



I-95 at Pioneer Trail Interchange Project Development and Environment (PD&E) Study

Indirect and Cumulative Effects Evaluation Technical Memorandum

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1.0 BACKGROUND

1.1 INTRODUCTION

The Florida Department of Transportation (FDOT) is preparing a Type 2 Categorical Exclusion (CE) as part of the Project Development and Environment (PD&E) Study to evaluate effects or impacts of the proposed action. Adherence to FDOT's PD&E process ensures compliance with the National Environmental Policy Act (NEPA) of 1969, Title 42 U.S.C. § 4321 et seq.

The proposed project is a new Interstate 95 (I-95) interchange at Pioneer Trail (County Road 4118) at Milepost (MP) 19.032 in Volusia County. The proposed interchange is located between two existing interchanges on I-95: SR 44/ Lytle Avenue at MP 16.287, approximately 2.75 miles to the south and SR 421/ Dunlawton Avenue at MP 23.300, approximately 4.25 miles to the north) as shown in **Figure 1-1**.

The Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA require that environmental effects be evaluated for proposed federal actions. Potential effects or impacts can be direct, indirect (secondary), and cumulative. Direct, indirect and cumulative effects are defined as follows, according to 40 Code of Federal Regulations (CFR) 1508.7 and 1508.08:

- Direct effects are caused by the action and occur at the same time and place.
- Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.
- Cumulative impacts result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

The direct effects of this proposed action have been evaluated as part of the PD&E Study. The purpose of this memorandum is to identify and assess the indirect and cumulative effects (ICE) resulting from or anticipated to result from the proposed action (new interchange).

To analyze indirect effects and cumulative impacts, it is important to first understand the proposed purpose and need, issues identified in the Efficient Transportation Decision-Making (ETDM) screening, the direct effects of the Preferred Alternative, and agency coordination.

1.2 PURPOSE AND NEED

The purpose of the proposed interchange at I-95 and Pioneer Trail is to relieve traffic congestion on the two adjacent interchanges north and south of the project: I-95 at State Road 421 (SR 421)/ Dunlawton Avenue and I-95 at State Road 44 (SR 44)/ Lytle Avenue. The project also aims to support economic development associated with existing and approved developments, including several Developments of Regional Impact (Farmton, Restoration and Pavilion at Port Orange) as shown on **Figure 1-2**.



FIGURE 1-1: PROJECT LOCATION
I-95 at Pioneer Trail Interchange PD&E Study
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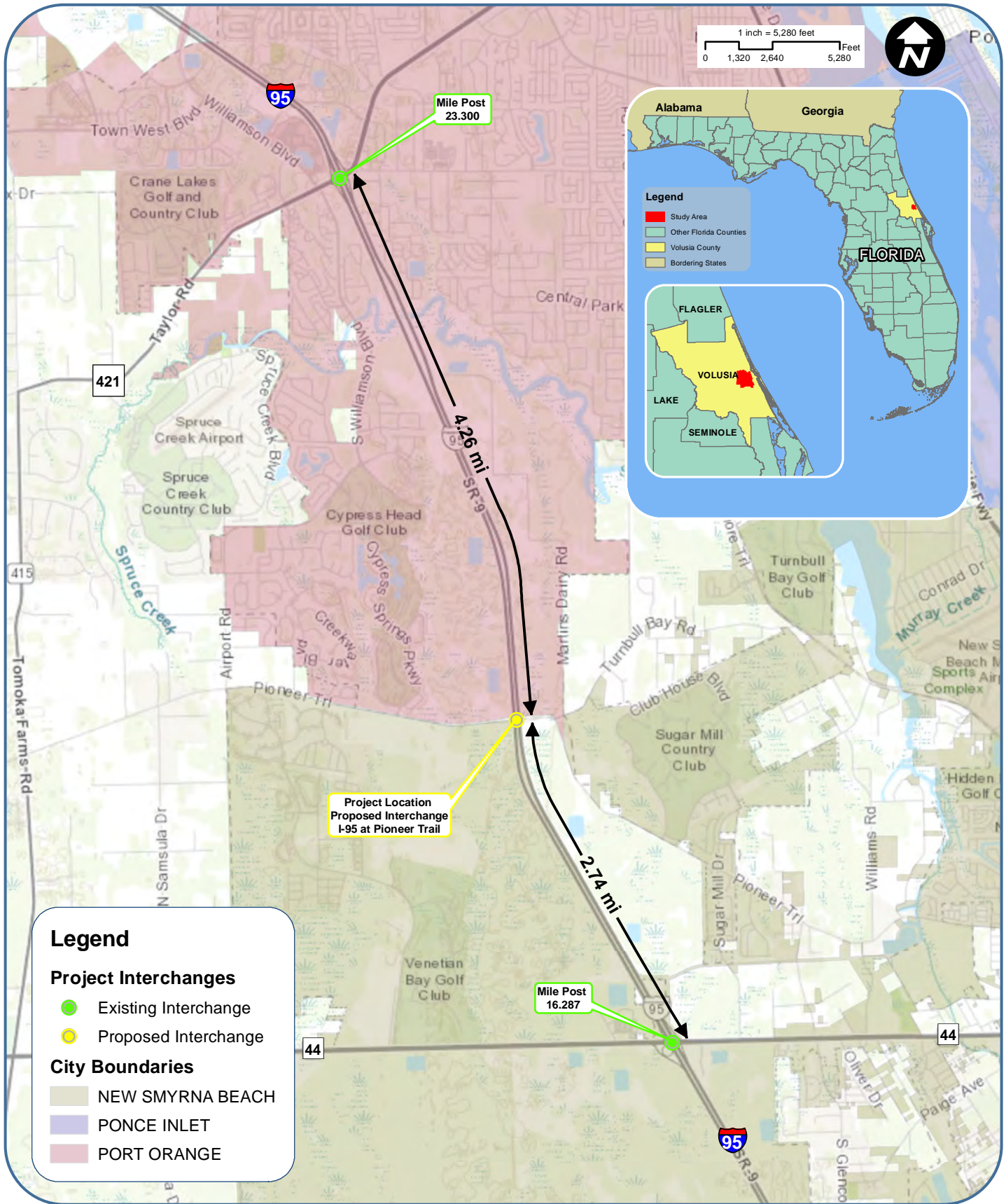




