposed project will have no effect on this species.

Coastal Vervain

Coastal vervain is listed as endangered by FWC. This short-lived, purple, perennial flower reaches 1.5-2 feet in height and 1-1.5 feet in width. Flowers are lavender with and orange throat, and leaves are irregularly lobed and toothed. Coastal vervain inhabits back dunes, dune swales, and coastal hammocks; it is also known to occur in disturbed, sandy areas. Habitat is not present for this species in the project area. Therefore, the proposed project will have no effect on this species.

Nodding Pinweed

Nodding pinweed is listed as threatened by FWC. This perennial herb has slender, erect, flowering stems, rising from a dense mat of spreading. Leaves are short (>0.4 inches), narrowly oval and alternating, with pointed tips, disappearing by flowering time. Nodding pinweed flowers in tight clusters at the ends of short branches, with 3 tiny, purple or green petals. The entire plan is covered with spreading, gray hairs and has a tiny, hard capsule fruit. Habitat includes scrub and scrubby flatwoods. Habitat is not present for this species in the project area. Therefore, the proposed project will have no effect on this species.

Piedmont Jointgrass

Piedmont jointgrass is listed as threatened by FWC. Piedmont jointgrass is a tall, tufted, perennial grass. This particular jointgrass has 3 spikelets (1.3-2 mm wide); first glume with scattered small or no transverse ridges. Habitat includes flatwoods, swamps, savannas, ponds, right-of-ways, and ditches.

Preliminary field reconnaissance did not yield positive identification of piedmont jointgrass and habitat is minimal in the study area. Therefore, the proposed project will have no effect on this species.

Large-flowered Rosemary

The large-flowered rosemary is listed as threatened by FWC. This long-lived perennial shrub reaches a height of 3-4 feet and a width of 1-2 feet, with purple to lavender flowers. Native habitat for large-flowered rosemary includes scrub and coastal strand; it has also been known to inhibit disturbed areas. Large-flowered rosemary flowers year-round (blue) and can therefore be surveyed at any time. Habitat is not present for this species in the project area. Therefore, the proposed project will have no effect on this species.

Celestial Lily

The Celestial Lily is listed as endangered by FWC. This perennial herb has a single bulb emanating from a single, tall stem that can reach two feet in height. The flowers are 1.5 inches across and have six dark blue spreading petals. Additionally, celestial lily flowers open at 4 pm and close by dusk. This species is found in wet flatwoods, prairies, marshes, and cabbage palm hammock edges primarily in the St. John's River drainage. The best survey season is from August to October from 4 pm to dusk. Habitat is not present for this species in the project area. Therefore, the proposed project will have no effect on this species.

Indirect and Cumulative Impacts

Indirect Effects

Indirect effects "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." (Council on Environmental Quality (CEQ) 1986, 40 Code of Federal Regulations (CFR) 1508.8). There are two types of indirect effects evaluated under National Environmental Protection Act (NEPA): induced growth effects and encroachment/alteration effects. Induced growth effects are related to changes in patterns of land use, population density or growth rate and their effects on natural systems. Encroachment/alteration effects can be characterized as either ecological or socioeconomic effects. Types of ecological encroachment/alteration effects include habitat fragmentation, degradation of habitat from pollution, water quality degradation from stormwater runoff or roadway spills, changes in hydrology, exotic/invasive species range expansion and disruption of natural processes. Types of socioeconomic encroachment/alteration effects include alteration of: neighborhood cohesion and stability, travel patterns of commuters and shoppers, personal safety, and aesthetic impacts.

The proposed project includes widening of an existing roadway within a primarily developed corridor. So many of the edge effects and fragmentation of habitat have already occurred as a result of the existing development. However, widening the road will further impact wildlife movement that would potentially attempt to cross the road(s). For the wetlands, where a partial impact occurs, there can be a secondary impact to the remaining wetlands as described above. Alternative 2 minimizes this secondary effect as the wetland impacts to the freshwater marshes north of Midway Road are impacted less. There is a greater impact to the surface waters though with Alternative 2 because the canal would be filled. But the Canal is currently being filled and replaced with a culvert further east as part of the County's widening of Midway Road from 25th Street to Selvitz. Thus, it is anticipated that there would already be some indirect effect associated with these impacts to the east.

From a water quality perspective, there is limited stormwater facilities for Midway Road. The project includes a curb and gutter section where stormwater will be conveyed, piped and discharged to stormwater management ponds. Several ponds have been evaluated in each basin and the ponds have been located and designed to avoid direct and secondary impacts to wetlands. As part of previous improvements by St. Lucie County east of the project, ponds have been constructed and sized to accommodate portions of this project. These ponds have been designed to meet Outstanding Florida Water (OFW) criteria (50% additional water quality treatment) because the project ultimately discharges to the NFSLR (OFW and aquatic preserve south of Midway Road). For this project, new impervious areas must also meet OFW criteria. The County ponds for the project to the east also provided dry detention to address nutrient impairment. Based on a meeting with SFWMD on August 20, 2015 nutrient analysis may be needed on this project. This will be evaluated more during design and permitting. Thus, an indirect benefit for the project is enhanced water quality treatment for the existing and future impervious road areas. Finally, mitigation will be provided for the secondary effects pursuant to SFWMD and USACE requirements.

The western end of the lies within the secondary buffer of one caracara nest (See Appendix D – *Audubon's Crested Caracara Survey Report – Figure 2*). Secondary impacts associated with roadway projects could include increased threat of motor vehicle collisions and disturbance during construction that could affect result in abandonment of the nest or affect nesting behavior. As discussed in *Section 6.2.1,* this portion of the project study area is already 4-laned. The extent of construction would be "tie in" to the existing construction. Minimization measures discussed in *Section 6.2.1* and in *7.0* will be implemented to minimize the potential indirect effects.

Cumulative Effects

Cumulative effects on the environment result from the incremental impact of the action (direct and indirect effects) when added to other past, present, and reasonably foreseeable future actions by others. In general, road construction has the potential to impact wetlands during construction and by changing future land use patterns. Direct impacts remove wetlands from the landscape, thus removing all wetland function associated with it. Indirect wetland impacts vary greatly and depend generally on adjacent land condition. Cumulative effects are the degree of potential impact that are largely dependent upon the size of the road corridor (wide roads having more influence than relatively narrow roads), the relative position of the road corridor within the landscape, and the relative condition of the wetlands being traversed (new roads in an undeveloped landscape vs. widening an existing road in a developed landscape).

Given the built out nature of the project corridor, minimal native habitats, including wetlands, the proposed improvements will not result in adverse cumulative effects.

7.0 Avoidance, Minimization and Mitigation

Avoidance and minimization of impacts have been considered for the project. However, complete avoidance of surface waters, wetlands and native uplands is not possible with a build alternative because there are a number of linear drainage features that parallel or cross the project area and wetlands that extend into the R/W and existing cleared R/W is not sufficient to accommodate the 4-lane road. Alternative 2 minimizes impacts to wetlands, but has a greater impact on surface waters as the alignment is shifted south and includes culverting the Canal 103. As discussed below in *Section 10.0*, SFWMD commented during a pre-application meeting that for the canal alternative the design will need to allow for air exchange (e.g. saddle risers). Alternative 1 impacts the most wetland and includes impacts to WL

06 which has an existing conservation easement. If impacted, the easement would have to be released and additional compensation may be required. Stormwater management ponds have been cited to avoid impacts to wetlands and where applicable provide buffers between the pond limits and adjacent wetlands. Furthermore, there are existing ponds that have additional capacity for Midway Road drainage and will be utilized where possible to avoid additional clearing and grading of native habitats.

From a species perspective, there is a potential effect though not adverse for the wood stork, Audubon's crested caracara and the Eastern indigo snake. Wetland impacts have been minimized and mitigation will be provided in Bluefield Mitigation Bank, a USFWS approved mitigation bank. For the caracara, construction will be timed outside nesting season for the western end of the project (e.g. the tie in to the existing 4-lane at Glades Cut Off Road) and a staging areas will be prohibited in the primary and secondary buffer areas. The *Standard Protection Measures for the Eastern Indigo Snake* will be implemented during construction

8.0 Conclusions and Commitments

Seven federally listed species were evaluated to determine if the proposed project will adversely affect these species. Based on review of available data, in conjunction with field reconnaissance and surveys, the following effects determinations have been made:

Common Name	Effect Determination
Audubon's crested caracara	May affect, not likely to adversely affect
Wood stork	May affect, not likely to adversely affect
Red-cockaded woodpecker	No effect
Everglade snail kite	No effect
Florida scrub jay	No effect
American alligator	No effect
Eastern indigo snake	May affect, not likely to adversely affect
Tiny polygala	No effect

Twenty-two additional state listed species were evaluated and adverse impacts are not anticipated either because there is no habitat for the species along the corridor or habitat impacts are minimal and mitigation will be provided.

FDOT commits to the following measures to minimize and mitigate potential impacts to listed species:

- Prior to construction an updated caracara nest survey will be performed. Additional coordination will be conducted, if necessary with USFWS. Construction staging will be prohibited within the primary buffer of the caracara nest.

- An updated gopher tortoise survey will be conducted prior to construction. Gopher tortoises will be avoided or if they cannot be avoided, a permit will be obtained for relocation.
- The *Standard Protection Measures for the Eastern Indigo Snake* will be implemented during construction.

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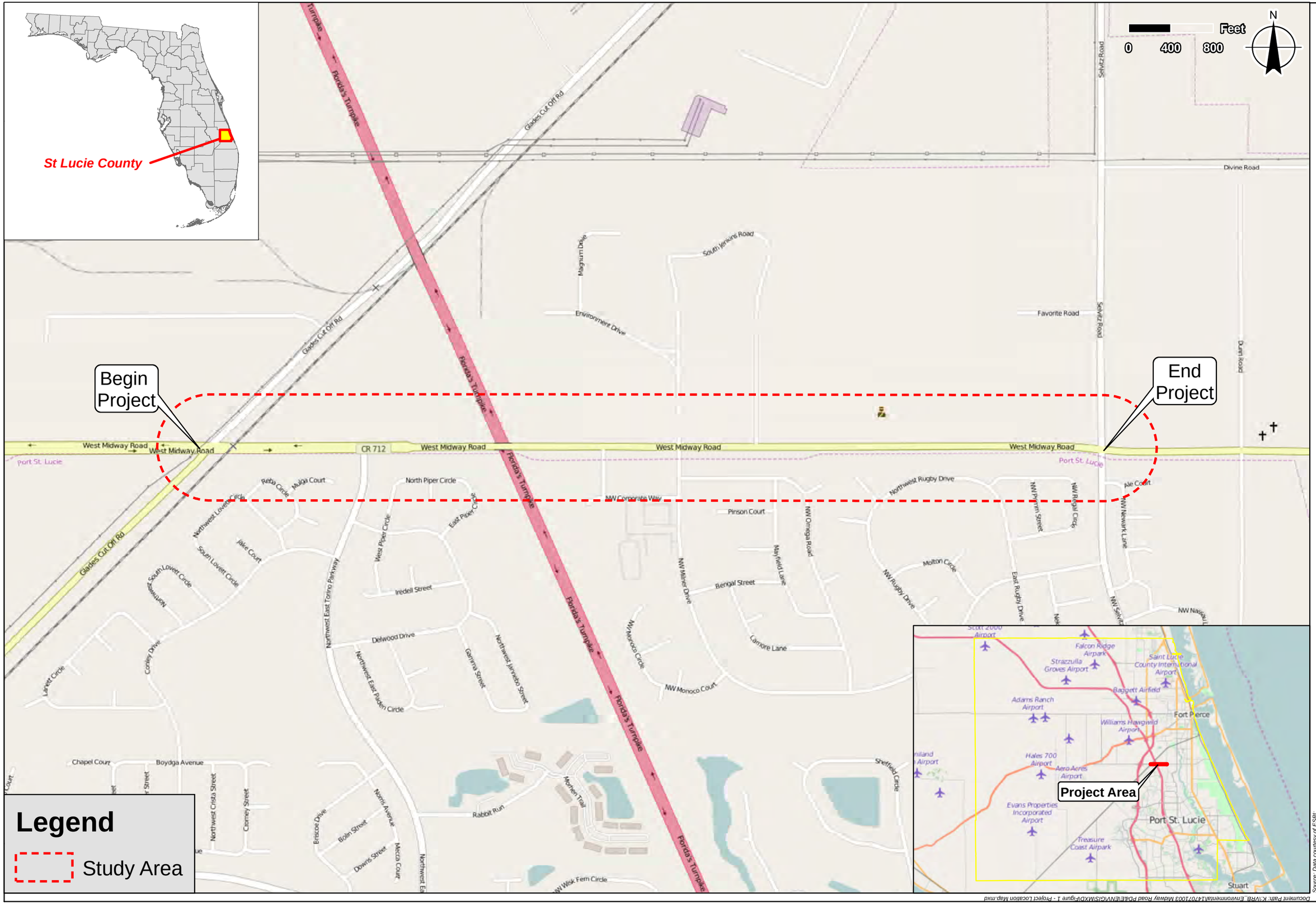
FIGURE 1
PROJECT LOCATION MAP



Source: Data courtesy of ESRI;

Document Path: K:\TRE_Environmental\147073003 Midway Road PD&E\ENV\GIS\MXD\Figure 1 - Project Location Map.mxd

FDOT

Project Location Map

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 800 feet

FIGURE 1

MAY 2016

FIGURE 2
FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM MAP

Legend

- Study Area
- 111: Low Density Residential - Fixed Single Family Units
- 121: Medium Density Residential - Fixed Single Family Units
- 141: Retail Sales and Services
- 142: Wholesale Sales and Services
- 151: Food Processing
- 156: Other Heavy Industrial
- 174: Medical and Health Care
- 175: Governmental
- 191: Undeveloped Land within urban areas
- 211: Improved Pastures
- 411: Pine Flatwoods
- 422: Brazilian Pepper
- 434: Hardwood - Conifer Mixed
- 510: Streams and Waterways
- 534: Reservoirs less than 10 acres
- 619: Exotic Wetland Hardwoods
- 619: Exotic wetland hardwoods
- 641: Freshwater Marshes
- 812: Railroads
- 814: Roads and Highways

Source Aerials courtesy of FDOT (2012). FLUCFCS data courtesy of Kimley-Horn (2015).

Document Path: K:\IVR_Environmental\14707103 Midway Road PD&E\ENV\GIS\MXD\Figure 2 - FLUCFCS Map_v2.mxd

FDOT

Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map

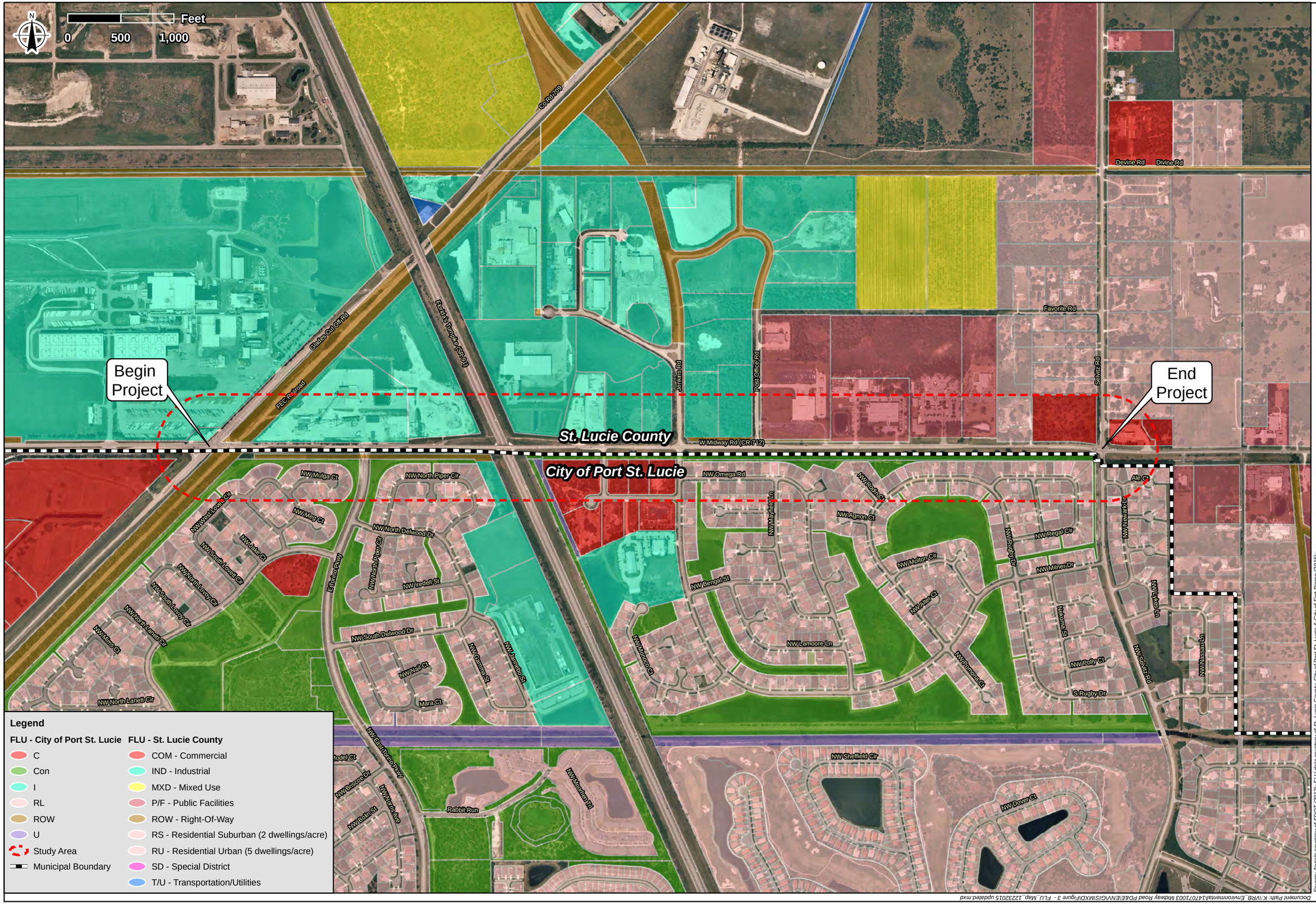
Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 700 feet

FIGURE 2

MAY 2016

FIGURE 3
FUTURE LAND USE MAP



Source: Aerials courtesy of FDOT (2012); FLU data courtesy of St. Lucie County, City of Port St. Lucie & City of Fort Pierce (2015).

Document Path: K:\IVRE_Environmental\470710003 Midway Road PD&E\ENVGIS\MXD\Figure 3 - FLU_Map_12232015 updated.mxd

FDOT

Future Land Use Map - St. Lucie County & City of Port St. Lucie

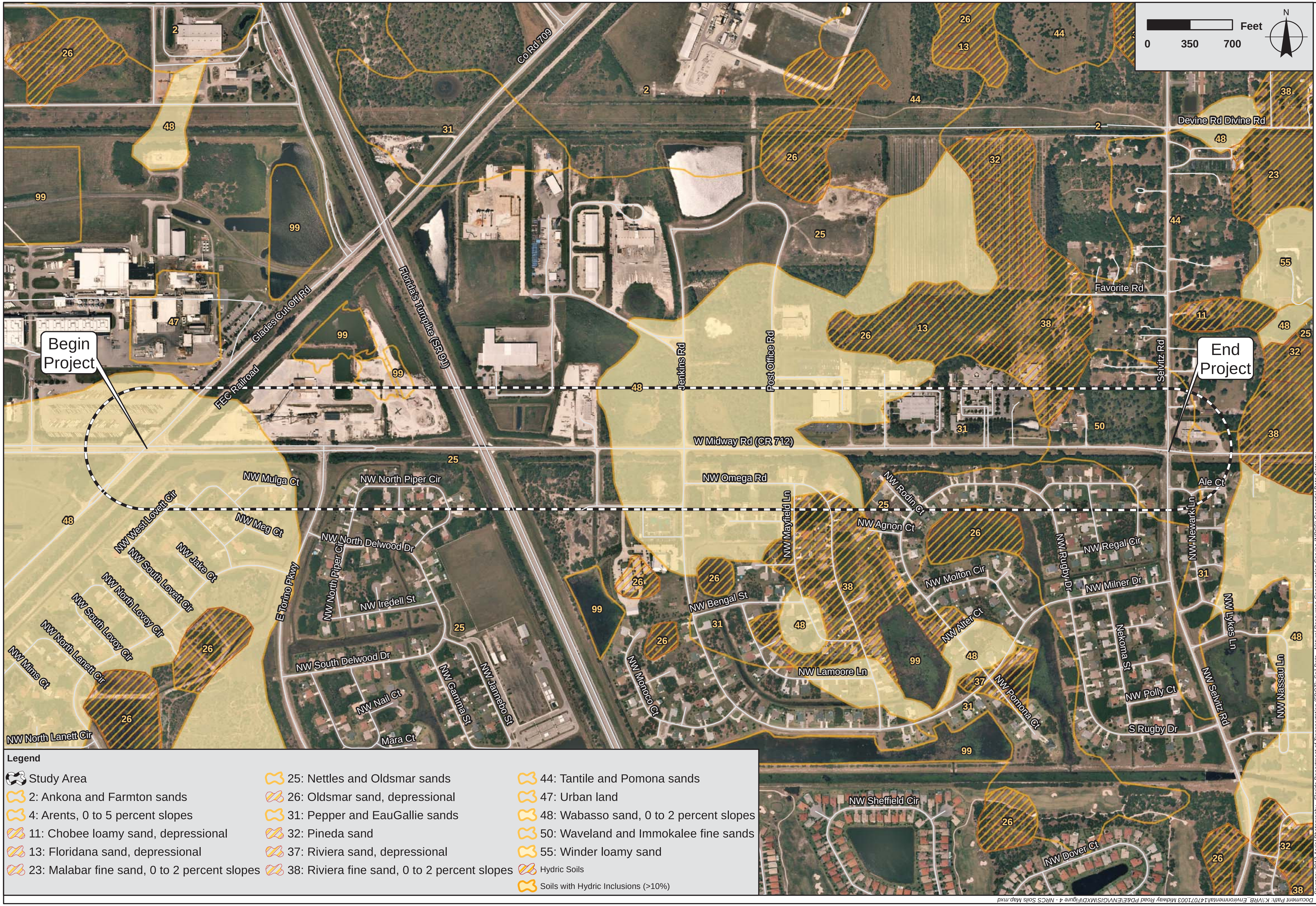
Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 1,000 feet

Figure 3

MAY 2016

FIGURE 4
NRCS SOILS MAP


Feet
0 350 700
N
Begin Project
End Project
W Midway Rd (CR 712)
Florida's Turnpike (SR 91)
FEC Railroad
Glades Cut Off Rd
Co Rd 709
Jenkins Rd
Post Office Rd
Selvitz Rd
Devine Rd Divine Rd
Favorite Rd
E Torino Pkwy
NW Mulga Ct
NW Meg Ct
NW Jake Ct
NW West Lovett Cir
NW South Lovett Cir
NW North Lovoy Cir
NW South Lovoy Cir
NW North Lanett Cir
NW Mims Ct
NW North Piper Cir
NW North Delwood Dr
NW Iredell St
NW South Delwood Dr
NW Nail Ct
Mara Ct
NW Gamma St
NW Jannebo St
NW Omega Rd
NW Mayfield Ln
NW Rodin Cir
NW Agnon Ct
NW Bengal St
NW Monaco Ct
NW Lamoore Ln
NW Alter Ct
NW Pomona Ct
NW Molton Cir
NW Rugby Dr
NW Regal Cir
NW Milner Dr
Nekoma St
NW Polly Ct
S Rugby Dr
NW Newark Ln
Ale Ct
NW Lykes Ln
NW Selvitz Rd
NW Nassau Ln
NW Sheffield Cir
NW Dover Ct
Legend
Study Area
2: Ankona and Farmton sands
4: Arents, 0 to 5 percent slopes
11: Chobee loamy sand, depressional
13: Floridana sand, depressional
23: Malabar fine sand, 0 to 2 percent slopes
25: Nettles and Oldsmar sands
26: Oldsmar sand, depressional
31: Pepper and EauGallie sands
32: Pineda sand
37: Riviera sand, depressional
38: Riviera fine sand, 0 to 2 percent slopes
44: Tantile and Pomona sands
47: Urban land
48: Wabasso sand, 0 to 2 percent slopes
50: Waveland and Immokalee fine sands
55: Winder loamy sand
Hydric Soils
Soils with Hydric Inclusions (>10%)

Sources: 2012 Aerial Photography - Florida Department of Transportation (FDOT); Soil Data - Natural Resources Conservation Service (NRCS) Geospatial Data Gateway

FDOT

Natural Resources Conservation Service (NRCS) Soils Map

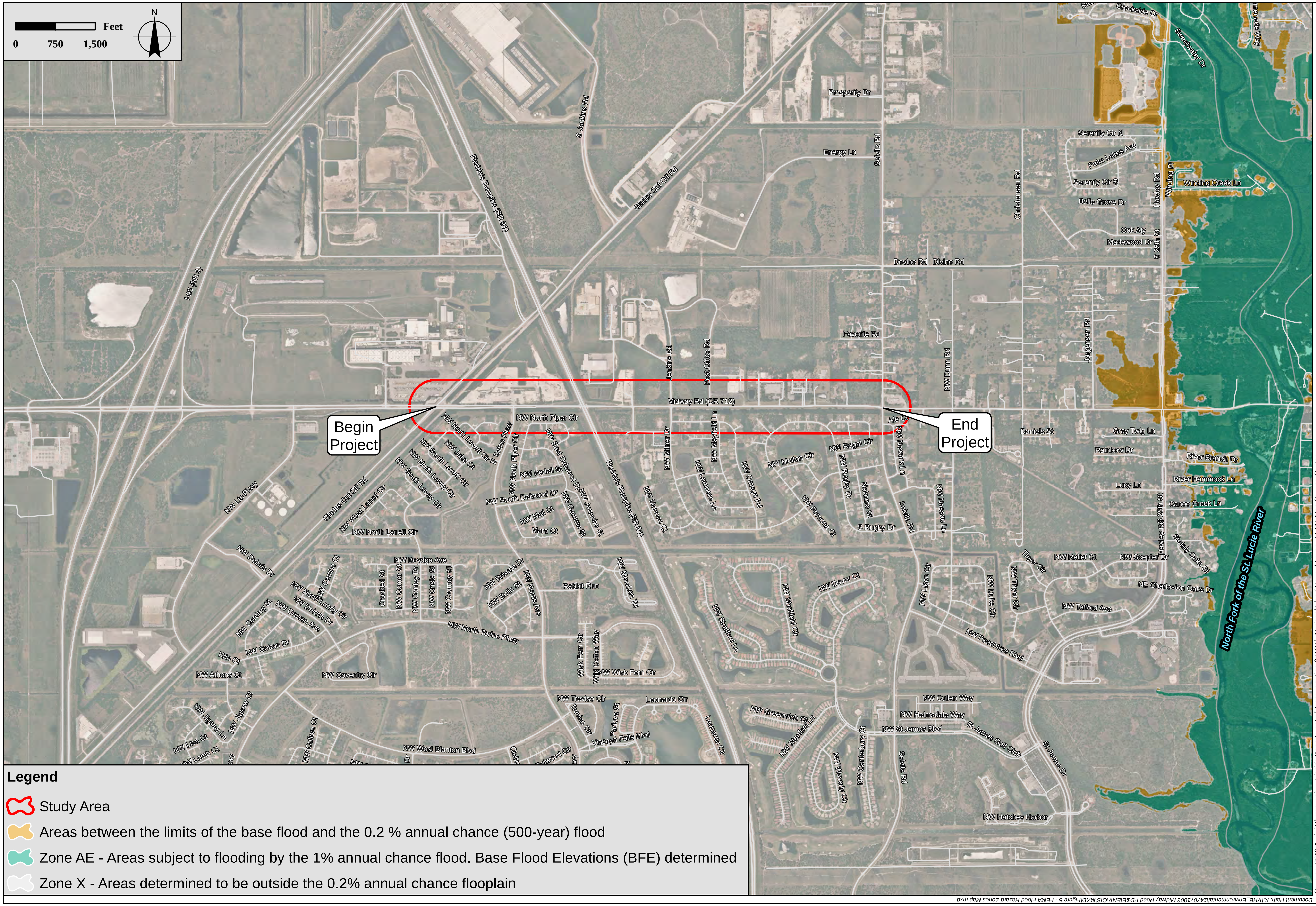
Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 700 feet

MAY 2016

FIGURE 4

FIGURE 5
FEMA FLOODZONE MAP



Sources: 2012 Aerial Photography - Florida Department of Transportation (FDOT); National Flood Hazard Layer - FEMA Map Service Center

FDOT

Federal Emergency Management Agency (FEMA) Flood Hazard Zones Map

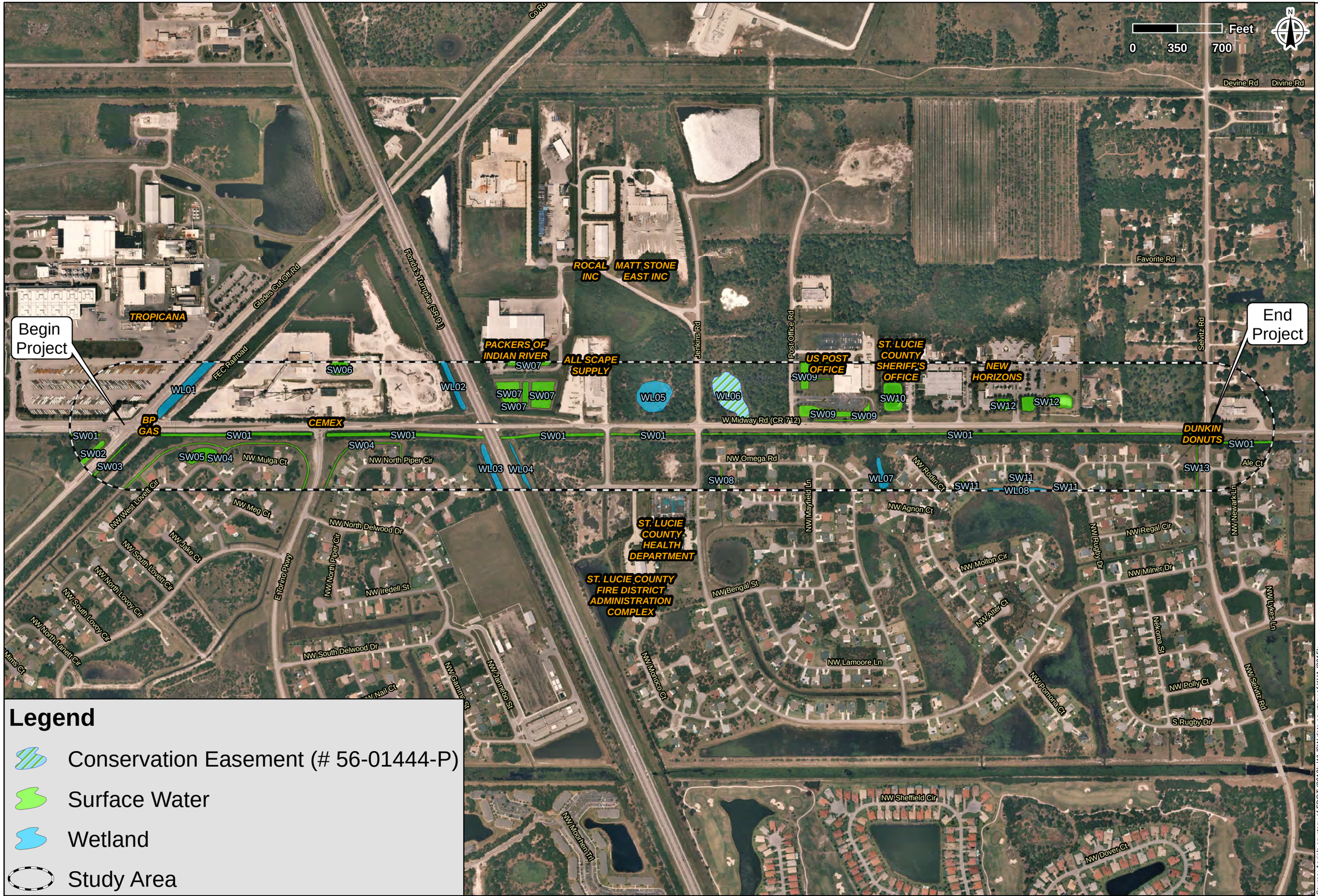
Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 1600 feet

MAY 2016

FIGURE 5

FIGURE 6
WETLAND AND SURFACE WATERS MAP



Legend

- Conservation Easement (# 56-01444-P)
- Surface Water
- Wetland
- Study Area

Source: Aerials courtesy of FDOT (2012); WLSW data courtesy of KHA (2015).