FIGURE 1-2: REGIONAL PLANNED DEVELOPMENTS
 I-95 at Pioneer Trail Interchange PD&E Study
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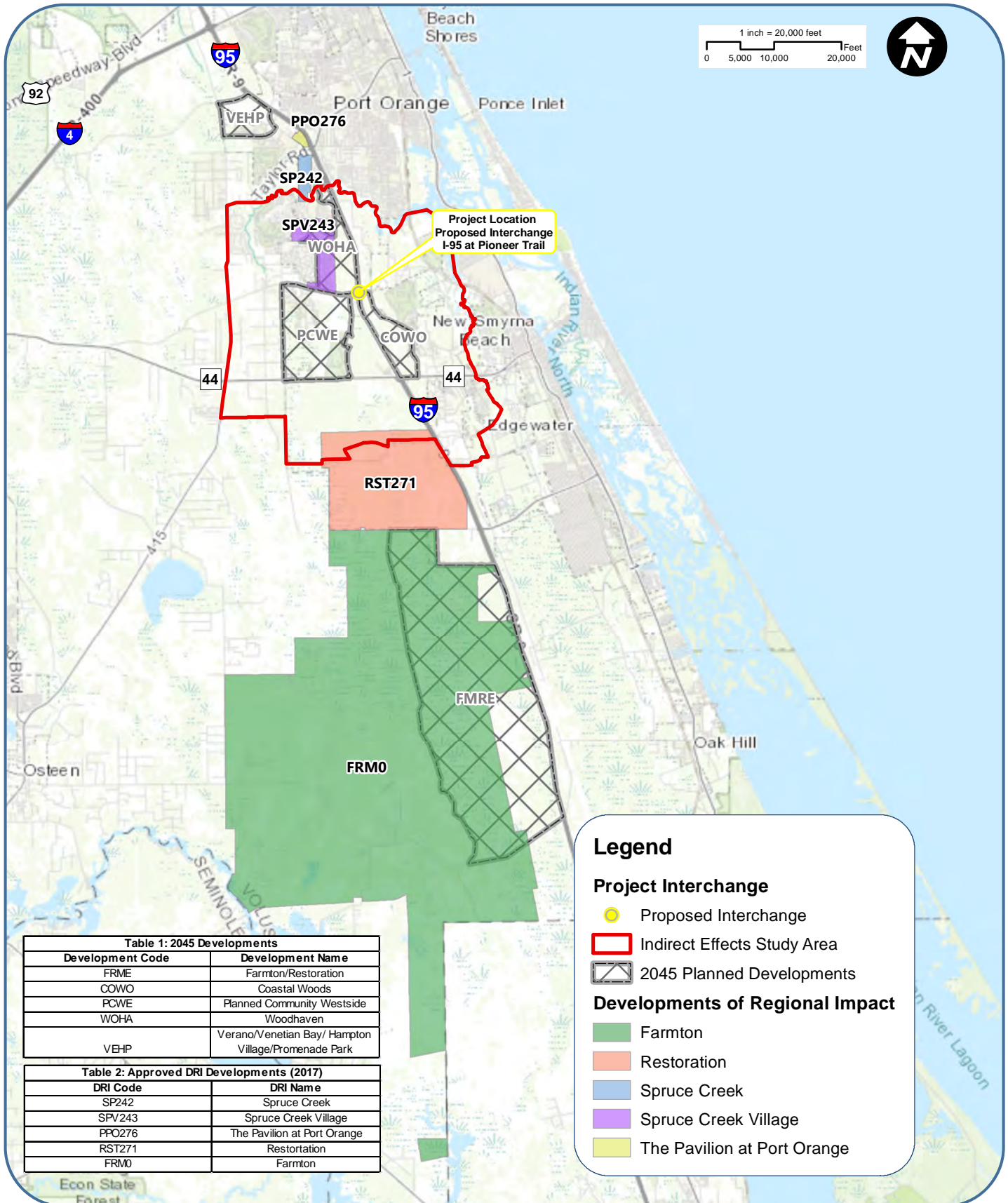


Table 1: 2045 Developments

Development Code	Development Name
FRME	Farnton/Restoration
COWO	Coastal Woods
PCWE	Planned Community Westside
WOHA	Woodhaven
VEHP	Verano/Venetian Bay/ Hampton Village/Promenade Park

Table 2: Approved DRI Developments (2017)

DRI Code	DRI Name
SP242	Spruce Creek
SPV243	Spruce Creek Village
PPO276	The Pavilion at Port Orange
RST271	Restoration
FRMO	Farnton

Legend

Project Interchange

- Proposed Interchange
- ▭ Indirect Effects Study Area
- ▭ 2045 Planned Developments

Developments of Regional Impact

- Farnton
- Restoration
- Spruce Creek
- Spruce Creek Village
- The Pavilion at Port Orange

The need for the project was identified in the previously approved Interchange Justification Report (April 2017) prepared by FDOT and can be summarized into four primary categories:

- Reduce congestion at adjacent interchanges
- Enhance regional mobility
- Improve emergency evacuation
- Support economic viability associated with future development

1.3 ETDM SCREENING AND DIRECT EFFECTS

The ETDM screening process provides the opportunity for early input and consideration of the environment in transportation planning. It occurs before the PD&E Study to identify potential key issues and concerns related to the project. The Environmental Screening Tool (EST) is a comprehensive digital database that provides geographical information system (GIS) data for use and analyses by members of the Environmental Technical Advisory Team (ETAT). The ETAT typically includes representatives from environmental, planning, and transportation agencies who provide input and review that results in a programming screen summary report with an assigned degree of effect for each environmental issue/ resource. The degree of effect is based on the potential for effects as follows: 0 - None, 1 - Enhanced, 2- Minimal, 3 - Moderate, 4 - Substantial, or 5 - Dispute Resolution. This ranking includes the direct effect potential of resources, as well as secondary and cumulative effects. The FDOT ETDM Coordinator reviews the ratings for each resource to determine the overall degree of effect.

For this action, the ETDM screening occurred in 2017; **Table 1-1** shows the degree of effect summary. The degree of effect ratings ranged from N/A – Not Applicable/ No Involvement to 4 - Substantial. No agency submitted a degree of effect of 5 - Dispute Resolution.

- 3 - Moderate degree of effect was identified for Historic and Archeological Sites, Water Quality and Quantity, Wildlife and Habitat and Special Designations
- 4 - Substantial degree of effect was identified for Wetlands and Surface Waters

A summary of each agency's comments for resources with a 3 - Moderate, or 4 - Substantial degree of effect is provided in **Appendix A**. None of the ETAT review agencies provided comments in the Indirect and Cumulative Effects category. These ETDM comments were used as guidance in development of the PD&E Study interchange alternative configurations. The results of the investigations into direct effects performed during the PD&E study are summarized as follows for items that were ranked as Degree of Effect 3 - Moderate and 4 - Substantial in ETDM:

- Degree of Effect 3 - Moderate. Resources with a 3 - Moderate degree of effect:
 - Cultural Resources – No effects were noted to any cultural resources during the PD&E Study, including historic and archaeological sites that are listed or eligible for listing in the National Register for Historic Places (NRHP).

- Water Quality and Quantity – Stormwater management facilities have been proposed to meet water quality and water quantity criteria under St. Johns River Water Management District regulatory guidelines for the proposed project.
- Wildlife and Habitat – All potential listed species were analyzed for potential involvement from the proposed project. All federally listed species were given determinations of either “May Affect, but not Likely to Adversely Affect” or “No Effect”, and all state listed species were given “No Adverse Effect” determinations.
- Special Designations – The project is adjacent to a tributary of Spruce Creek which is an Outstanding Florida Water (OFW). Appropriate permitting will be required to meet the special designation criteria for protecting water quality.