Document Path: K:\IVRE_Environmental\4707103 Midway Road PD&E\ENVGIS\MXD\Figure 6 - Wetlands and Surface Waters Map.mxd

FDOT

Wetlands and Surface Waters Map

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 700 feet

FIGURE 6

MAY 2016

FIGURE 7
LISTED SPECIES MAP

Label	Observation Description
1	Bald eagle landed from west of I-95
2	Sandhill crane foraging (multiple observations over duration of surveys)
3	Bald eagle passing over Station 2 (flight path west to east)
4	Sandhill crane foraging (multiple observations over duration of surveys)
5	American Kestrel perching (multiple observations over duration of surveys)
6	Potentially active gopher tortoise burrow
7	Active caracara nest
8	Observed bald eagle nest (FWC ID No. SL006)

Species observed consistently during surveys:

White ibis
Glossy ibis
Cattle egret
Great egret
Wood stork

Legend

- Study Area
- Listed Species Observed

FDOT

Listed Species Observation Map

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 1600 feet

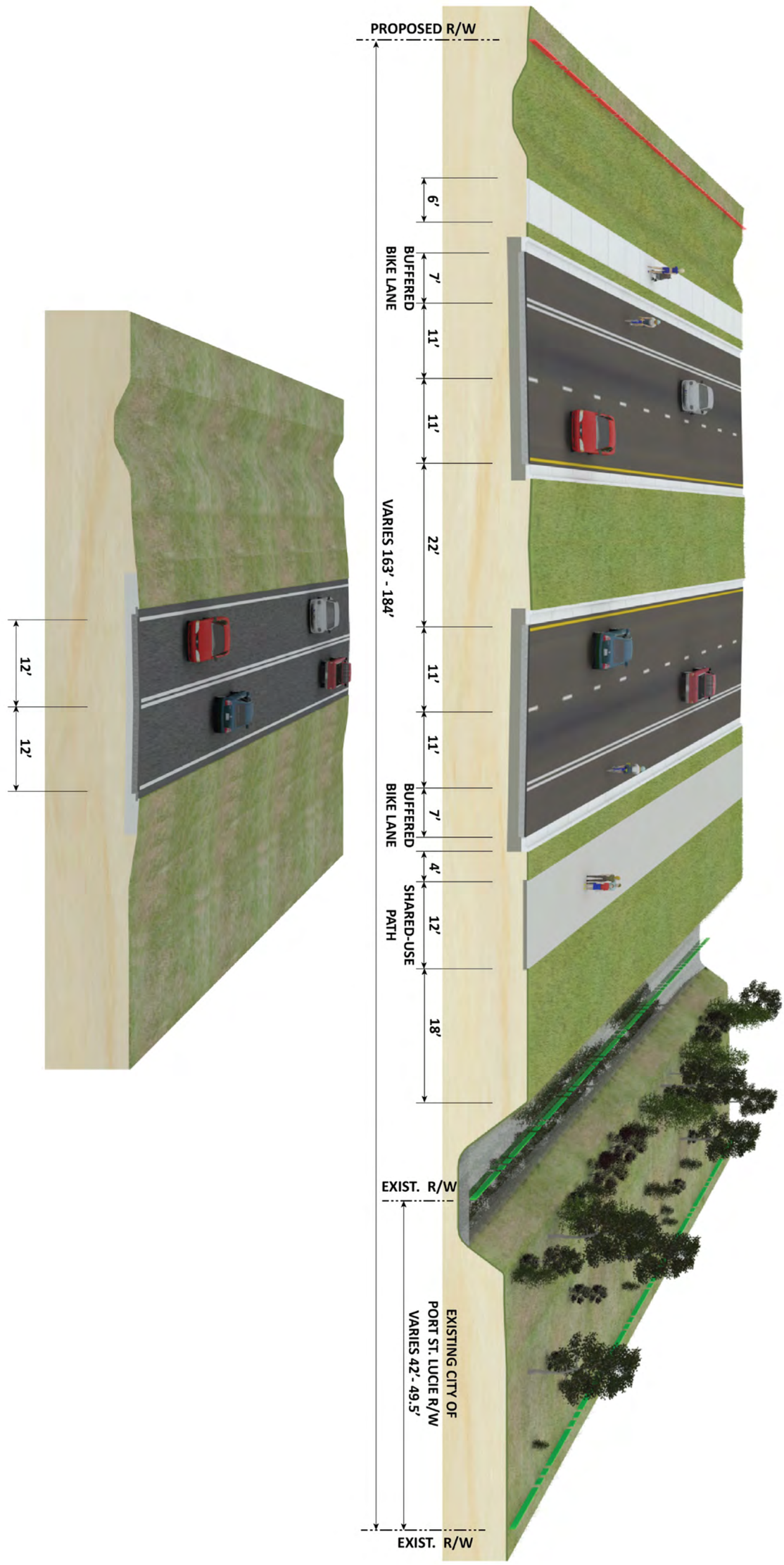
JUNE 2016

FIGURE 7

Sources: 2012 Aerial Photography - Florida Department of Transportation (FDOT)

Document Path: K:\IVRE_Environmental\47071003 Midway Road PD&E\ENVGIS\MXD\Figure 7 - Listed Species Map.mxd

APPENDIX A
TYPICAL SECTIONS AND ALTERNATIVES

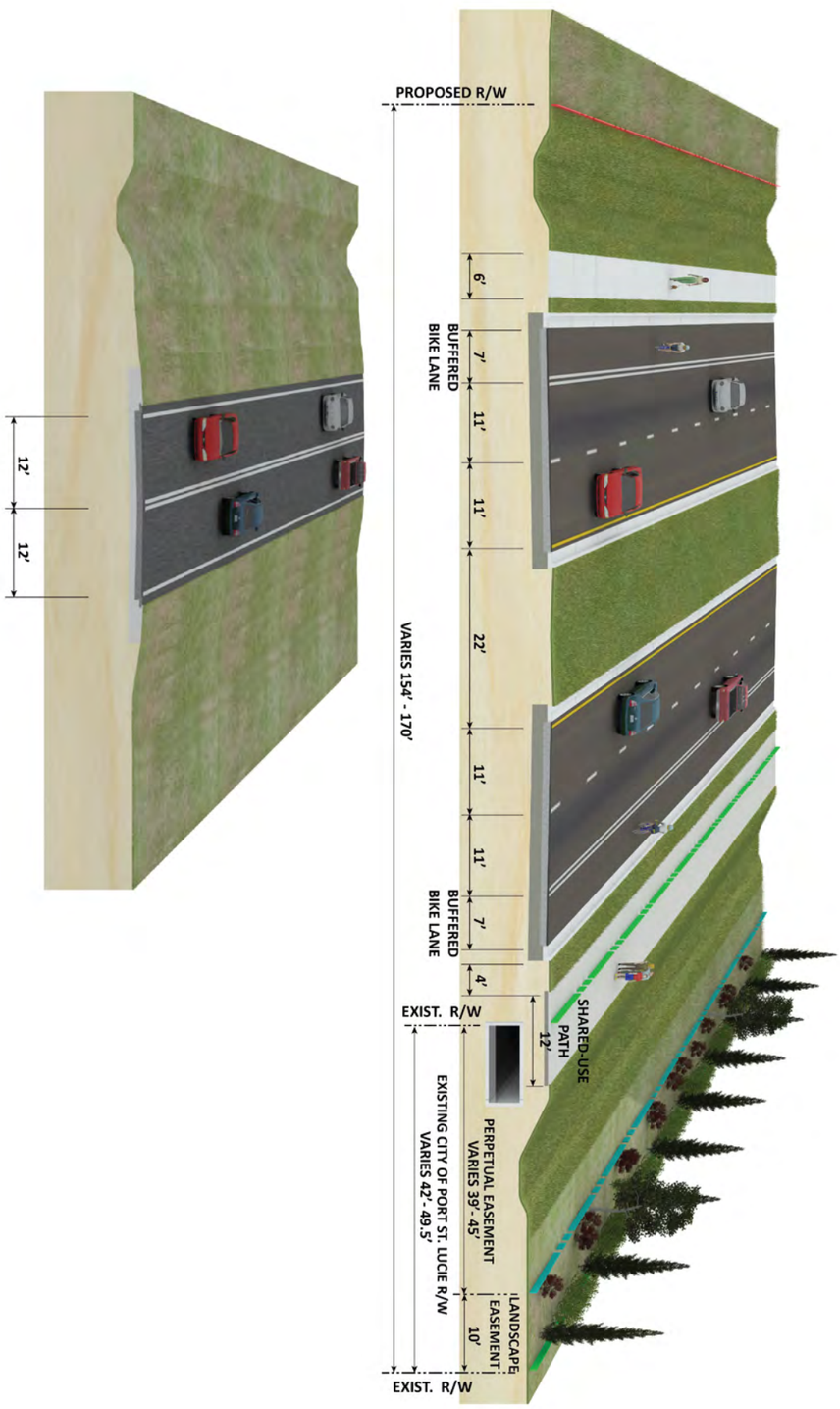


Alternative 1 - Canal Avoidance

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

Appendix A1	*MAY 2016*	*Not drawn to scale*

Document Path: K:\RB_Environmental\147071003 Midway Road PD&E\ENV\GIS\MXD\Appendix A1 Alt 1 Canal Avoidance.mxd



Document Path: K:\VRB_Environmental\147071003 Midway Road PD&E\ENV\GIS\MXD\Appendix A2 Alt 2 Box Culvert.mxd

Alternative 2 - Box Culvert

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

Appendix A2	*MAY 2016*	*Not drawn to scale*

APPENDIX B
FLORIDA'S NATURAL AREAS INVENTORY BIODIVERSITY MATRIX

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

Florida Natural Areas Inventory

Biodiversity Matrix Query Results

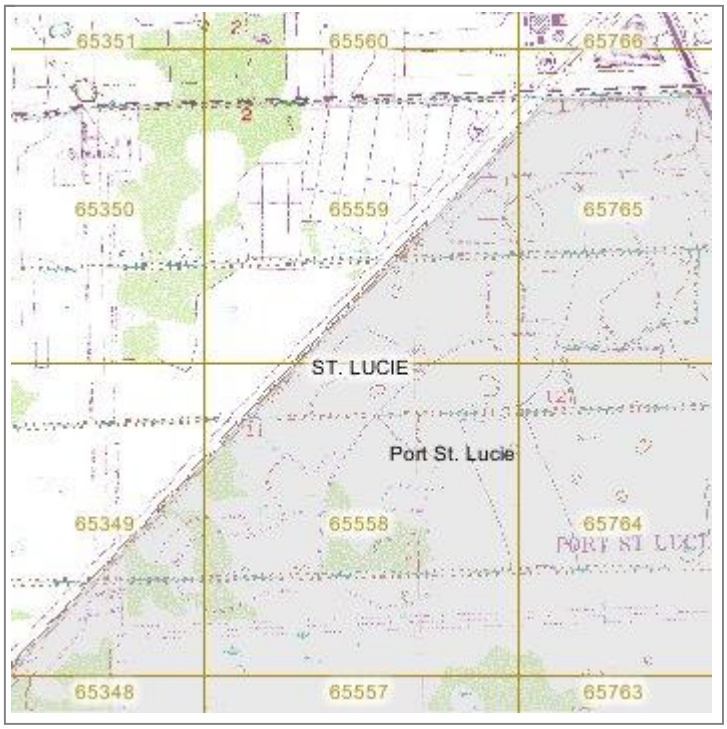
UNOFFICIAL REPORT

Created 9/30/2015

(Contact the FNAI Data Services Coordinator at 850.224.8207 for information on an official Standard Data Report)

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

Report for 8 Matrix Units: 65559 , 65560 , 65765 , 65766 , 65970 , 65971 , 66171 , 66172



Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

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.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

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.

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.

Matrix Unit ID: 65559

0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N
	G4	S2	LE	FE

Mycteria americana Wood Stork				

Matrix Unit ID: 65560
0 Documented Elements Found

0 Documented-Historic Elements Found

1 Likely Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mycteria americana Wood Stork	G4	S2	LE	FE

Matrix Unit ID: 65765
0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LE	FE

Matrix Unit ID: 65766
0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LE	FE

Matrix Unit ID: 65970
0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LE	FE

Matrix Unit ID: 65971

0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LE	FE

Matrix Unit ID: 66171

0 Documented Elements Found

0 Documented-Historic Elements Found

4 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Blackwater stream	G4	S3	N	N
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LE	FE
Trichechus manatus Manatee	G2	S2	LE	FE

Matrix Unit ID: 66172

0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Blackwater stream	G4	S3	N	N
Mycteria americana Wood Stork	G4	S2	LE	FE

Matrix Unit IDs: 65559 , 65560 , 65765 , 65766 , 65970 , 65971 , 66171 , 66172

17 Potential Elements Common to Any of the 8 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	SSC
Coelorachis tuberculosa Piedmont Jointgrass	G3	S3	N	LT
Conradina grandiflora Large-flowered Rosemary	G3	S3	N	LT
Corynorhinus rafinesquii Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi Eastern Indigo Snake	G3	S3	LT	FT
Glandularia maritima Coastal Vervain	G3	S3	N	LE

Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Lechea cernua Nodding Pinweed	G3	S3	N	LT
Linum carteri var. smallii Small's Flax	G2T2	S2	N	LE
Nemastylis floridana Celestial Lily	G2	S2	N	LE
Pituophis melanoleucus mugitus Florida Pine Snake	G4T3	S3	N	SSC
Polygala smallii Tiny Polygala	G1	S1	LE	LE
Pteroglossaspis ecristata Giant Orchid	G2G3	S2	N	LT
Rostrhamus sociabilis plumbeus Snail Kite	G4G5T2	S2	LE	FE
Sceloporus woodi Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani Sherman's Fox Squirrel	G5T3	S3	N	SSC
Trichechus manatus Manatee	G2	S2	LE	FE

APPENDIX C
EFFICIENT TRANSPORATION DECISION MAKING (ETDM) PROGRAMMING SUMMARY REPORT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JIM BOXOLD
SECRETARY

ETDM Summary Report

Project #14177 - Midway Road Widening

Programming Screen - Published on 05/27/2015

Printed on: 9/23/2015

Table of Contents

Introduction to Programming Screen Summary Report

The Programming Screen Summary Report shown below is a read-only version of information contained in the Programming Screen Summary Report generated by the ETDM Coordinator for the selected project after completion of the ETAT Programming Screen review. The purpose of the Programming Screen Summary Report is to summarize the results of the ETAT Programming Screen review of the project; provide details concerning agency comments about potential effects to natural, cultural, and community resources; and provide additional documentation of activities related to the Programming Phase for the project. Available information for a Programming Screen Summary Report includes:

- Screening Summary Report chart
- Project Description information (including a summary description of the project, a summary of public comments on the project, and community-desired features identified during public involvement activities)
- Purpose and Need information (including the Purpose and Need Statement and the results of agency reviews of the project Purpose and Need)
- Alternative-specific information, consisting of descriptions of each alternative and associated road segments; an overview of ETAT Programming Screen reviews for each alternative; and agency comments concerning potential effects and degree of effect, by issue, to natural, cultural, and community resources.
- Project Scope information, consisting of general project commitments resulting from the ETAT Programming Screen review, permits, and technical studies required (if any)
- Class of Action determined for the project
- Dispute Resolution Activity Log (if any)

The legend for the Degree of Effect chart is provided in an appendix to the report.

For complete documentation of the project record, also see the GIS Analysis Results Report published on the same date as the Programming Screen Summary Report.

#14177 Midway Road Widening

District: District 4
County: St. Lucie
Planning Organization: FDOT District 4
Plan ID: Not Available
Federal Involvement: Federal Funding

Phase: Programming Screen
From: Glades Cut-Off Rd
To: Selvitz Road
Financial Management No.: 23144032201

Contact Information: Vanita Saini (954) 777-4468 vanita.saini@dot.state.fl.us
Snapshot Data From: Summary Report Re-Published 5/27/2015
Issues and Categories are reflective of what was in place at the time of the screening event.

	Social and Economic							Cultural			Natural					Physical					
	Land Use Changes	Social	Relocation Potential	Farmlands	Aesthetic Effects	Economic	Mobility	Section 4(f) Potential	Historic and Archaeological Sites	Recreation Areas	Wetlands	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
Alternative #1 - Alternative 1 From: Glades Cut-Off Rd To: Selvitz Road *Re-Published: 05/27/2015 Reviewed from 05/23/2014 to 07/07/2014)*	2	2	2	0	2	1	1	3	3	0	3	2	0	2	0	0	2	3	N/A	N/A	0

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: N/A *N/A / No Involvement* assigned 06/17/2014 by Anita Barnett, National Park Service

Coordination Document: No Involvement

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 0 *None* assigned 07/01/2014 by Lauren P. Milligan, FL Department of Environmental Protection

Coordination Document: No Involvement

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 0 *None* assigned 07/01/2014 by Mindy Parrott, South Florida Water Management District

Coordination Document: Permit Required
Coordination Document Comments:
An ERP is required.

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:
Effects to Recreation, Coastal Resources and Floodplains are not anticipated based on SFWMD's review.

Additional Comments (optional):
An ERP is required.

CLC Commitments and Recommendations:

ETAT Reviews and Coordinator Summary: Natural

Wetlands

Project Effects

Coordinator Summary Degree of Effect: 3 *Moderate* assigned 09/03/2014 by FDOT District 4

Comments:
Based on the agency comments and the GIS analysis results, there are a total of 6.7 acres of palustrine wetlands with both forested and scrub-shrub wetlands, and Canal 103 within the 500-ft buffer of the project corridor. The wetlands, surface waters, and natural areas along the corridor provide suitable habitat for wildlife, aquifer recharge, natural filters for pollutants, essential carbon export/import functions, flood water attenuation and storage, and contributions to the ecosystem through food-web productivity, among many other functions.

The project will primarily utilize the existing right of way. However, additional right of way may be identified for acquisition during the PD&E Study to provide offsite ponds for stormwater management. Where practicable, any necessary stormwater management facilities will be located within previously disturbed, upland sites and outside of environmentally sensitive areas. A Wetlands Evaluation and Report (WER) will be completed during the PD&E phase. The WER will provide habitat characterizations of the existing wetlands within the corridor and the vicinity; document the existing conditions of the resources; evaluate direct, indirect, cumulative, and secondary impacts; and, make recommendations for sequentially avoiding, minimizing and/or mitigating resource impacts.
FDOT will continue coordination with regulatory agencies throughout the development of the project to address potential environmental issues and to ensure wetland impacts are sequentially avoided and minimized to the greatest extent practicable. Agency coordination discussions will also include the design of the proposed stormwater system and the requirements for stormwater treatment. FDOT will obtain an environmental resource permit (ERP) during final design and provide compensatory mitigation for any unavoidable impacts.

Stormwater Pollution Prevention Plans (SWPPP) will be prepared during the design phase and incorporated into the construction contract to ensure that Contractor implements BMPs to control stormwater runoff and other potential water quality impacts. The SWPPP will be prepared in compliance with state and federal standards. Furthermore, the Contractor will be required to obtain an FDEP NPDES permit. A preconstruction meeting will be held with the project Contractor to review construction requirements in environmentally sensitive areas; to delineate the wetlands limits; and, to reiterate the requirement for the use of Best Management Practices to minimize temporary construction impacts.
Based on ETAT comments and a review of the EST, FDOT agrees with South Florida Water Management District, US Army Corps of Engineers and the National Marine Fisheries Service, and assigns a summary degree of effect of Moderate to Wetlands.

Degree of Effect: 3 *Moderate* assigned 05/28/2014 by Brandon Howard, National Marine Fisheries Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Based on our review of the information provided on the EST website, GIS-based effects analysis on wetlands and interpretation of aerial photographs, NOAA's National Marine Fisheries Service (NMFS) has determined that emergent wetlands and ditches are located within the project corridor. These wetlands range from low to moderate in quality.

Comments on Effects to Resources:

The wetlands along the proposed roadway expansion provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support these aquatic ecosystems. Through hydrological connections, these wetlands also contribute plant material and other useable nutrients (both dissolved and particulate organic matter) into aquatic food webs that include recreationally, commercially, and ecologically important species within downstream estuaries. If wetland impacts are unavoidable, sequential minimization and mitigation should take place.

In addition to the direct impacts from filling wetlands, construction activities may impact adjacent wetlands through sedimentation and runoff.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 2 *Minimal* assigned 07/07/2014 by Maher Budeir, US Environmental Protection Agency

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

1.7 Acres of wetland within 200 foot buffer

Comments on Effects to Resources:

The design of the project including the alignemnt and the foot print of the proposed project should be developed in a manner that will avoid impact on the wetland resource. Unavoidable impact should be fully mitigated.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 3 *Moderate* assigned 06/24/2014 by Garett Lips, US Army Corps of Engineers

Coordination Document: Permit Required

Direct Effects

Identified Resources and Level of Importance:

The areas adjacent to the corridor have residential, commercial, and undeveloped lands with both uplands and wetlands. There areapproximately 1.7 acres of freshwaterpalustrine wetlands with bothforestedand scrub-shrub wetlands. The project area includes Canal 103 which is located along the south side of Midway Road throughout the project limits. The wetlands and natural environment provide sustainable habitat for wildlife,aquifer recharge, natural filters for pollutants, essentialcarbon export/import functions, flood water attenuation and storage, and contributions to the ecosystem through food-web productivity, among many other functions.

Comments on Effects to Resources:

Filling wetlands reduces the ability of the natural environment to provide: sustainable habitat for wildlife,aquifer recharge, natural filters for pollutants, essentialcarbon export/import functions, flood water attenuation and storage, and contributions to the ecosystem through food-web productivity, among many other functions.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 2 *Minimal* assigned 07/01/2014 by Lauren P. Milligan, FL Department of Environmental Protection

Coordination Document: Permit Required

Direct Effects

Identified Resources and Level of Importance:

The National Wetlands Inventory GIS report indicates that there are a total of 6.7 acres of palustrine wetlands within the 500-ft. project buffer zone.

Comments on Effects to Resources:

The proposed project will require an environmental resource permit (ERP) from the South Florida Water Management District for stormwater management and any wetland impacts. The ERP applicant will be required to eliminate or reduce the proposed wetland resource impacts of roadway construction to the greatest extent practicable.
- Minimization should emphasize avoidance-oriented corridor alignments, wetland fill reductions via pile bridging and steep/vertically retained side slopes, and median width reductions within safety limits.
- Wetlands should not be displaced by the installation of stormwater conveyance and treatment swales; compensatory treatment in adjacent uplands is the preferred alternative.
- After avoidance and minimization have been exhausted, mitigation must be proposed to offset the adverse impacts of the project to existing wetland functions and values. Significant attention is given to any forested wetland systems, which are difficult to mitigate.
- The cumulative impacts of concurrent and future transportation improvement projects in the vicinity of the subject project should also be addressed.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 2 *Minimal* assigned 05/29/2014 by John Wrublik, US Fish and Wildlife Service

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

Wetlands

Comments on Effects to Resources:

Wetlands provide important habitat for fish and wildlife. According to data in the Environmental Screening tool, wetlands occur within the project area. We recommend that the project be designed to avoid these valuable resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provides mitigation that fully compensates for the loss of wetland resources.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 3 *Moderate* assigned 07/01/2014 by Mindy Parrott, South Florida Water Management District

Coordination Document: Permit Required

Direct Effects

Identified Resources and Level of Importance:

Wetlands and surface water exist within and adjacent to the project. These features may provide habitat for a variety of wetland dependent wildlife, including listed species such as the woodstork.

Comments on Effects to Resources:

The project may require dreding, filling, or crossing of wetlands and surface waters to accomodate road widening and the required stormwater management facilities.

Additional Comments (optional):

CLC Commitments and Recommendations:

Water Quality and Quantity

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 09/03/2014 by FDOT District 4

Comments:

A review of the GIS Analysis and ETAT agency comments identified Canal 103, 2 limited drinking water wells, 6 active onsite sewage facilities, 2 verified impaired Florida Waters, and 4 US EPA National Pollutant Discharge Elimination System permits. The project is also within the Surficial Aquifer System. The project currently discharges to C-103, which connects to the North Fork of the St. Lucie River. The North Fork of the St. Lucie River is an Outstanding Florida Water and portions of it are an Aquatic Preserve.

FDOT acknowledges the ETAT agency's comments regarding the project's potential permit requirements and will obtain all required permits during final design. FDOT also acknowledges the ETAT's agency's concerns regarding the project's potential impacts to wetlands/surface waters and water quality. These concerns are addressed in more detail within each of the corresponding sections within this document. A Wetlands Evaluation and a Water Quality Impact Evaluation (WQIE) will be conducted during Project Development. FDOT will continue coordination with regulatory agencies, such as the North St. Lucie River Water Control District, throughout the development of the project to ensure all potential environmental issues are fully resolved. Additionally, water qualityimpact evaluationshould be conducted to ensure no impact on water quality in Canal 103.

Storm water runoff will increase in quantity as a result of the additional impervious area associated with the proposed widening. FDOT will evaluate the existing stormwater system and the stormwater compensation needed for the project during the PD&E phase. Coordination will be maintained with each agency for the design of any needed stormwater system improvements and the requirements for stormwater treatment. To minimize potential construction-related impacts, Stormwater Pollution Prevention Plans (SWPPP) will be prepared in compliance with state and federal standards and incorporated into the construction contract. The Contractor will be required adhere to the SWPPP and implement Best Management Practices (BMPs) to control stormwater runoff and other potential water quality impacts during construction. The SWPPP will be prepared in compliance with state and federal standards. Furthermore, the Florida Department of Transportation will be required to obtain an Environmental Resource Permit (ERP) or permit modification. During Construction, a water use permit from the SFWMD may be required. The project shall be designed to meet the SFWMD water quantity and quality criteria in ERP Applicant's Handbook Volume I and II.

Based on ETAT comments, FDOT agrees with the US Environmental Protection Agency, FL Department of Environmental Protection and South Florida Water Management District and assigns a summary degree of effect of Minimal to Water Quality and Quantity.

Degree of Effect: 2 *Minimal* assigned 07/01/2014 by Mindy Parrott, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit (56-00833-S) exists for Midway Road from Selvitz to 25th Street. This permit could be modified to include the project.

Direct Effects

Identified Resources and Level of Importance:

The project currently discharges to C-103, which connects to the North Fork of the St. Lucie River. The North Fork of the St. Lucie River is an Outstanding Florida Water and portions of it are an Aquatic Preserve.

Comments on Effects to Resources:
The project must be designed to meet the SFWMD water quantity and quality criteria inERP Applicant's Handbook Volume I and II.

Additional Comments (optional):
An Environmental Resource Permit (56-00833-S) exists for Midway Road from Selvitz to 25th Street. This permit could be modified to include the project.

CLC Commitments and Recommendations:

Degree of Effect: 2 *Minimal* assigned 07/07/2014 by Maher Budeir, US Environmental Protection Agency

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects
Identified Resources and Level of Importance:
Canal 103

Comments on Effects to Resources:
Storm water runoff will increase in quantity due the increased impervious surface. Impact on water quantity and pond siting should be fully assessed. Additionally water qualityimpact evaluationshould be conducted to ensure no impact on water quality in Canal 103

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 2 *Minimal* assigned 07/01/2014 by Lauren P. Milligan, FL Department of Environmental Protection

Coordination Document: Permit Required

Direct Effects
Identified Resources and Level of Importance:
Increased stormwater runoff carrying oils, greases, metals, sediment, and other pollutants from the increased impervious surface would be of concern. Natural resource impacts within and adjacent to the proposed road right-of-way will likely include alteration of the existing surface water hydrology and natural drainage patterns, and reduction in flood attenuation capacity of area creeks, ditches, and sloughs as a result of increased impervious surface within the watershed.

Comments on Effects to Resources:
Every effort should be made to maximize the treatment of stormwater runoff from the proposed road project to prevent ground and surface water contamination. Stormwater treatment should be designed to maintain the natural predevelopment hydroperiod and water quality, as well as to protect the natural functions of adjacent wetlands. We recommend that the PD&E study include an evaluation of existing stormwater treatment adequacy and details on the future stormwater treatment facilities. Retro-fitting of stormwater conveyance systems would help reduce impacts to water quality.

Additional Comments (optional):

CLC Commitments and Recommendations:

Floodplains

Project Effects

Coordinator Summary Degree of Effect: 0 *None* assigned 09/03/2014 by FDOT District 4

Comments:
A GIS review of the FEMA Floodplain identified that the project is within Zone X. FDOT acknowledges South Florida Water Management's concern on acquiring appropriate permits and will coordinate with the appropriate agencies during project development and design. FDOT will continue coordination with regulatory agencies throughout the development of the project to ensure all potential environmental issues, if any, are fully resolved. Stormwater Pollution Prevention Plans (SWPPP) will be prepared during the design phase and incorporated into the construction contract to ensure that Contractor implements Best Management Practices (BMPs) to control stormwater runoff and other potential water quality impacts. The SWPPP will be prepared in compliance with state and federal standards. Furthermore, the Contractor will be required to obtain an FDEP NPDES permit.
Based on a review of the EST and the ETAT agency's comments, FDOT agrees with the US Environmental Protection Agency and the South Florida Water Management District and assigns a summary degree of effect of None to Floodplain.

Degree of Effect: 0 *None* assigned 07/07/2014 by Maher Budeir, US Environmental Protection Agency

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 0 *None* assigned 07/01/2014 by Mindy Parrott, South Florida Water Management District

Coordination Document: Permit Required
Coordination Document Comments:
An ERP is required.

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:
Effects to Recreation, Coastal Resources and Floodplains are not anticipated based on SFWMD's review.

Additional Comments (optional):
An ERP is required.

CLC Commitments and Recommendations:

Wildlife and Habitat

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 09/03/2014 by FDOT District 4

Comments:
According to the GIS Analysis results and ETAT agency comments,, the project area is dominated by a mix of commercial, industrial, and residential development, with 68.77% classified as High or Low Intensity Urban, and another 6.86% as Transportation (roads and rail). Other land cover types in the assessment area include Mesic Flatwoods (15.90%, 33.5 acres), Improved Pasture (4.32%, 9.1 acres), Freshwater Marshes (3.03%, 6.4 acres), Rural Lands (0.95%, 2.0 acres), and Exotic Plants (0.16%, 0.3 acres).
The project area is within U.S. Fish and Wildlife Service Consultation Areas for caracara, Florida grasshopper sparrow, red-cockaded woodpecker, scrub jay, and snail kite. The corridor is also within four wood stork Core Foraging Areas (CFAs). There is no Critical Habitat for listed species or bald eagle nest within the one-mile buffer. Based on range and preferred habitat type, the following species listed by the Federal Endangered Species Act and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), State-Threatened (ST), or State Species of Special Concern (SSC) may occur along the project area: gopher frog (SSC), gopher tortoise (ST), American alligator (FT based on similarity of appearance to American crocodile), Eastern indigo snake (FT), Florida pine snake (SSC), Audubon's crested caracara (FT), Florida burrowing owl (SSC), Southeastern American kestrel (ST), Florida sandhill crane (ST), least tern (ST), wood stork (FE), limpkin (SSC), little blue heron (SSC), tricolored heron (SSC), roseate spoonbill (SSC), snowy egret (SSC), white ibis (SSC), and Sherman's fox squirrel (SSC). FWC's Potential Habitat Richness classifications within the 500 ft buffer include 2.32% moderately high and 27.67% medium. In the Florida Natural Areas Inventory Critical Lands and Waters Identification Project (CLIP), 14.15% of the assessment area is Priority 2 (high) for Biodiversity Resources. Also in CLIP, 0.63% ranks Moderately High for Rare Species Habitat Conservation Priorities.
FDOT acknowledges the agencies' concerns regarding the project's potential impacts to wildlife and habitat. An Endangered Species Biological Assessment (ESBA) and wetland evaluation (as described in the previous Wetlands issue) will be conducted during the PD&E Study. The ESBA will include wildlife surveys, plant community mapping, habitat characterizations, existing resources condition descriptions, and recommendations for sequentially avoiding, minimizing and mitigating direct, secondary, and cumulative effects on wildlife and habitat resources. The ESBA report will be prepared in compliance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 *et seq.*) and in accordance with Part 2, Chapter 27 of the FDOT PD&E Manual.
Primary wildlife issues associated with this project include: potential adverse effects to a moderate number of species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened or Species of Special Concern; potential water quality degradation as a result of additional stormwater runoff from the expanded roadway surface draining into adjacent waterways and wetlands; and potential for increased wildlife roadkill. FDOT will coordinate with the ETAT agencies throughout project development so that the final design of the project, including any offsite drainage ponds, will avoid and minimize wildlife and habitat impacts to the greatest extent practicable. Drainage retention areas and

equipment staging areas will be evaluated and sited to avoid habitat destruction or degradation to the greatest extent practicable. If impacts are determined to be unavoidable, a detailed compensatory mitigation plan will be prepared. In addition, if required, an appropriate wetland mitigation plan will be prepared (as described in the previous Wetlands issue), including type for type restoration, enhancement or creation within the same wood stork CFA as any wetland impacts, where practicable, to minimize wood stork foraging habitat loss.
Based on the ETAT comments, FDOT agrees with Florida Fish and Wildlife Conservation Commission and US Fish and Wildlife Services and assigns a summary degree of effect of Minimal to Wildlife and Habitat.

Degree of Effect: 2 *Minimal* assigned 07/01/2014 by Scott Sanders, FL Fish and Wildlife Conservation Commission

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

The Office of Conservation Planning Services of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated an agency review of ETDM #14177, St. Lucie County, and provides the following comments related to potential effects to fish and wildlife resources on this Programming Phase project.

The Project Description Summary states that this project involves the evaluation of alternatives to widen Midway Road (CR 712) from two to four lanes between Glades Cut-Off Road and Selvitz Road, a distance of approximately 1.6 miles. The Project Description did not address the potential need for new Drainage Retention Areas (DRAs) to handle the additional stormwater runoff from the expanded roadway.