Table 1-1. ETDM Programming Screen Degree of Effect Summary

Legend		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 and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
N/A	Not Applicable/ No Involvement																					
0	None (after 12/5/2005)																					
1	Enhanced																					
2	Minimal																					
3	Moderate																					
4	Substantial																					
5	Dispute Resolution (Programming Screen)																					
Alternative #1 - I-95 Interchange at Pioneer Tr From: Williamson Blvd. To: Turnbull Bay Road Published: 11/03/2017 Reviewed from 08/03/2017 to 10/02/2017		1	2	N/A	2	2	1	1	2	3	N/A	4	3	2	3	0	2	2	2	2	N/A	3

- Degree of Effect 4 - Substantial. Resources with a 4 - Substantial degree of effect:
 - Wetlands and Surface Waters – Alternatives were considered to minimize direct effects to wetland systems and appropriate mitigation was identified for potential unavoidable impacts to forested and emergent wetlands systems.

2.0 INDIRECT EFFECTS ANALYSIS

The Indirect Effects Analysis was conducted using the guidance provided in the American Association of State Highway and Transportation Officials (AASHTO) Practitioner's Handbook 12, Assessing Indirect Effects and Cumulative Impacts under NEPA (AASHTO, 2016) and the FDOT Cumulative Effects Evaluation Handbook (FDOT, 2012). Selection of the temporal study frame was based on the planning horizon/ design year used in the transportation planning forecast efforts for this project; the time horizon for this analysis is 2045. Also included were areas of significant development that have already been planned and will be constructed during this timeframe. Three Developments of Regional Impact (Farmton, Restoration and Pavilion at Port Orange) occur within the study area during this timeframe.

Several methods were evaluated to delineate the indirect effects study area. The study area was developed based on the categories of resources that would potentially be impacted including socioeconomic, natural and cultural. The specific method used to delineate the study area for this project included evaluation of various geographic boundaries including: groupings of traffic analysis zones (TAZs) from the travel demand model (used to identify areas of potential induced growth), limits of environmental systems such as natural watershed areas identified by hydrologic unit code (HUC) boundaries and wildlife management/ species habitat areas that may include potentially impacted resources. Further, guidance for indirect and cumulative impact analysis suggests that the potential for induced growth effects of freeway interchanges generally extends up to a one-mile radius and up to two to five miles along major feeder roadways to the interchange. The resulting overall Indirect Effects Study Area is shown on **Figure 2-1**.

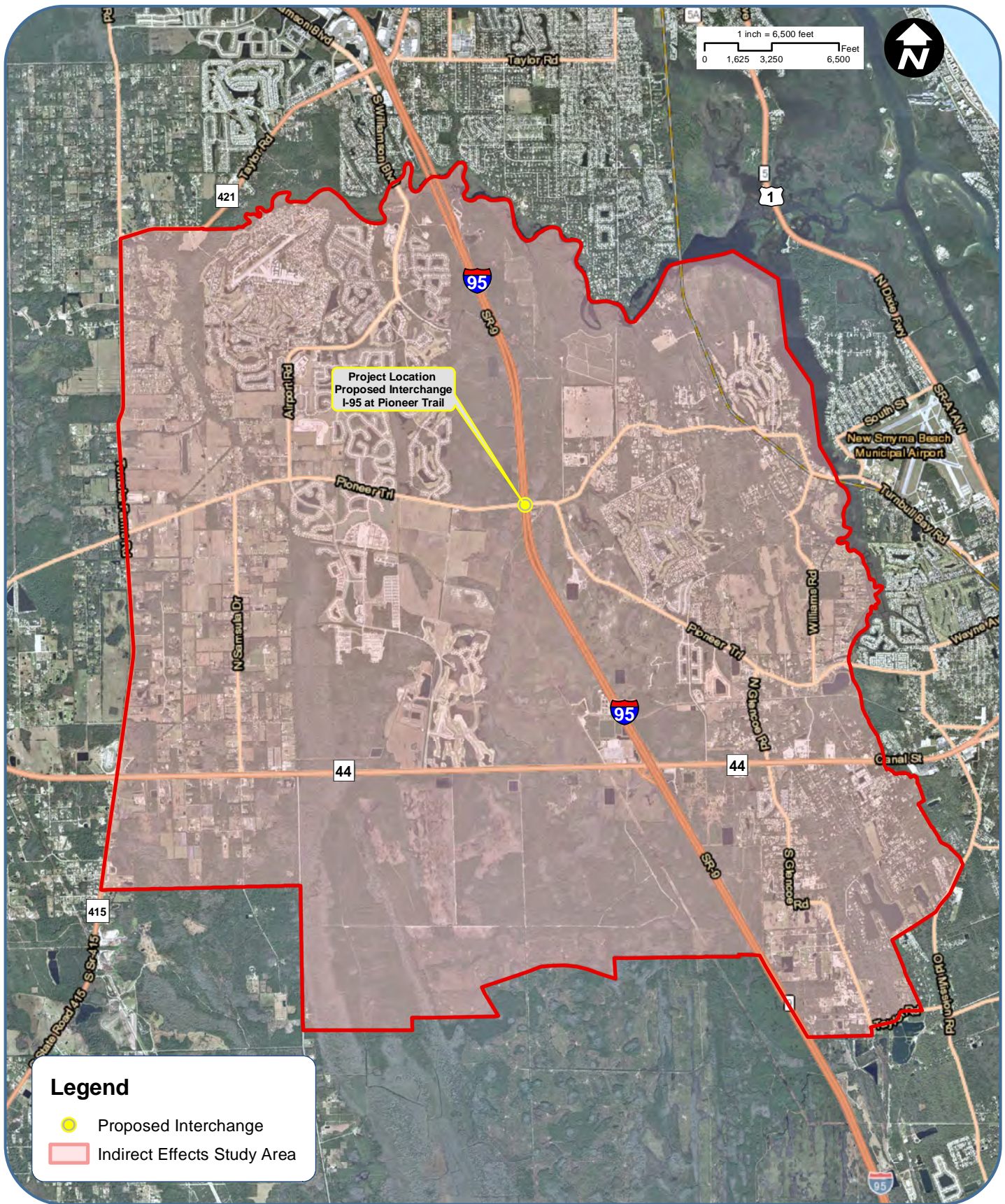
Potential future growth was analyzed for the study area based upon the guidance described above. The area of potential growth (**Figure 2-2**) is defined as those parcels within the larger Indirect Effects Study Area that meet the criteria for future development (currently vacant, appropriate zoning or future land use designation, frontage and/or access) or are currently under a plan for future development. The area of Induced Growth is defined as the area within a 1 mile radius of the proposed interchange and up to 2 miles along the major roadways that would be influenced by the interchange (**Figure 2-3**). The Independent Growth Parcels referred to as the "No-Build Condition" are those parcels within the Induced Growth Area where planning for development has already occurred (or is currently occurring) independent of the proposed project (**Figure 2-4**). The Induced Growth Parcels are those parcels within the induced growth area that would be subject to future growth based upon the proposed project (**Figure 2-5**).

Indirect effects have already occurred in the region based upon the construction of I-95 in its original state, subsequent widening, and interchanges such as SR 44 and SR 421 (Dunlawton Avenue) in the area. The Williamson Boulevard extension project has also added to the impacts within the study area. There are also numerous projects that are currently approved and/or under construction within the study area (independent growth parcels). Large scale residential developments within the study area include additional phases to Venetian Bay, and new developments such as Coastal Woods, Shell Pointe Colony, Turnbull Crossings, and Woodhaven, and a yet unnamed development at Elbert Land Estates.

The AASHTO handbook prescribes a four-step process to assess indirect effects; the following describes how these steps were applied to address the proposed project.



FIGURE 2-1: INDIRECT EFFECTS STUDY AREA
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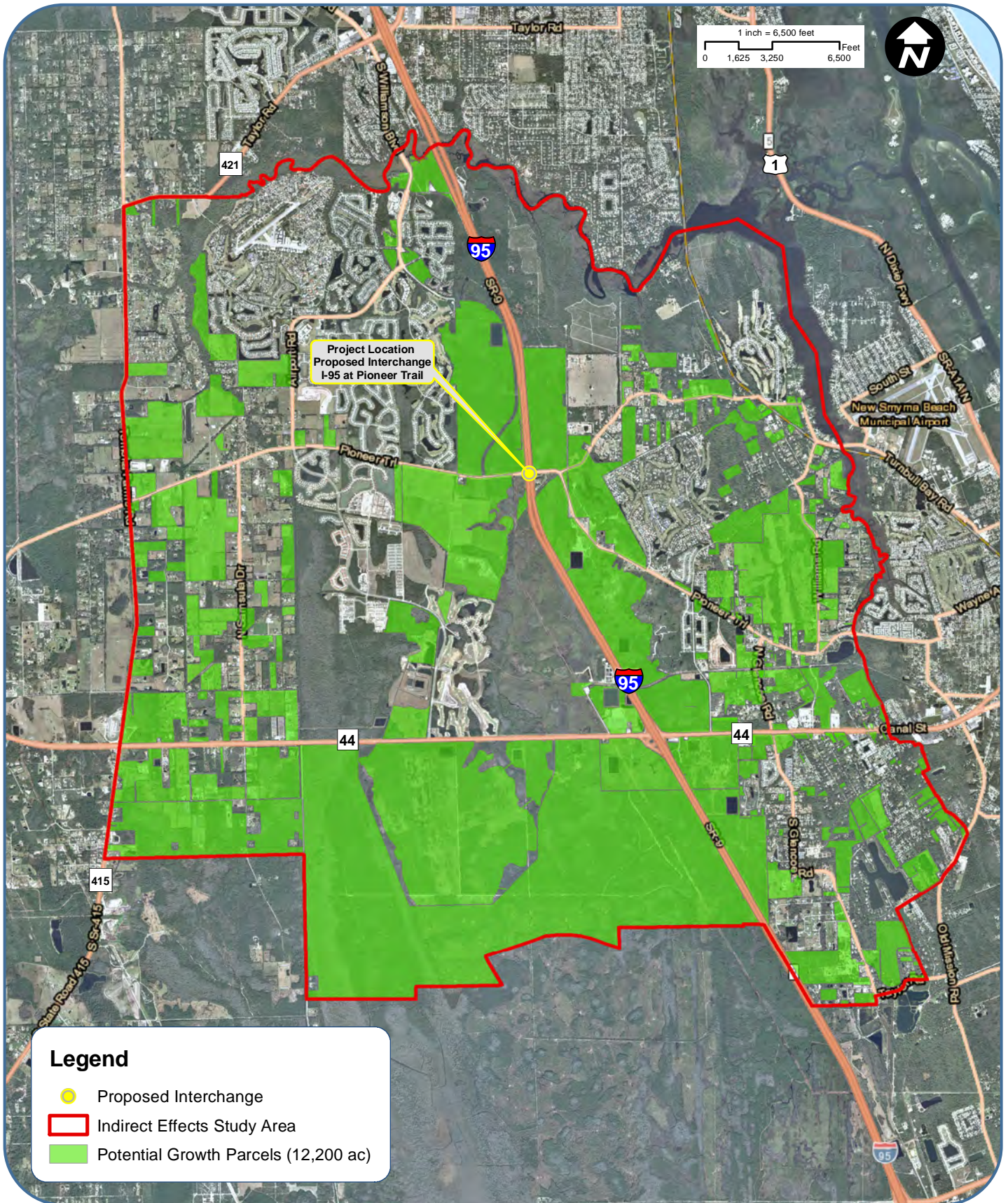


Legend

- Proposed Interchange
- Indirect Effects Study Area



FIGURE 2-2: POTENTIAL GROWTH PARCELS
 I-95 at Pioneer Trail Interchange PD&E Study
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Legend

- Proposed Interchange
- Indirect Effects Study Area
- Potential Growth Parcels (12,200 ac)



FIGURE 2-3: INDUCED GROWTH AREA
I-95 at Pioneer Trail Interchange PD&E Study
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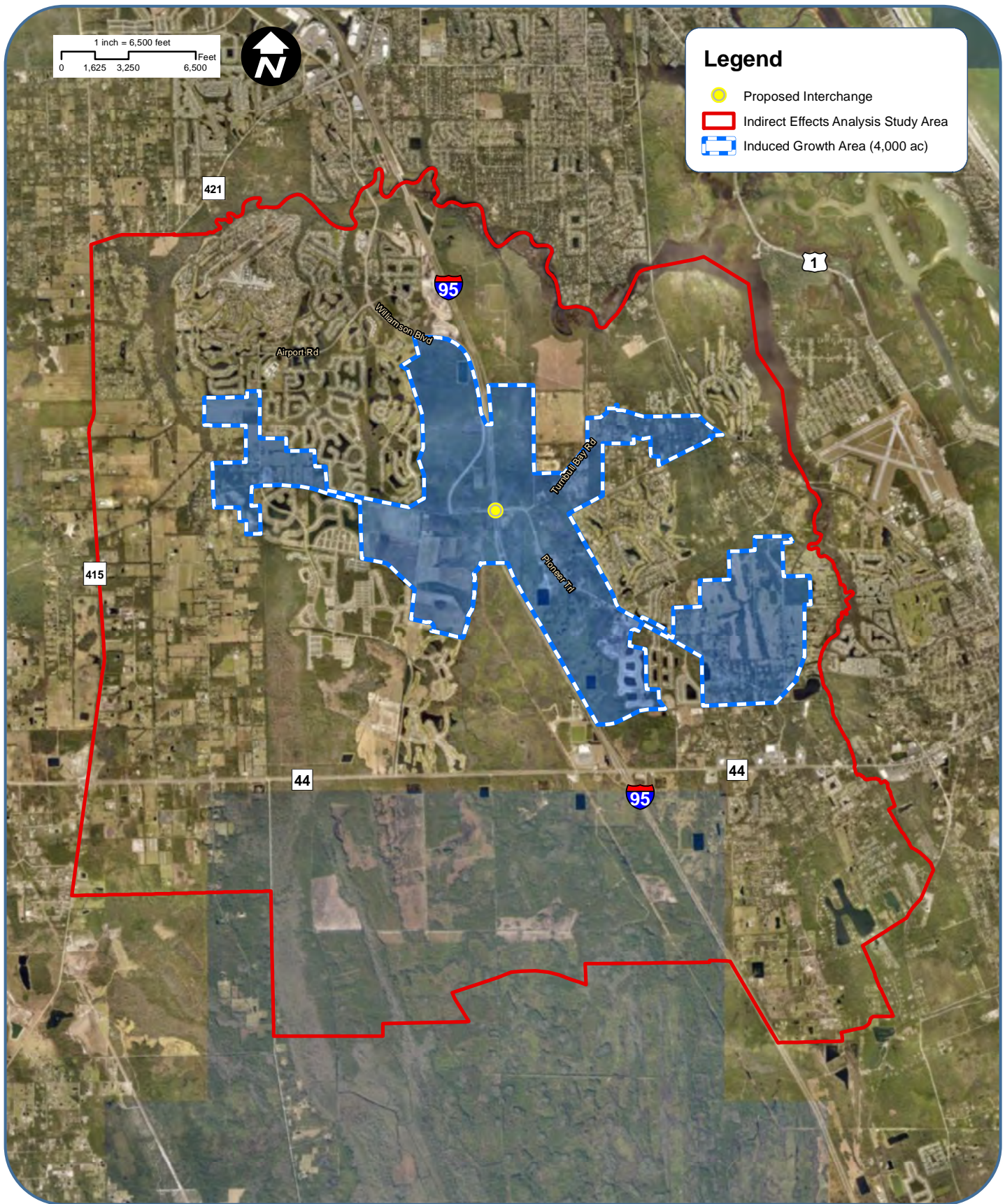