The project area was evaluated for potential fish, wildlife, and habitat resources within 500 feet of the proposed alignment. Our assessment reveals that the project area is dominated by a mix of commercial, industrial, and residential development, with 68.77% classified as High or Low Intensity Urban, and another 6.86% as Transportation (roads and rail). Other land cover types in the assessment area include Mesic Flatwoods (15.90%, 33.5 acres), Improved Pasture (4.32%, 9.1 acres), Freshwater Marshes (3.03%, 6.4 acres), Rural Lands (0.95%, 2.0 acres), and Exotic Plants (0.16%, 0.3 acres).

Based on range and preferred habitat type, the following species listed by the Federal Endangered Species Act and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), State-Threatened (ST), or State Species of Special Concern (SSC) may occur along the project area: gopher frog (SSC), gopher tortoise (ST), American alligator (FT based on similarity of appearance to American crocodile), Eastern indigo snake (FT), Florida pine snake (SSC), Audubon's crested caracara (FT), Florida burrowing owl (SSC), Southeastern American kestrel (ST), Florida sandhill crane (ST), least tern (ST), wood stork (FE), limpkin (SSC), little blue heron (SSC), tricolored heron (SSC), roseate spoonbill (SSC), snowy egret (SSC), white ibis (SSC), and Sherman's fox squirrel (SSC).

The GIS analysis revealed several specific characteristics associated with lands along the project alignment that provide an indication of potential habitat quality or sensitivity that will require field studies to verify the presence or absence of listed wildlife species and the quality of wildlife habitat resources. In the FWC's Potential Habitat Richness classification, 2.32% of the assessment area is ranked moderately high, while 27.67% is ranked medium. In the Florida Natural Areas Inventory Critical Lands and Waters Identification Project (CLIP), 14.15% of the assessment area is Priority 2 (high) for Biodiversity Resources. Also in CLIP, 0.63% ranks Moderately High for Rare Species Habitat Conservation Priorities. The project area is within U.S. Fish and Wildlife Service Consultation Areas for Caracara, Florida Grasshopper Sparrow, Red-cockaded Woodpecker, Scrub Jay, and Snail Kite, and is within the core foraging area of four wood stork colonies.

Primary wildlife issues associated with this project include: potential adverse effects to a moderate number of species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened or Species of Special Concern; potential water quality degradation as a result of additional stormwater runoff from the expanded roadway surface draining into adjacent waterways and wetlands; and potential for increased wildlife roadkill. New DRAs outside the ROW should be sited to avoid undisturbed natural habitats.

Comments on Effects to Resources:

Based on the project information provided, we believe that direct and indirect effects of this project could be minimal, provided that all roadway construction is confined to the existing ROW, any new DRAs are not constructed within areas of natural habitat, and degradation of adjacent or downstream water quality is avoided via inclusion of Best Management Practices in the project design.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 2 *Minimal* assigned 05/29/2014 by John Wrublik, US Fish and Wildlife Service

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

Federally listed species and fish and wildlife resources

Comments on Effects to Resources:

Federally-listed species -

The Service has reviewed our Geographic Information Systems (GIS) database for recorded locations of Federally listed threatened and endangered species on or adjacent to the project study area. The GIS database is a compilation of data received from several sources. Based on review of our GIS database, the Service notes that the following Federally listed species may occur in or near the project area.

Wood Stork

The project corridor is located in the Core Foraging Areas (CFA)(within 18.6 miles) of three active nesting colonies of the endangered wood stork (*Mycteria americana*). The Service believes that the loss of wetlands within a CFA due to an action could result in the loss of foraging habitat for the wood stork. To minimize adverse effects to the wood stork, we recommend that any lost foraging habitat resulting from the project be replaced within the CFA of the affected nesting colony. Moreover, wetlands provided as mitigation should adequately replace the wetland functions lost as a result of the action. The Service does not consider the preservation of wetlands, by itself, as adequate compensation for impacts to wood stork foraging habitat, because the habitat lost is not replaced. Accordingly, any wetland mitigation plan proposed should include a restoration, enhancement, or creation component. In some cases, the Service accepts wetlands compensation located outside the CFA of the affected wood stork nesting colony. Specifically, wetland credits purchased from a "Service Approved" mitigation bank located outside of the CFA would be acceptable to the Service, provided that the impacted wetlands occur within the permitted service area of the bank.

For projects that impact 5 or more acres of wood stork foraging habitat, the Service requires a functional assessment be conducted using our "Wood Stork Foraging Analysis Methodology" (Methodology) on the foraging habitat to be impacted and the foraging habitat provided as mitigation. The Methodology can be found at: http://www.fws.gov/verobeach/ListedSpeciesBirds.html .

Florida Scrub-Jay

The project occurs within the geographic range of the threatened Florida Scrub-Jay (*Aphelocoma coerulescens*). If suitable habitat occurs in the project corridor, we recommend that surveys based on Service protocol be conducted to determine the status of the Florida scrub-jay in the project area. The Service's Florida scrub-jay survey protocol can be found at: http://www.fws.gov/verobeach/ListedSpeciesBirds.html .

Audubon's crested caracara

The project occurs within the geographic range of the threatened Audubon's crested caracara (*Polyborus cheriway = Polyborus plancus audubonii*). If suitable habitat occurs in or near the project corridor, we recommend that nest surveys based on Service protocol be conducted to determine the status of caracara nesting in the project area. The Service's caracara nest survey guidance can be found at: http://www.fws.gov/verobeach /ListedSpeciesBirds.html

The Service believes that the following federally listed species have the potential to occur in or near the project site: wood stork, Audubon's crested caracara, Florida scrub-jay, Eastern indigo snake (*Drymarchon couperi = Drymarchon corais couperi*), and Federally listed plants in St. Lucie County at http://ecos.fws.gov/ ipac/. Accordingly, the Service recommends that the Florida Department of Transportation (FDOT) prepare a Biological Assessment for the project (as required by 50 CFR 402.12) during the FDOT's Project Development and Environment process.

Fish and Wildlife Resources

Wetlands provide important habitat for fish and wildlife. According to data in the Environmental Screening tool, wetlands occur within the project area. We recommend that the project be designed to avoid these valuable resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provides mitigation that fully compensates for the loss of wetland resources.

Additional Comments (optional):

CLC Commitments and Recommendations:

Coastal and Marine

Project Effects

Coordinator Summary Degree of Effect: 0 *None* assigned 09/03/2014 by FDOT District 4

Comments:
Based on a review of relevant GIS layers, there are no coastal and marine facilities within the project vicinity. FDOT acknowledges the ETAT agency's comments on wetlands. These concerns are addressed in detail within the corresponding sections below. A Wetlands Evaluation Report (WER) will be prepared during the PD&E phase. The report will provide habitat characterization of the existing wetlands within the corridor and the vicinity, document the existing conditions of the resources, and make recommendations for sequentially avoiding, minimizing and mitigating resource impacts.

Stormwater Pollution Prevention Plans (SWPPP) will be prepared during the design phase and incorporated into the construction contract to ensure that Contractor implements Best Management Practices (BMPs) to control stormwater runoff and other potential water quality impacts. The SWPPP will be prepared in compliance with state and federal standards. Furthermore, the Contractor will be required to obtain an FDEP NPDES permit.

If during the PD&E and/or Design Phase, wetland impacts are determined to be unavoidable, a detailed mitigation plan will be prepared. FDOT will continue coordination with regulatory agencies throughout the development of the project to ensure all potential environmental issues are fully addressed and resolved.

Based on the ETAT comments and a review of the EST GIS, FDOT assigns a summary degree of effect of None to Coastal and Marine.

Degree of Effect: 0 *None* assigned 05/28/2014 by Brandon Howard, National Marine Fisheries Service

Coordination Document: No Involvement

Direct Effects
Identified Resources and Level of Importance:
Based on our review of the information provided on the EST website, GIS-based effects analysis on wetlands and interpretation of aerial photographs, NOAA's National Marine Fisheries Service (NMFS) has determined that emergent wetlands and ditches are located within the project corridor. These wetlands range from low to moderate in quality.

Comments on Effects to Resources:
The wetlands along the proposed roadway expansion provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support these aquatic ecosystems. Through hydrological connections, these wetlands also contribute plant material and other useable nutrients (both dissolved and particulate organic matter) into aquatic food webs that include recreationally, commercially, and ecologically important species within downstream estuaries. If wetland impacts are unavoidable, sequential minimization and mitigation should take place.

In addition to the direct impacts from filling wetlands, construction activities may impact adjacent wetlands through sedimentation and runoff.

Additional Comments (optional):

CLC Commitments and Recommendations:

Degree of Effect: 0 *None* assigned 07/01/2014 by Mindy Parrott, South Florida Water Management District

Coordination Document: Permit Required
Coordination Document Comments:
An ERP is required.

Direct Effects
Identified Resources and Level of Importance:

Comments on Effects to Resources:
Effects to Recreation, Coastal Resources and Floodplains are not anticipated based on SFWMD's review.

Additional Comments (optional):
An ERP is required.

CLC Commitments and Recommendations:

APPENDIX D
AUDUBON'S CRESTED CARACARA SURVEY REPORT

AUDUBON'S CRESTED CARACARA
(*Polyborus plancus audubonii)*

SURVEY REPORT

for

Project Development and Environment (PD&E) Study
Midway Road (CR 712) from Glades Cut Off Road to Selvitz Road
St. Lucie County, Florida

Financial Management Number: 231440-3-22-01
Federal Aid Number:
ETDM Number: 14177

Prepared for:

Florida Department of Transportation
District IV
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309

May 2016

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1.0 Introduction

As part of the Endangered Species Biological Assessment prepared for the Florida Department of Transportation (FDOT) *Project Development and Environment* (PD&E) Study for the widening of Midway Road (CR 712) between Glades Cut Off Road and Selvitz Road in St. Lucie County, Florida (***Location Map - Figure 1***), an updated survey for the Audubon's crested caracara (caracara) was conducted. A previous survey was conducted by FDOT in January 2015 for proposed improvements the Midway Road and Gaitlin Boulevard interchanges with I-95. From that survey one caracara nest was documented adjacent to I-95, west of the proposed Midway Road widening project. An updated survey was conducted from January – April 2016 and the purpose of this report is to summarize the results of this 2016 survey.

The proposed "action" under consideration is the widening of Midway Road (CR 712) from two to four lanes and the construction of stormwater management ponds. Two build alternatives were considered and compared to the No Build Alternative. Alternative 1 (Canal Avoidance) generally widens the road north of the existing while Alternative 2 (Box Culvert) generally widens the road to the south of the existing. Alternative 2 would result in culverting Canal 103 similar to the design currently under construction to the east between Selvitz Road and 25th Street.

2. 0 Existing Environmental Characteristics

2.1 Preliminary Data Collection

Prior to field reconnaissance, a desktop review was performed to identify previously documented caracara nests or suitable habitat within the project corridor. Resources that were utilized include aerial photography of the corridor (FDOT APLUS), Florida Land Use Cover, Forms, and Cover Classification System GIS layer (SFWMD), USFWS Caracara Consultation Area GIS Layer, USFWS Conservation Guidelines, USDA NRCS Soil Survey of St. Lucie County, and the Florida Natural Areas Inventory Online Biodiversity Matrix. The previous survey was also reviewed.

2.2 Preliminary Caracara Habitat Analysis

Following the desktop review, field reconnaissance was conducted to verify existing conditions and identify areas of potential habitat. General wildlife surveys were conducted in July 2015 in conjunction with the Endangered Species Biological Assessment prepared for the PD&E Study. One potentially active caracara nest and suitable habitat were documented west of Glades Cut Off Road and approximately 1500 meters north of Midway Road, east and west of Selvitz Road. Additionally, several caracara were observed flying west of the proposed project near where the previous nest was identified.

2.3 Existing Vegetative Communities and Land Uses and Vegetative Descriptions

Land cover within the areas surveyed for caracara consisted of improved pasture (FLUCFCS 211). The improved pastures consists of actively grazed cattle pastures with bahia grass and isolated patches of slash pine, cabbage palm and Brazilian pepper. Surrounding land uses in the vicinity of the areas surveyed for

caracara include the St. Lucie County Landfill, Tropicana, CEMEX, Power sub-station, water treatment facility and other miscellaneous industrial, commercial and residential development. See ***Figure 2***.

3.0 Audubon's Crested Caracara Survey

3.1 Survey Design and Planning

Pursuant to the USFWS's Crested Caracara Survey Protocol – Additional Guidance (November 2015) the following survey design was developed. During the PD&E Study field reconnaissance conducted July 2, and 15, 2015 the previous observation blocks and locations were evaluated to determine if these were still suitable for the 2016 survey. It was determined due to the presence of buildings or dense vegetation along Midway Road changes to the observation blocks was recommended. In addition, the 2015 survey did not include areas north of Midway Road between the project limits where suitable habitat is located. Attached is a map (***Figure 2***) showing the location of the observation stations. The stations were selected such that suitable caracara nesting and foraging habitat as well as the suspected nest tree could be observed. Three observation points were established along Midway Road in order to clearly see the pastures both north and south of Midway. An additional, observation point was added for this survey approximately 1500 meters north of Midway Road, west of Selvitz Road. Each of these station locations provided for unobstructed views of the project area and could be accessed via existing public roads. Thus, no private property access requests were needed.

The following provides the site location information for each Station:

Station No.	Latitude	Longitude	Section/Township/Range	County
Station 1	27.374744	-80.403206	Sec. 2, Township 36, Range 39	St. Lucie
Station 2	27.374013	-80.401119	Sec. 2, Township 36, Range 39	
Station 3	27.373885	-80.399309	Sec. 2, Township 36, Range 39	
Station 4	27.387206	-80.3665	Sec. 31, Township 35, Range 40	

Surveys were conducted from January 6, 2016 through April 26, 2016 in general accordance with the USFWS 2015 survey protocol. Each station was monitored two weeks apart beginning 15 minutes before sunrise and concluding late morning (approximately 3 hours after sunrise). No evening surveys were conducted. From a stationary position, the surveyors would search for caracara activity and presence of other birds that might elicit a response from caracara or indicate the presence of carrion that may attract caracaras. All surveys were conducted from inside the field vehicle, and, if applicable, surveyors would move to the truck bed to obtain a clearer view of the area. Surveys were conducted using high-power binoculars. Standard data forms were used to record weather conditions, general bird activity, caracara observations, and flight patterns. If a caracara was observed, the time, number of individuals, approximate age, and behavior was recorded on the data sheets (***Appendix A***). Other wildlife observations were also recorded.

4.0 Survey Results

Adult and juvenile caracara were observed during field surveys, and all observed caracara activity is presented in ***Figures 3A*** and ***3B***. A summary of all caracara activity is provided in ***Table 1***. The corresponding field data sheets are provided in ***Appendix A***.

One active caracara nest was observed within the project area. However, the nest observed during 2016 survey was approximately 190 meters northeast of the location documented by others in the 2015 survey. During the first month of the survey, both adult and juvenile caracara were observed utilizing the nest. However, as the survey season continued, activity at the nest declined.

Caracara individuals were observed at Stations 1-3 but not at Station 4. Station 4 is north of the proposed project, and was the furthest distance from the nest tree. Suitable habitat was present throughout the area surrounding Station 4.

Caracara activity around the nest tree was generally grouped into three categories: perching on a telephone pole, perching on the adjacent fence, or flying to and from the area of the nest to the surrounding pastures both north and south of Midway Road. Hunting, perching, and preening behaviors were observed during many of the surveys. At the end of the survey period, only one adult was documented.

Other bird species documented either foraging in the pastures or roadside swales or flying over the site included sandhill cranes (*Grus canadensis*), white ibis (*Eudocimus albus*), glossy ibis (*Plegadis falcinellus*), laughing gull (*Leucophaeus atricilla*), black (*Coragyps atratus*) and turkey vultures (*Cathartes aura),* red-shouldered hawk (*Buteo lineatus*), great blue heron (*Ardea herodias*), brown pelicans (*Pelecanus occidentalis*), wild turkey (*Meleagris gallopavo*), American kestrel (*Falco sparverius*), wood stork (*Mycteria americana*), eastern meadowlark (*Sturnella magna*), American robin (*Turdus migratorius*), red-tailed hawk (*Buteo jamaicensis*), osprey (*Pandion haliaetus*), belted kingfisher (*Megaceryle alcyon*), red-bellied woodpeckers (*Melanerpes carolinus*), duck species, and passerine songbirds. Additionally, a bald eagle (*Haliaeetus leucocephalus*) was seen on several surveys either flying above a station or within a field at a station.

Table 1 - Summary of Caracara Activity Observed

Date	Number of Individuals	Time	Station ID	Activity Observed
1/5/16	2	7:05 AM	1	Adults flew S to N into pine tree
1/5/16	2	7:15 AM	1	Immature flew into nest tree
1/5/16	2	7:30 AM	1	Adults feeding and perching near power pole
1/5/16	2	8:30 AM	1	Same adults as 7:05 sighting flew W over I-95
1/12/16	1	7:43 AM	3	Adult flew into pine tree at NE corner of property
1/12/16	2	8:15 AM	3	Adults flew S to N, perched in pine tree, then landed in field
1/12/16	2	8:20 AM	3	Adults from station 1 returned to nest
1/19/16	2	9:13 AM	1	One adult flew into palm and one adult perched on fence post

Table 1 - Summary of Caracara Activity Observed				
Date	**Number of Individuals**	**Time**	**Station ID**	**Activity Observed**
1/26/16	2	8:19 AM	2	Adults flew from S to pine tree then flew towards Station 1
2/2/16	1	8:00 AM	1	Adult perched on power pole
2/2/16	1	8:05 AM	1	Adult perched on power pole, then flew to opposite side of field
2/4/16	2	7:30 AM	2	One adult flew S over station, then E towards station 1 and joined with 2nd adult near road
2/9/16	1	7:30 AM	3	Adult flew S across station
2/17/16	1	6:55 AM	1	Adult flew from nest tree to power pole
2/17/16	1	7:15 AM	1	Adult flew from S across field to power pole, then to ground to eat
2/18/16	1	7:05 AM	2	Adult flew N to S over station, then back to nest
3/1/16	1	7:17 AM	1	Adult flew from S, landed in road, captured prey, then flew N
3/2/16	1	7:01 AM	2	Adult flew over station to the N, then over tree line to station 1
3/14/16	1	8:32 AM	1	Adult perched on power pole
3/14/16	1	9:26 AM	1	Adult flew from the E, perched on power pole, then flew N
3/14/16	1	9:57 AM	1	Adult flew from the N and perched on power pole, then flew to ground and captured prey
3/18/16	1	8:30 AM	2	Adult perched on power pole
3/18/16	1	9:47 AM	2	Adult flew SW over I-95
3/28/16	1	9:29 AM	1	Adult seen walking on roadway, then perched on fence post
3/31/16	1	8:19 AM	2	Adult perched on power pole at station 1, then flew E to ground, then back to pole at 9:01 AM
4/9/16	1	8:15 AM	1	Adult flew N to power pole, perched, preened, then flew N out of sight
4/11/16	1	7:57 AM	2	Adult perched on power pole at station 1
4/11/16	1	9:09 AM	2	Adult perched on power pole at station 1, then flew E along tree line
4/25/16	1	6:51 AM	1	Adult perched on power pole, flew E, then landed on ground, flew back to pole and continued this activity until 7:46 AM when caracara flew NE out of sight

5.0 Conclusions

Suitable habitat is present west and north of the Midway Road PD&E study area, and adult and juvenile caracaras were observed. Based on behavioral patterns observed throughout the season, it is likely that the nest tree was active with older juvenile caracara during the first half of the survey and less utilized during the latter half of the season. Kimley-Horn biologists observed a nesting pair of caracara and two juveniles during January surveys, and activity to and from the nest tree was frequent. By the end of February, it was rarer to see two adult caracaras, and activity centered around the nest was minimal. The nest is located within an agricultural area with frequent truck traffic on site. In addition, the parcel is located immediately east of the I-95 northbound on-ramp and Midway Road Interchange. Consequently, it is

reasonable to infer that the caracara in this area are not unduly disturbed by vehicle traffic. The nest is located approximately 1,177 meters from the western end of the project limits.

The 2016 survey results showed that the previously identified nest (2015) has moved approximately 190 meters northeast. No other nests were identified. The primary buffer (300 meters) lies outside the project area. The secondary buffer (1500 meters) overlaps the western end of the project area at Glades Cut Off Road. However, there is no new construction at the intersection with Glades Cut Off Road. The proposed widening ends east of Glades Cut Off, so construction would consist of "tie in" to the existing four lanes. The FDOT commits to the following during construction to minimize impacts to the caracara:

- Construction will be timed outside of nesting season for the "tie in" to Glades Cut Off Road
- Construction staging will be prohibited within the primary or secondary buffers.
- Prior to construction an updated caracara nest survey will be performed. Additional coordination will be conducted, if necessary with USFWS.

Based on the lack of construction in the primary or secondary buffers and the implementation of the commitments listed above, FDOT has determined that the project m*ay affect, but is not likely to adversely affect* the Audubon's crested caracara.

6.0 References

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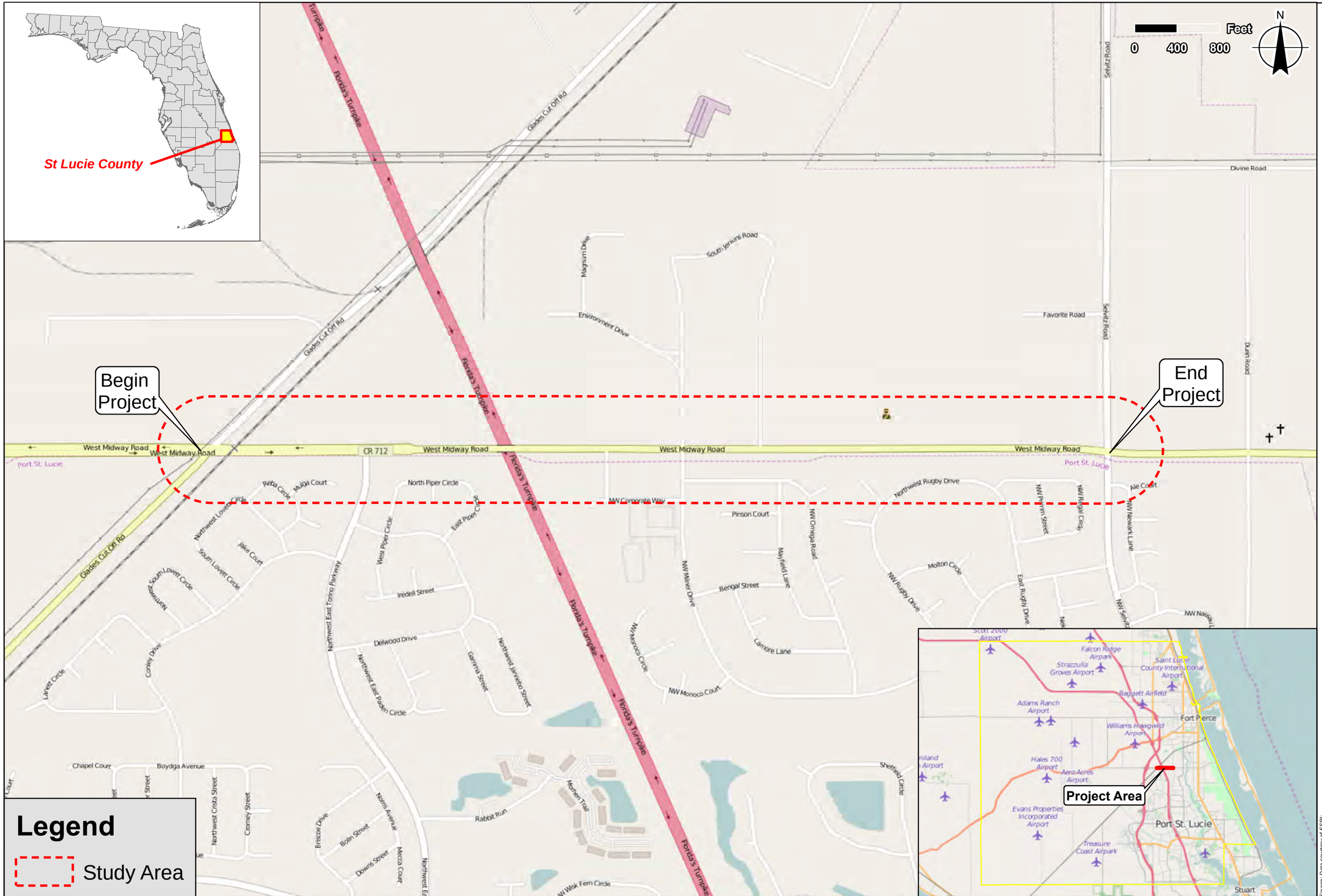
Morrison, J.L. 1997a. Reproductive ecology and habitat associations of Florida's crested caracaras (*Caracara plancus audubonii*). Dissertation, University of Florida, Gainesville, Florida, USA.

Morrison, J.L. 1999. Breeding Biology and Productivity of Florida's Crested Caracaras. *The Condor*, 101:505-517.

Morrison, J.L. 2001. Recommended management practices and survey protocols for Audubon's crested caracaras (*Caracara cheriway audubonii*) in Florida. Technical Report No. 18. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida (Appendix A).

U.S. Department of Agriculture, Soil Conservation Service. *Soil Survey of St. Lucie County*, Florida. 2007.

FIGURE 1
PROJECT LOCATION MAP



Source: Data courtesy of ESRI;

Document Path: K:\TRE_Environmental\147073003 Midway Road PD&E\ENV\GIS\MXD\Figure 1 - Project Location Map.mxd

FDOT

Project Location Map

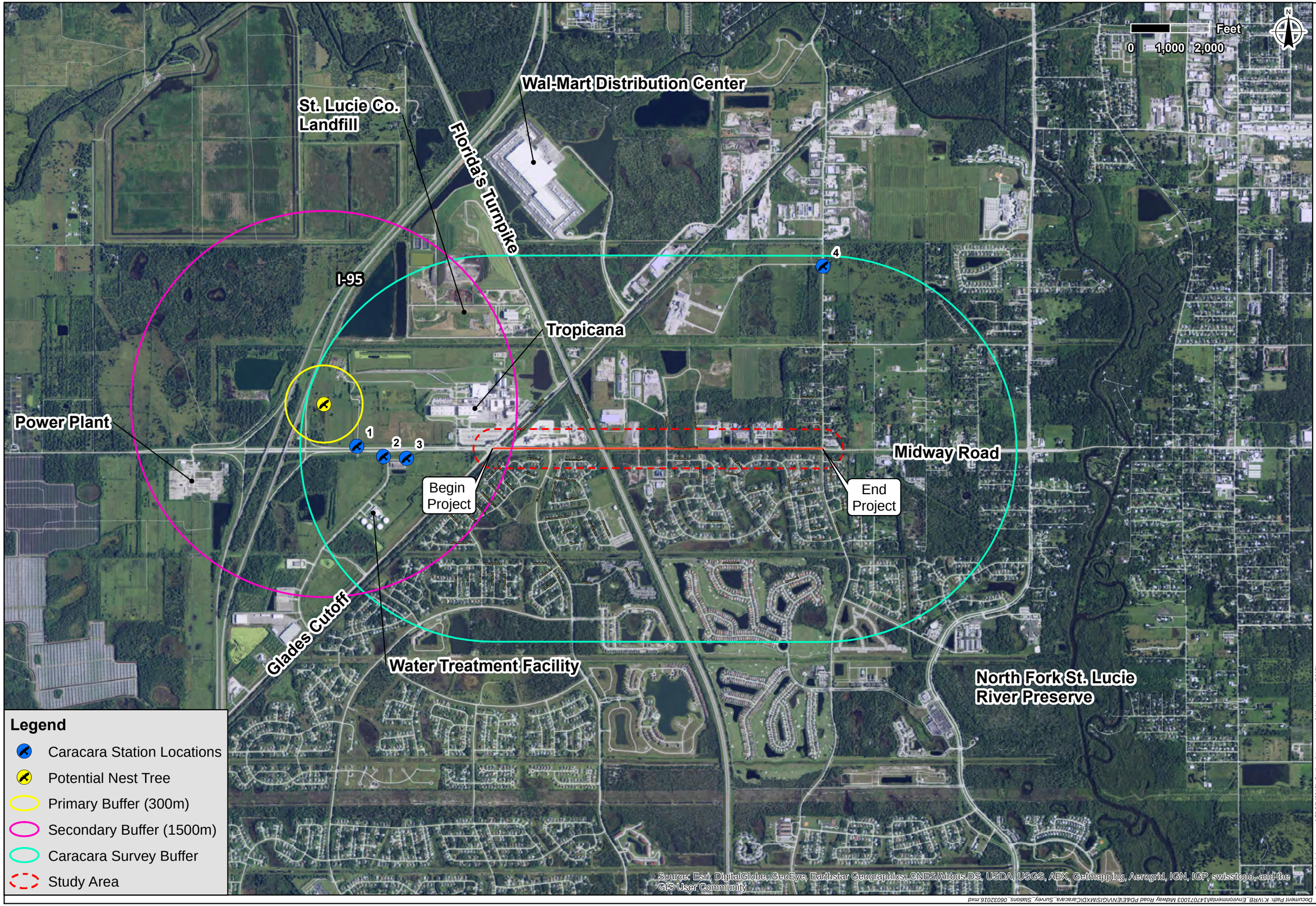
Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 800 feet

FIGURE 1

MAY 2016

FIGURE 2
SURVEY LOCATIONS



Source: Aerials courtesy of FDOT (2012). Station data courtesy of Kimley-Horn (2015).

Document Path: K:\JVR_Environmental\47071003 Midway Road PD&E\ENV\GIS\MXD\Caracara_Survey_Stations_06032016.mxd

FDOT

Caracara Survey Stations Location Map

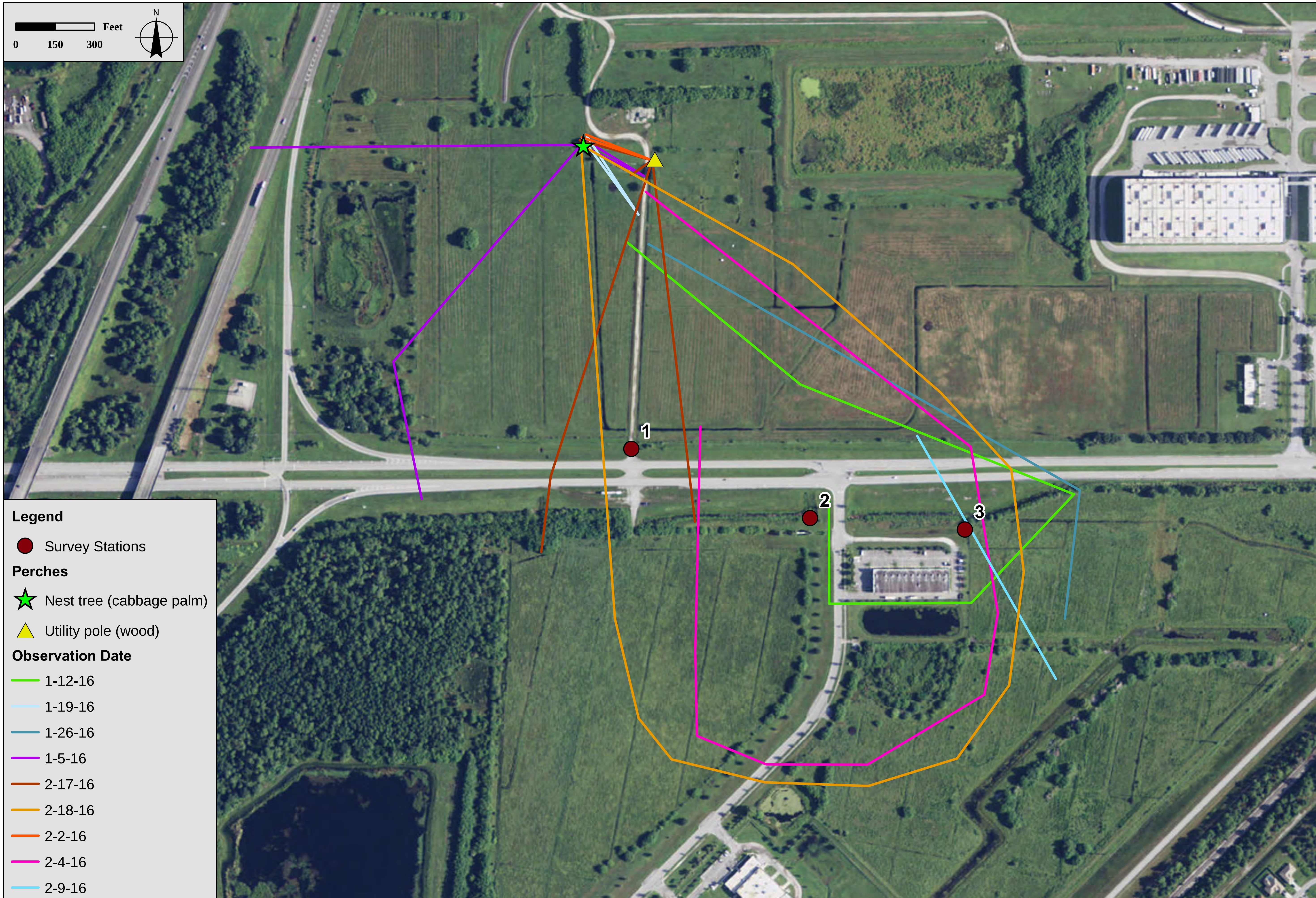
Midway Road (CR712) From Glades Cut Off Road to Selvitz Road
St. Lucie County, Florida
FPID: 231440-3-22-01