FIGURE 2-4: INDEPENDENT GROWTH PARCELS (NO-BUILD CONDITION)

I-95 at Pioneer Trail Interchange PD&E Study
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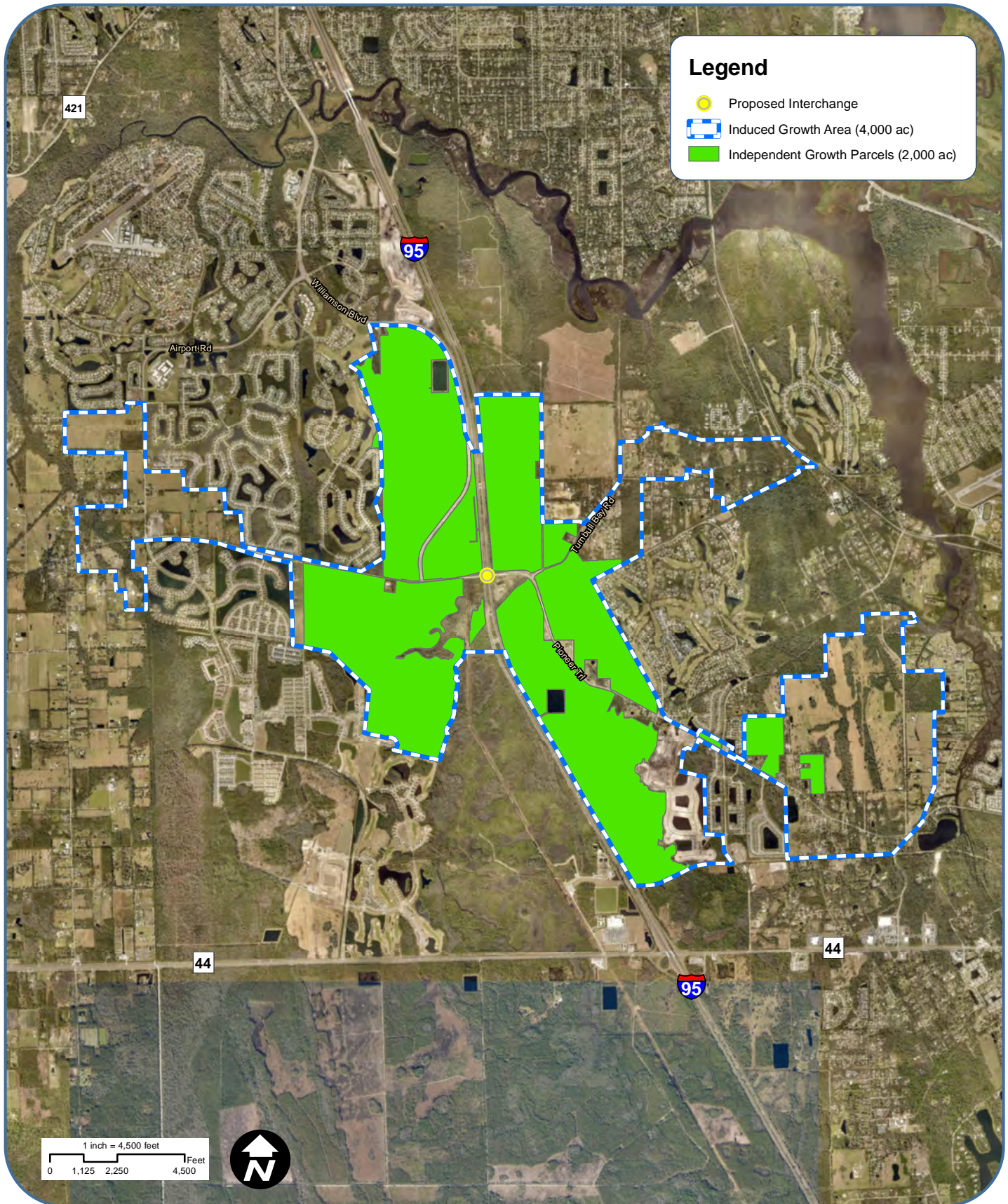
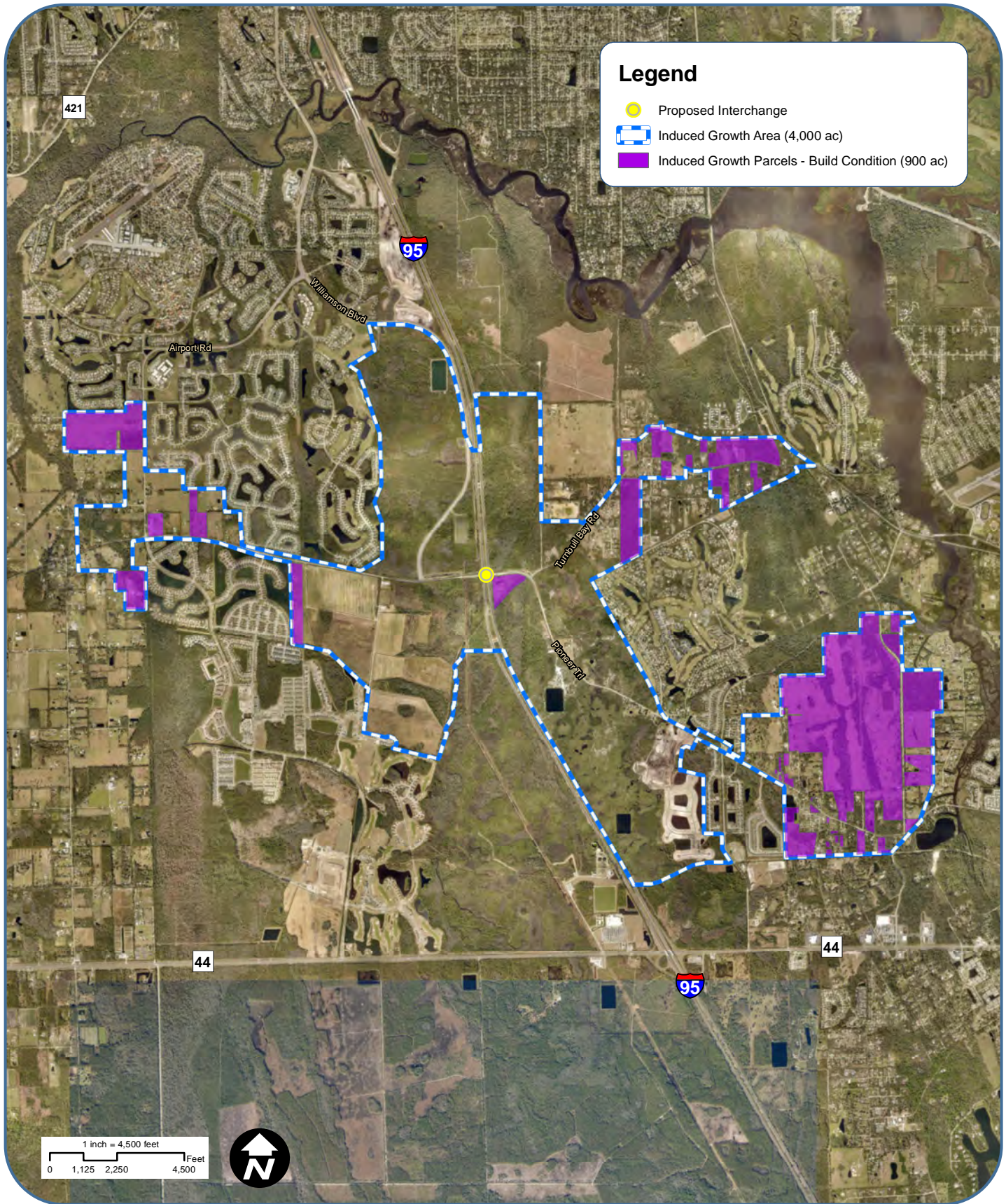