1 inch = 2000 feet

JUNE 2016

FIGURE 2

FIGURES 3A AND 3 B
CARACARA SURVEY RESULTS



Sources: 2012 Aerial Photography - Florida Department of Transportation (FDOT)

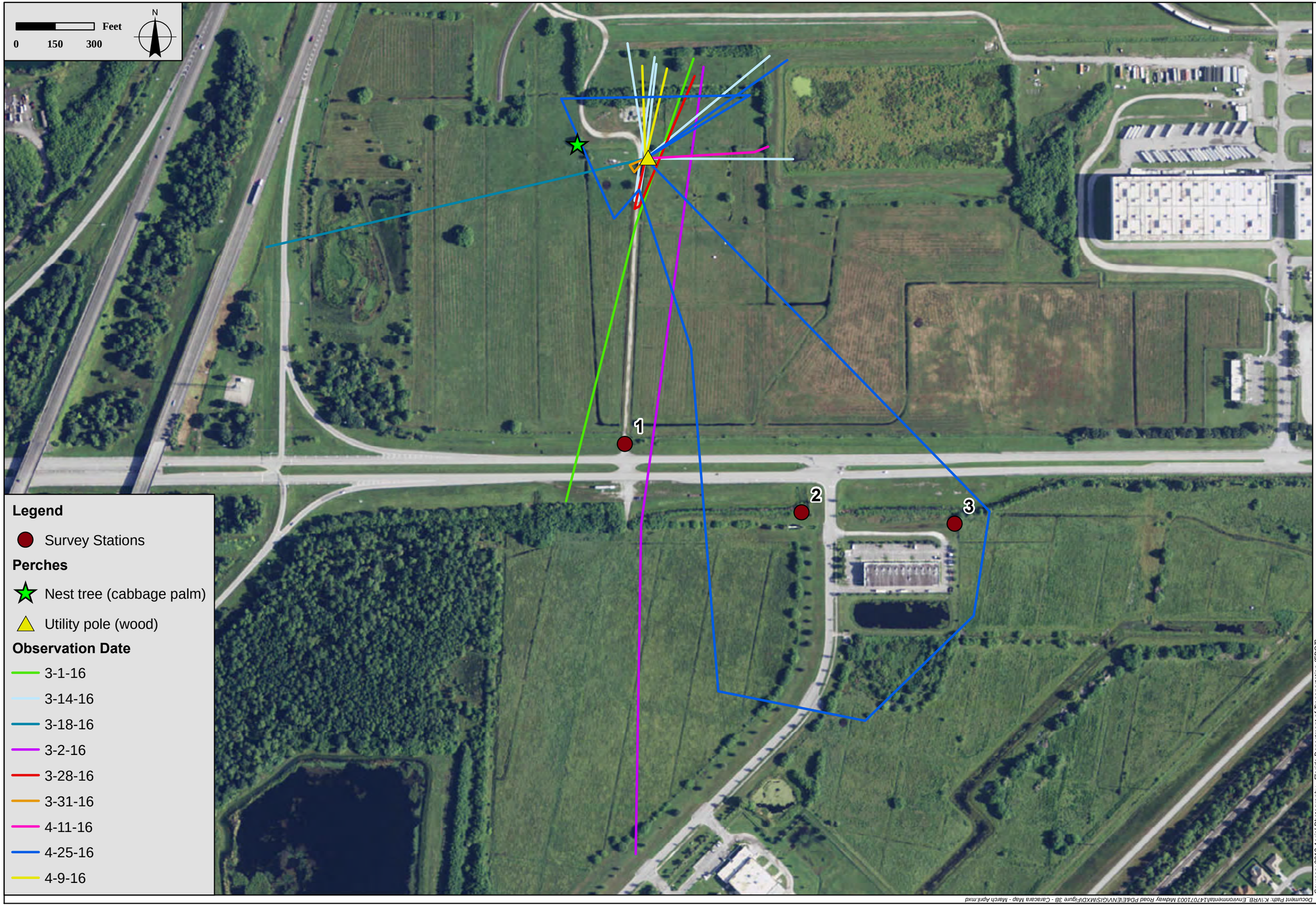
Caracara Observation Map - January and February 2016

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

FIGURE 3A

JUNE 2016

1 inch = 1600 feet



FDOT

Caracara Observation Map - March and April 2016

Project Development and Environment (PD&E) Study - Midway Road (CR712)
From Glades Cut Off Road (CR 709) to Selvitz Road (CR 615)
St. Lucie County, Florida
Financial Project ID: 231440-3-22-01; ETDM Number: 14177

1 inch = 1600 feet

FIGURE 3B

JUNE 2016

Sources: 2012 Aerial Photography - Florida Department of Transportation (FDOT)

Document Path: K:\IVRE_Environmental\14707\003 Midway Road PD&E\ENVGIS\MXD\Figure 38 - Caracara Map - March April.mxd

APPENDIX A
CARACARA SURVEY DATA SHEETS

Crested Caracara Monitoring
Field Data Form

Date: 1-5-16 Start Time 7:00 Stop Time 10:00 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Rd - Station 1, St. Lucie County, 27.374744, -80.403206 S2, T36S, R39E

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	66° F	3 mph SSW	50%	low	none
Finish					

Flight Data

#	Age A/Im	Time	Description
2	A	7:05	flew S to N to pine trees, possible courtship
2	I	7:15	flew into nest tree, perched on fence posts
2	A	8:30	flew W over I-95 past pine trees

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description
2	Im	7:15	nest tree observed, feathers light brown
2	A	7:30	feeding (small lizard?), perching, near cattle & tall pole

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
1	(eagle) Im	9:15	bald eagle lands in pasture

Crested Caracara Monitoring
Field Data Form

Date: 1-6-15 Start Time 6:50 Stop Time 9:50 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Road, Station ~~X~~ renamed station 2, St. Lucie Co., 27.374013, -80.401119, S 2 T36 R37E

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	67°	0 mph (SW)	90%		none
Finish					

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
N/A	Both	continuously	Seagulls, ibis, passerine songbirds, sandhill cranes present

Crested Caracara Monitoring
Field Data Form

Date: 1-12-15 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 3

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	51°	0-2, S	75%		none
Finish	55°	0-2, ESE	75%		none

Flight Data

#	Age A/Im	Time	Description
1	A	7:43	flew to perch in pine tree at NE corner of prop. / flew E to W behind building S of station
2	A	8:15	flew S to N, perched shortly in pine row located in field, eating → see notes 8:22 on back

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description
2	A	8:20	pair from station 1 returned to nest (likely)

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			passerine song birds, ducks, vultures, N to S over station 2 bald eagles (soaring flight) 8:00
			8:40 juvenile bald eagle S to N across station

Crested Caracara Monitoring
Field Data Form

Date: 1-13-15 Start Time 6:45 Stop Time 9:45 Monitor BO, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station #4

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	50°	0-2 SSW	50-75%		none
Finish	54°	0-2 S	50%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

Crested Caracara Monitoring
Field Data Form

Date: 1-19-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 1 - Midway Rd,

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	44°	0-2 mph N	75%		none
Finish	52°	0-2 mph N	25%		none

Flight Data

#	Age A/Im	Time	Description
X		~~9:35~~	~~flew from W behind B. pop~~
2	A	9:13	one flew into palm, one perched on low fence post

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			sandhill cranes, eagle from N to S to W, 2 red-shouldered hawks

Crested Caracara Monitoring
Field Data Form

Date: 1-20-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 2

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	47°	2-4 mph NW	75%		none
Finish	58°	2-4 mph NW			none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			great blue heron perched in pine, 7-10 vultures

Crested Caracara Monitoring
Field Data Form

Date: 1-26-15 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station #3 (Midway)

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	56°	10 mph ENE	50%		none
Finish	65°				

-rain sprinkle <5mins at 9:20

Flight Data

#	Age A/Im	Time	Description
2	A	8:19	flew from S to pine (stopped) then flew in direction of Station 1

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			several passing sandhill cranes, passerine songbirds, herons, plovers (mostly N to S or S to N)

✓

↗ Friday survey used because Wed was rained out

Crested Caracara Monitoring
Field Data Form

Date: 1-29-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station #4 (NE quad station)

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	56°	7-10 mph NW	30-40%		none
Finish	57°	10 mph NW	25%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			7:10 – lots of general activity → egrets, vultures, anhinga, wood stork, Kestrel, kingfisher

Crested Caracara Monitoring
Field Data Form

Date: 2-2-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 1

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	60°	0-4mph	0-20%		some fog early
Finish	74°	0-4mph	0-20%		none

Flight Data

#	Age A/Im	Time	Description
1	A	8:00	perched on power pole (same as prior surveys)
1	A	8:05	" " w/ material (food or nest) in mouth → flew to opposite side of field into palm

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

Crested Caracara Monitoring
Field Data Form

Date: 7-4-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 4 (S of station 2 to W)

Weather Data → changed name to Station 2

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	67°	3-5 mph	20-30%		none
Finish	75°	5-15	60%	cirrus	none

Flight Data

#	Age A/Im	Time	Description
1/2	A	~7:30	flew S over station pen turned E + flew toward station 1/landfill, met #2 new road

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
1	A	7:45	bald eagle skirted E side of station + flew south / carrying food in mouth
		—	sandhill cranes passing, vultures, ducks, ibis (flying), robins, E. meadowlark

✓

Crested Caracara Monitoring
Field Data Form

Date: 2-9-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station X (SE field area)
→ changed name to station 3

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	52°	10-20 mph W	30-40 %	clr	none
Finish	56°	0-10 mph W	20-30 %		none

Flight Data

#	Age A/Im	Time	Description
1	A	7:30	flew 3 across station

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

Crested Caracara Monitoring
Field Data Form

Date: 2-10-15 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 4

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	45°	5-10 NW	20%		none
Finish	50°	5-10 NW	90%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			Kingfisher, woodpeckers,

Crested Caracara Monitoring
Field Data Form

Date: 2-17-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway RD, Station 2 (field w/ trucks + nest)

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	48°	0-5 mph	50%		none
Finish	56°	0-5 mph	10-20%		none

Flight Data

#	Age A/Im	Time	Description
1	A	6:55	flew from nest tree to pole
1	A	7:15	flew from S across field to pole (something in beak) perched then flew to ground to eat

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

Crested Caracara Monitoring
Field Data Form

Date: 2-18-16 Start Time 6:45 Stop Time 9:45 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Rd, Station 2 (S of road adjacent to Station 1)

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	52°	0-5 mph	0-10%		none
Finish	69°	5-10 mph	0-10%		none

Flight Data

#	Age A/Im	Time	Description
1	A	7:05	flew N to S over station, looped around + flew back to nest

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

J

Crested Caracara Monitoring
Field Data Form

Date: 9-23-16 Start Time 6:30 Stop Time 9:30 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 3

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	61°	0-2 mph SSE	20%		none
Finish	69°	0-5 mph SE	20-30%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

✓

Crested Caracara Monitoring
Field Data Form

Date: 2-25-16 Start Time 6:30 Stop Time 4:30 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 4 (far E station)

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	52°	0-5 mph S	20-30%		none
Finish	67°	5-10 mph SE	0-10%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			Kestrel, kingbird, passing mockingbirds, woodpeckers

✓

Crested Caracara Monitoring
Field Data Form

Date: 3-1-16 Start Time 6:30 Stop Time 9:30 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 1

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	53°	0-5 mph E	30-40%		none
Finish	67°	0-5 mph E	0-10%		none

Flight Data

#	Age A/Im	Time	Description
1	A	7:17	flew from S, landed in road (new behavior), captured lizard, flew N over treeline

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

Crested Caracara Monitoring
Field Data Form

Date: 3-2-16 Start Time 6:30 Stop Time 9:30 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 2

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	59°	0-5 WNW	10-20		none
Finish	67°	0-5 WSW	0-10		none

Flight Data

#	Age A/Im	Time	Description
1	A	7:01	flew over station N tower treeline at station 1

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			less general bird activity than normal

Crested Caracara Monitoring
Field Data Form

Date: 3-7-16 Start Time 6:25 Stop Time 9:25 Monitor BW, MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 3

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	50°	0-5 mph NW	0-10%		none
Finish	75°	10-20 mph N	10-20%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			great blue heron, wood storks foraging in field

Crested Caracara Monitoring
Field Data Form

Date: 3-10-16 Start Time 6:25 Stop Time 9:45 Monitor MC, TO

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 4

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	71°	0-5	20-30		none
Finish	75°	5-10	10-20		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			Woodstork passing over NW, Sandhill crane flying,

✓

Crested Caracara Monitoring
Field Data Form

Date: 3-14-16 Start Time 7:15 Stop Time 10:15 Monitor BM MC, MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 1

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	68°	0-5 SSW	50%		none
Finish	74°	6 SSW	90-100		NONE

Flight Data

#	Age A/Im	Time	Description
1	A	8:32	Perched on pole
1	A	9:26	Came from the E, perched on pole then flew N over trees
1	A	9:57	came from the N, perched on pole, flew to ground, stalked prey, perched on fence, flew back

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description
			lots of crows in nest tree, caracara didn't seem interested. Couldn't see other Adult in nest

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

Crested Caracara Monitoring
Field Data Form

Date: 3-18-16 Start Time 7:10 Stop Time 10:10 Monitor BM MC, MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 2

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	62°F	0-5mph	40		N
Finish	71	5-10mph	25		N

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
1	A	8:30	(carrion) perched in pole
1	A	9:47	Flew over I-95 NW SW

✓

Crested Caracara Monitoring
Field Data Form

Date: 3/21/2016 Start Time 7:00 Stop Time 10:00 Monitor MC + TD

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 3

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	57°F	10-20	10-20		None
Finish	55°F	15-20	10-20		None

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			red tailed hawk, wood stork, sandhill crane

Crested Caracara Monitoring
Field Data Form

Date: 3/23 Start Time 7:10 Stop Time 10:10 Monitor MA/MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 4

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	58°	0-5	40		No
Finish	71°	5-10	50-60		No

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			Woodstork, Turkey - M

Crested Caracara Monitoring
Field Data Form

Date: ~~2020~~ 03/28 Start Time 7:00 Stop Time 10:00 Monitor MA/MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 1

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	72	0-5	90%		N
Finish					

Flight Data

#	Age A/Im	Time	Description
1	A	9:29	walking on roadway - perched on fencepost preening 8 min looking around 7 min

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

✓

Crested Caracara Monitoring
Field Data Form

Date: 3/31/16 Start Time 7:00 Stop Time 10:00 Monitor MA/MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 2

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	69	0	80		N
Finish					

Flight Data

#	Age A/Im	Time	Description
1	A	8:19	Perched on telephone pole at station 1
			8:51 Flew East to ground → 9:01 to pole

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description
~~1~~	~~A~~	~~8:19~~	~~Perched on telephone pole @ station 1~~

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
1		8:29	Osprey
1	A	8:51	Red tailed Hawk

Crested Caracara Monitoring
Field Data Form

Date: 4-5-16 Start Time 6:50 Stop Time 9:50 Monitor MC, MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 3 (S of road)

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	58°	5-10 WNW	0-10		none
Finish	65°	5-10 WNW	0-10		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			less bird activity than past weeks

✓

Crested Caracara Monitoring
Field Data Form

Date: 4-8-16 Start Time 6:45 Stop Time 9:45 Monitor MC, MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 4

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	61°	0-5 NW	0-10%		none
Finish	66°	0-5 NW	0-10		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			Swainson's hawk, red tailed hawk, wood stork, ducks

✓

Crested Caracara Monitoring
Field Data Form

Date: 4-9-16 Start Time 6:40 Stop Time 9:40 Monitor MC, MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 1

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	47°	0-5 NW	20-30		none
Finish	65°	5-10 N	0		none

Flight Data

#	Age A/Im	Time	Description
1	A	8:15	flew from N to pole, perched, preened, flew away at 8:37 to N

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description

✓

Crested Caracara Monitoring
Field Data Form

Date: 4/11 Start Time 6:45 Stop Time 9:45 Monitor MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

#2

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	70°	ESE 5-10mph	75		N
Finish	75°	E 10-15MPH	40		N

Flight Data

#	Age A/Im	Time	Description
1	A	7:57	Perched on telephone pole site #1
1	A	9:09	Perched on telephone pole site #1 - Flew E along treeline @9:13 & landed in tree.

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
1	A	7:23	Red tailed Hawk
2	A	9:31	Red tailed Hawk - W of I-95

Crested Caracara Monitoring
Field Data Form

Date: 4-19-16 Start Time 6:35 Stop Time 9:35 Monitor MC, MA

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Midway Station 3

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	66°	0-5 NE	30-40%		none
Finish	73°	0-5 NE	0-10%		none

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			lower bird activity than normal, sandhill crane flyover,
			some wood stork flyover

Crested Caracara Monitoring
Field Data Form

Date: 4/20/16 Start Time 6:36 Stop Time 9:36 Monitor MA/MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	62°	0-5	90		N
Finish	70	0-5	85		N

Flight Data

#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
1	A	6:56	white Ibis
1	A	7:28	osprey flew E → W over tree line

Crested Caracara Monitoring
Field Data Form

Date: 4/25/16 Start Time 6:25 Stop Time 9:25 Monitor MA/MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 1

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	~~60~~ 69	~~5-10~~ 0-5	35		none
Finish	78	0-5	10-20		none

Flight Data

#	Age A/Im	Time	Description
1	A	6:51	Perched on pole, flew E behind bldg. 7:17 then looped W over station 1 + landed E of pole on ground
		7:21	back to pole, 7:29 flew to ground + back to pole (being pestered by mockingbird)
		7:35	flew W (chased by crow) then back to pole then along powerline to more NE of train cars, then perched on poles
		7:46	flew NE toward landfill (out of sight)

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description
			*not disturbed by moving train

Crested Caracara Monitoring
Field Data Form

Date: 4/26/16 Start Time 6:25 Stop Time 9:25 Monitor MA/MC

Site Name and Location: **Include latitude and longitude**, section, township, and range, and county.

Station 2

Weather Data

Time	Temp	Wind Speed/Direction	% Cloud Cover	Cloud Type	Rain
Start	69	0-5	35		
Finish					

Flight Data

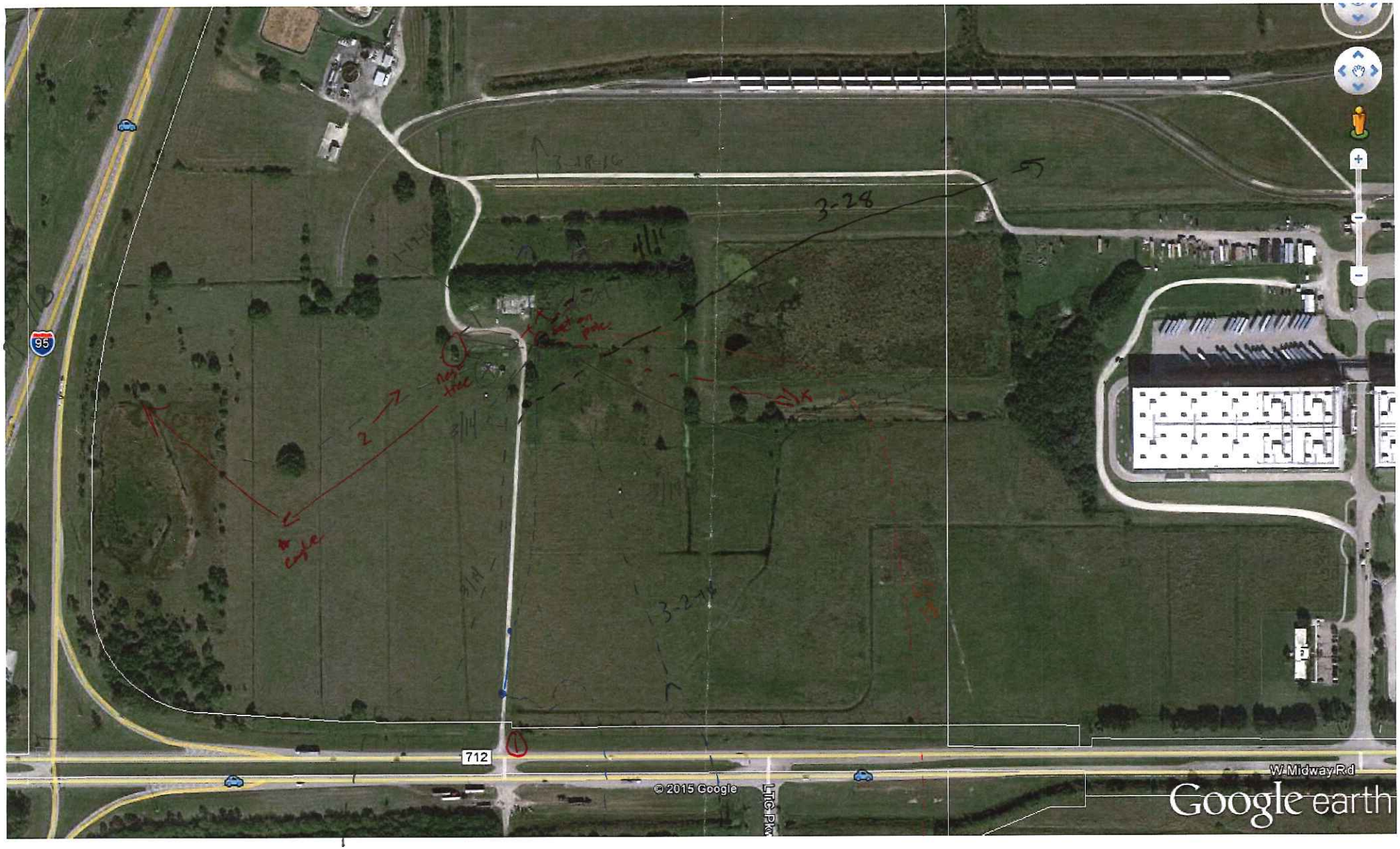
#	Age A/Im	Time	Description

Nesting Data: Observed Activity
(perching, preening, courtship, feeding, nest building, incubation, head color change, head throwback, diving)

#	Age A/Im	Time	Description

General Observations
(crested caracara reaction to passing planes, trains, trucks, pedestrians, other birds, etc.)

#	Age A/Im	Time	Description



* survey 1
* survey 2
* survey 3 ---
* 2-17-16
* 3-1-16 → Looked on road then went to edge to east / west

* station 2 3-2-16 ---
* 3/14 ---
* 3-18

~~* 3-29~~

3-29 fence to landfill

3/31 sat on pole

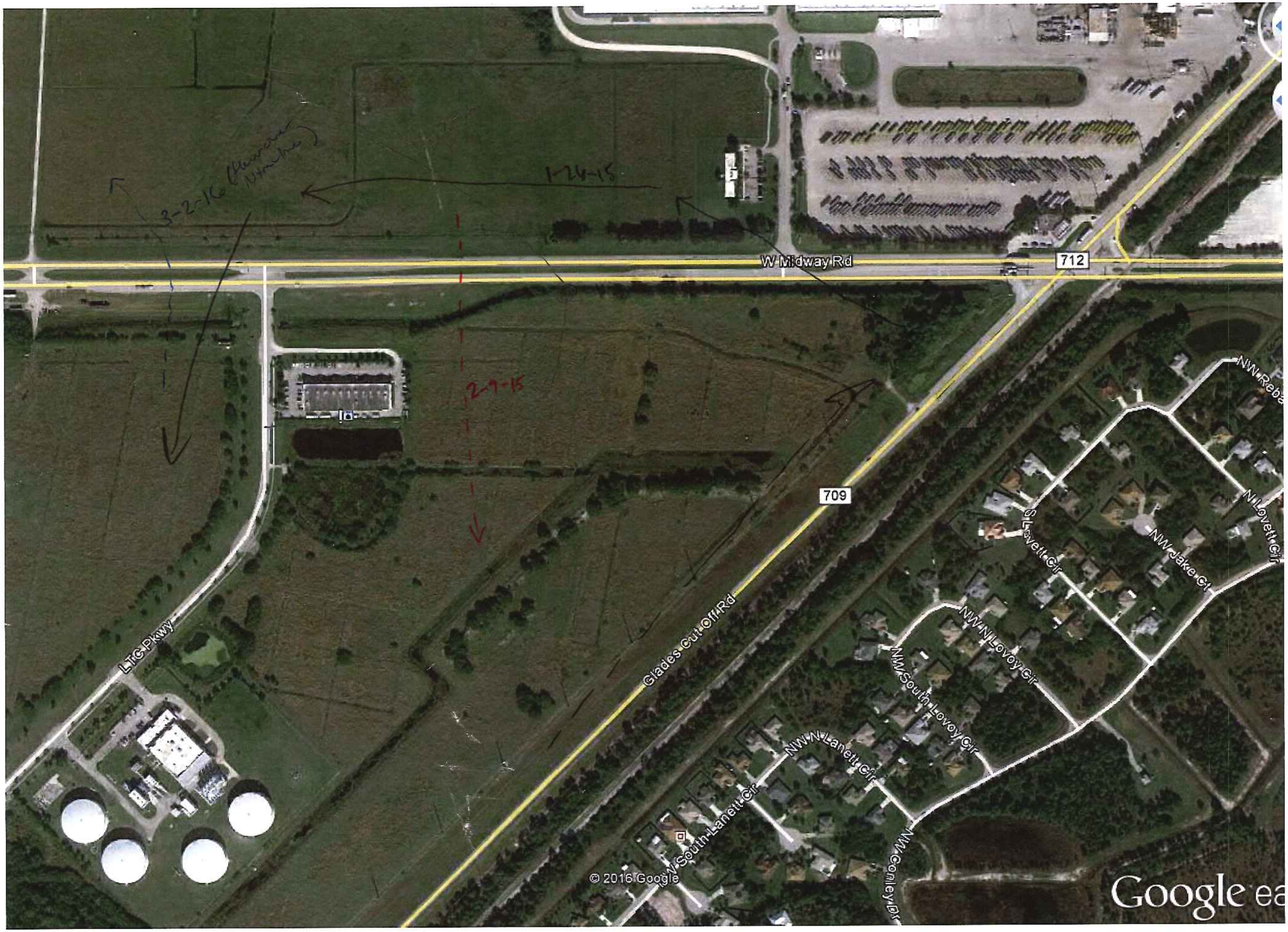
4/11 sat on pole - flew E to perch in tree

* Feb 4 ...

* Feb 18 ...


709
Prosperity Dr
Energy Ln
Divine Rd
© 2015 Google
Google earth


W Midway Rd
712
709
Glades Cut Off Rd
LTC Pkwy
NW Lovett Cir
NW Jake Ct
NW N Lovoy Cir
NW South Lovoy Cir
NW N Lanett Cir
NW South Lanett Cir
© 2016 Google


W Midway Rd
712
709
Glades Cut-Off Rd
LTC Pkwy
NW N Lanett Cir
NW South Lanett Cir
NW South Lovoy Cir
NW N Lovoy Cir
S Lovett Cir
NW Jake Ct
N Lovett Cir
NW Conley Dr
1-24-15
2-9-15
3-2-16
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APPENDIX B
PHOTOGRAPHS

Typical view of pasture at the stations

Typical view of pasture at the stations

Kimley»Horn

445 24th Street, Suite 200, Vero Beach, FL 32960
Phone (772) 794-4100
www.kimley-horn.com

Site Photographs

Project Development and Environment Study (PD&E)
Midway Road (CR 712)
Audubon's Crested Caracara Survey
St. Lucie County, FL

SCALE: NTS	**Financial Project ID: 231440-3-22-01**	DATE: June 2016	Appendix B

Typical view of pasture at the stations

Typical view of pasture at the stations

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445 24th Street, Suite 200, Vero Beach, FL 32960
Phone (772) 794-4100
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Site Photographs

Project Development and Environment Study (PD&E)
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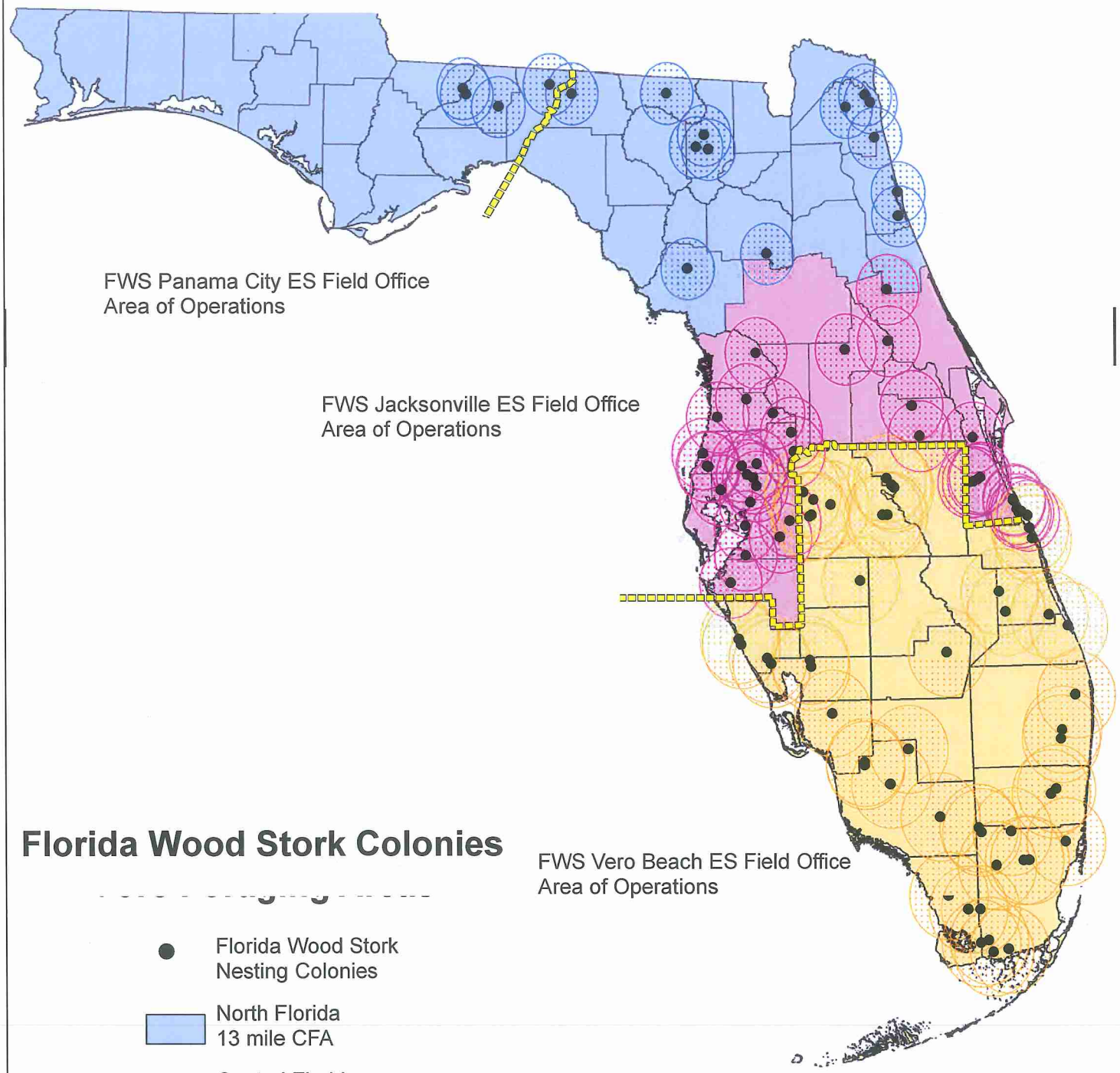
St. Lucie County, FL

SCALE: NTS	**Financial Project ID: 231440-3-22-01**	DATE: June 2016	Appendix B

APPENDIX E
FLORIDA WOOD STORK COLONIES CORE FORAGING AREAS MAP



Florida Wood Stork Colonies

Florida Wood Stork Nesting Colonies

North Florida 13 mile CFA

Central Florida 15 mile CFA

South Florida 18.6 mile CFA

N

0 25 50 100 Miles

November 1, 2007

APPENDIX F
STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

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

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

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

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

POSTER INFORMATION

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

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

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

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

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

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

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

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

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

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

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

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

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

PRE-CONSTRUCTION ACTIVITIES

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

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

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

DURING CONSTRUCTION ACTIVITIES

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

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

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

POST CONSTRUCTION ACTIVITIES

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

ATTENTION:

THREATENED EASTERN INDIGO SNAKES MAY BE PRESENT ON THIS SITE!!!

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

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

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

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

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

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

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

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

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

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

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

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

August 12, 2013

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

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

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

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

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

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

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

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LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

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

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

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

August 12, 2013

ATTENTION:

THREATENED EASTERN INDIGO SNAKES MAY BE PRESENT ON THIS SITE!!!

Please read the following information provided by the U.S. Fish and Wildlife Service to become familiar with standard protection measures for the eastern indigo snake.