FIGURE 2-5: INDUCED GROWTH PARCELS (BUILD CONDITION)

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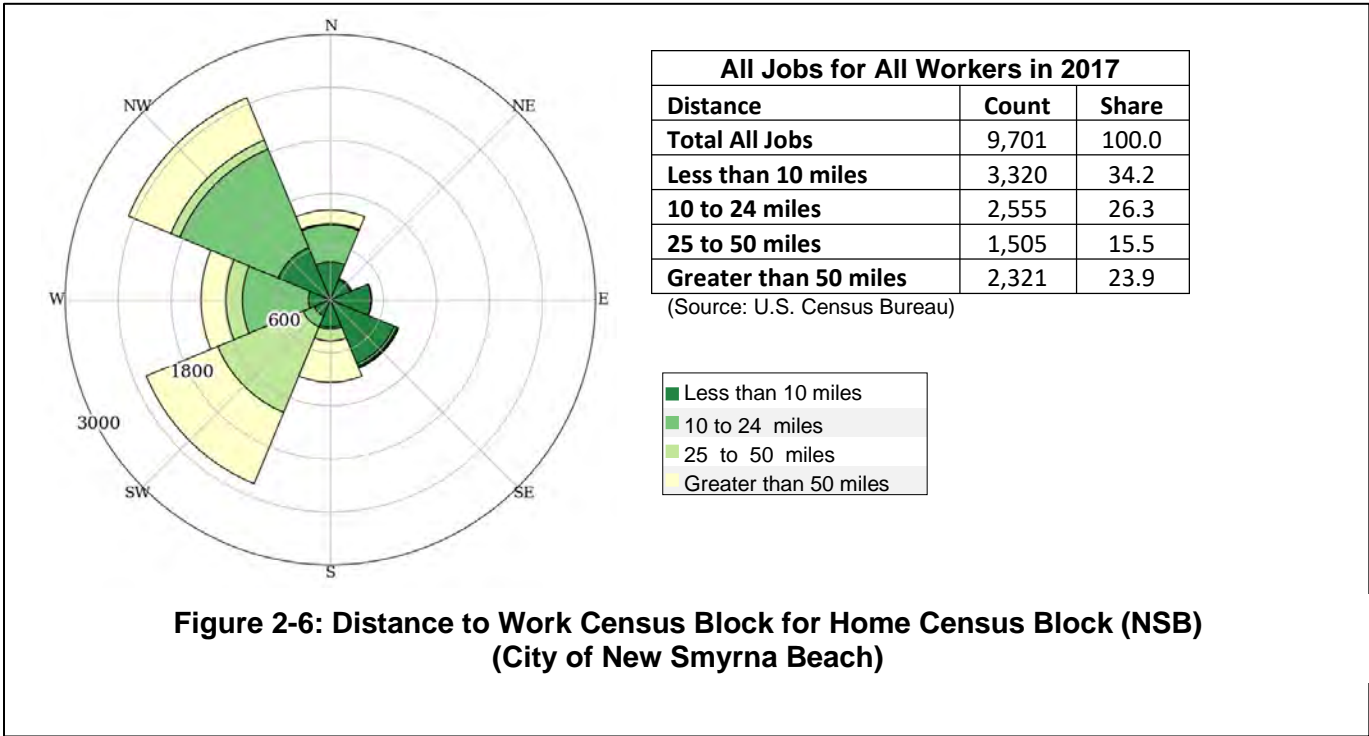
2.1 STEP 1: ASSESS POTENTIAL FOR INCREASED ACCESSIBILITY

Part of the purpose and need for this project is increased accessibility to I-95 and improving regional mobility in southeast Volusia County while supporting economic viability associated with future development. The responses to the AASHTO handbook questions provide further clarification.

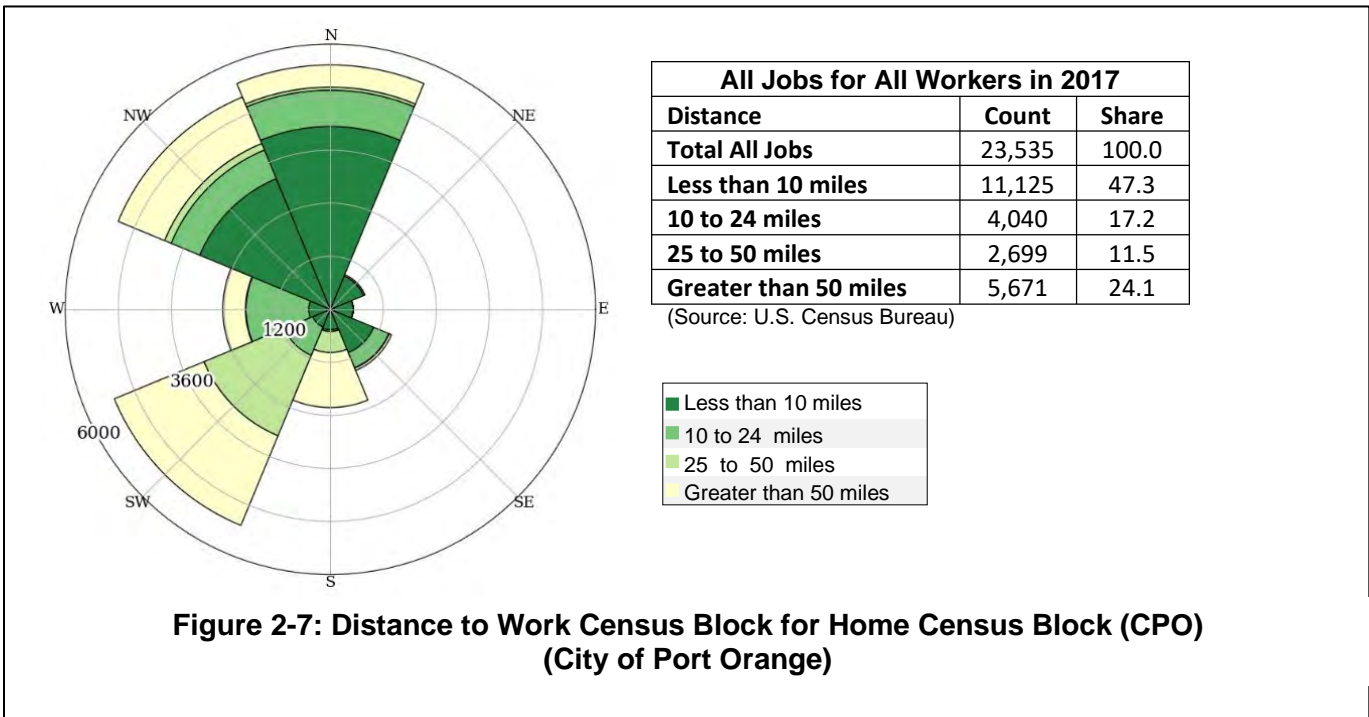
2.1.1 What geographic areas will experience increased accessibility, in the form of faster travel times or more direct access to a transportation facility?

The proposed interchange lies at the boundary of two cities: Port Orange and New Smyrna Beach. Thus, communities primarily within the cities of New Smyrna Beach and Port Orange are expected to experience increased accessibility due to the proposed interchange. However, other areas of Volusia County are also expected to benefit from the proposed interchange. A review of the future land use maps shows that both cities are largely comprised of residential areas with supporting commercial, public, institutional and recreational uses. Mixed-use, commercial and activity centers are concentrated in areas adjacent to the two existing major interchanges along I-95: SR 421 in Port Orange and SR 44 in New Smyrna Beach. With the proposed interchange in place, increased accessibility would be provided for the communities surrounding the interchange, such as the Venetian Bay master planned community, Sugar Mill neighborhoods in New Smyrna Beach, Spring Forest and Samsula-Spruce Creek neighborhoods in unincorporated Volusia County and Cypress Head in Port Orange. This would also serve those DRI's (Farnton, Restoration and Pavilion at Port Orange) currently planned or in development. Additionally, commuters traveling between New Smyrna/Port Orange and other parts of the County are expected to benefit from increased accessibility. Major employers in this region of Volusia County include Daytona State College, Embry Riddle Aeronautical University, Daytona Beach International Airport, International Speedway Corporation, Teledyne Oil and Gas, U.S. Foods Inc. and Boston Whaler.

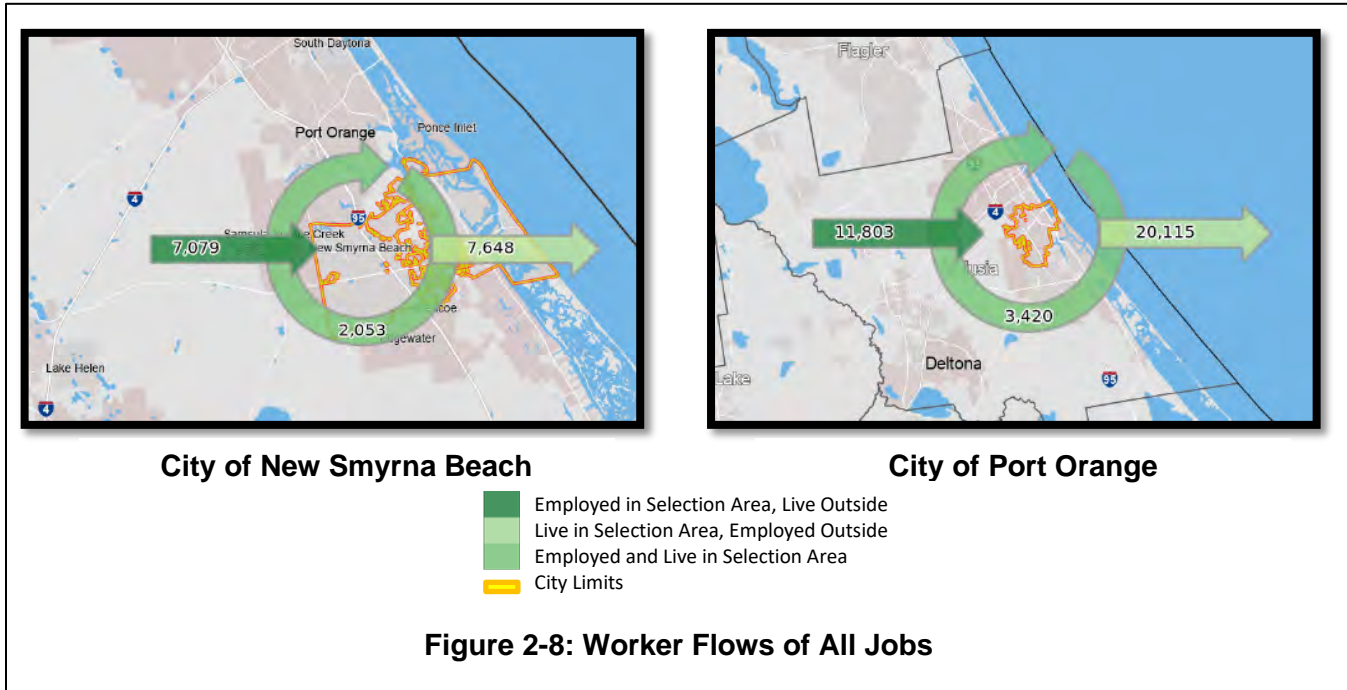
A work destination analysis using the U.S. Census Bureau, Center for Economic Studies OnTheMap Tool was completed. The analysis showed that in 2017 the majority of employment areas (work census blocks) for home census blocks within the cities of New Smyrna Beach and Port Orange were located at a distance greater than ten miles as shown in **Figures 2-6 and Figure 2-7**, respectively. The percentage share of those traveling at a distance greater than 50 miles from the home census blocks in 2017 more than doubled compared to the five years prior in 2013 for both cities, illustrating that a larger share is traveling farther from home for work-related trips. Additionally, the census data reveals that the largest employment destinations outside of the home census block areas are located to the north/northwest (Daytona Beach) and to the southwest (DeLand). Finally, based on the inflow/ outflow counts of all jobs in 2017, increased accessibility is anticipated for commuters that are traveling to work in New Smyrna Beach and Port Orange and that live in areas of Volusia County outside of these two cities as shown in **Figure 2-8**.



**Figure 2-6: Distance to Work Census Block for Home Census Block (NSB)
 (City of New Smyrna Beach)**



**Figure 2-7: Distance to Work Census Block for Home Census Block (CPO)
 (City of Port Orange)**



2.1.1 How much will travel times improve? What specific areas experience the greatest improvements in travel times?

There are two existing interchanges along I-95: SR 421/ Dunlawton Avenue approximately 4.25 miles to the north of Pioneer Trail and SR 44/ Lytle Avenue approximately 2.75 miles to the south. Pioneer Trail has intersections with area roadways such as Williamson Boulevard and Airport Road to the west of the Interstate and Turnbull Bay Road and Sugar Mill Drive to the east. Currently these collector and arterial roadways are being used to access the existing interchanges at SR 421 and SR 44. The direct connection to I-95 from Pioneer Trail is expected to have a small influence on trip-making behavior including changes in trip destinations, patterns and frequency which can affect travel times. Travel times are expected to improve along the neighborhood roadways because users have the option to directly access a higher speed, limited access facility (70 mph for I-95 versus 40 to 50 mph on collector/ arterial roads). Furthermore, the area immediately surrounding the proposed Pioneer Trail interchange has been identified as an urban transition area in the future land use plans. Thus, shorter distance trips are anticipated to the new destination (e.g., employment, commercial) locations adjacent to the interchange. Additionally, the new direct access to I-95 will allow for emergency vehicles to have faster response times for incident management along this stretch of the I-95 corridor as well as for the surrounding communities adjacent to the Pioneer Trail interchange.

The travel times vary depending on the origin and destination of travel and will fluctuate depending on the desired traffic route. Data from the regional travel demand model, Central Florida Region Planning Model (CFRPM), was used to extract travel time information for the proposed project. The model runs were completed for the No Build and Build scenarios in future year 2045. The Build scenario assumes a new interchange at I-95 and Pioneer Trail and accounts for mode and route shifts associated with induced travel. The resulting travel time reductions are shown in **Table 2-1**. It should be noted that the model is for large-scale regional planning purposes and the data for individual localities is imprecise and should be considered as such. Based on the information provided in **Table 2-1**, the greatest benefits in

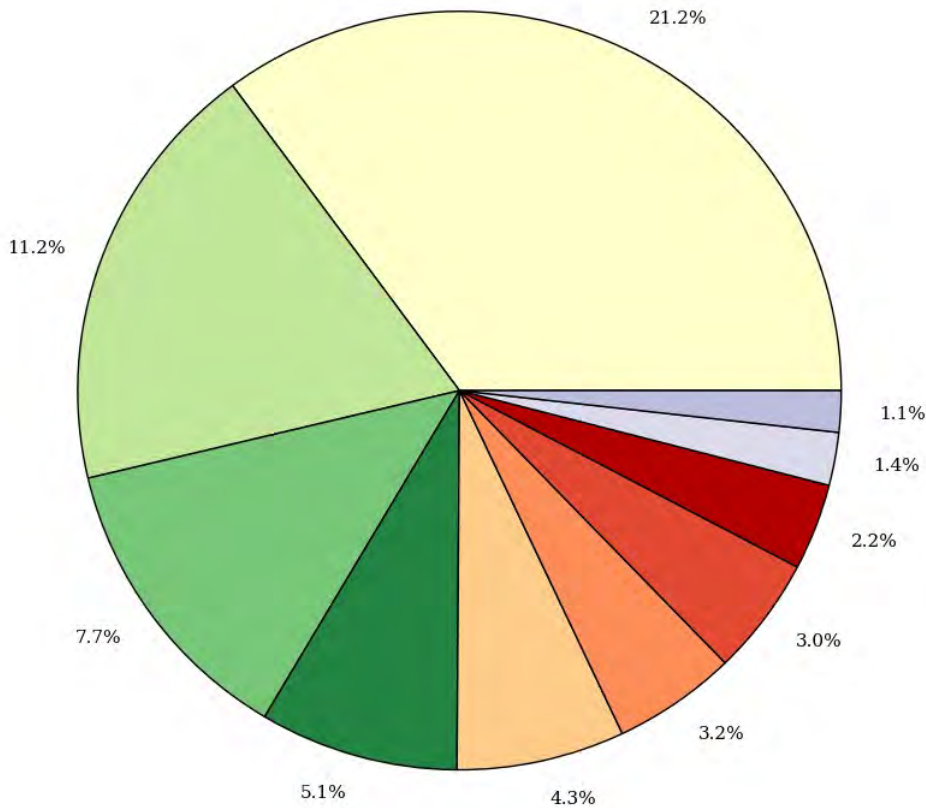


travel times are anticipated for the communities within the cities of New Smyrna Beach and Port Orange and in unincorporated areas of Volusia County adjacent to the proposed interchange. However, travel time improvements may also result for trips to and from other locations such as Daytona Beach and DeLand which have a substantial share of the employment-related trips as shown in **Figure 2-9** and **Figure 2-10**.

Table 2-1. Estimated Travel Time Savings within Study Area		
Roadway Link	Limits	Travel Time Reduction/ Savings
Pioneer Trail Eastbound	I-95 and Williamson Boulevard	1 minute 17 seconds
Pioneer Trail Westbound	I-95 and Williamson Boulevard	1 minute 36 seconds
Williamson Boulevard Southbound	SR 421 and Pioneer Trail	1 minute 2 seconds
Williamson Boulevard Northbound	SR 421 and Pioneer Trail	42 seconds

2.1.2 Are there any noteworthy differences among the build alternatives in terms of the travel time savings or new access points that they would provide? For example, do the alternatives vary in terms of the specific geographic areas that would experience faster travel times?

There are no noteworthy differences in the build alternatives as each alternative is a different interchange configuration at the same general location. There is not enough variation in the design of the alternatives to significantly affect accessibility or travel times.

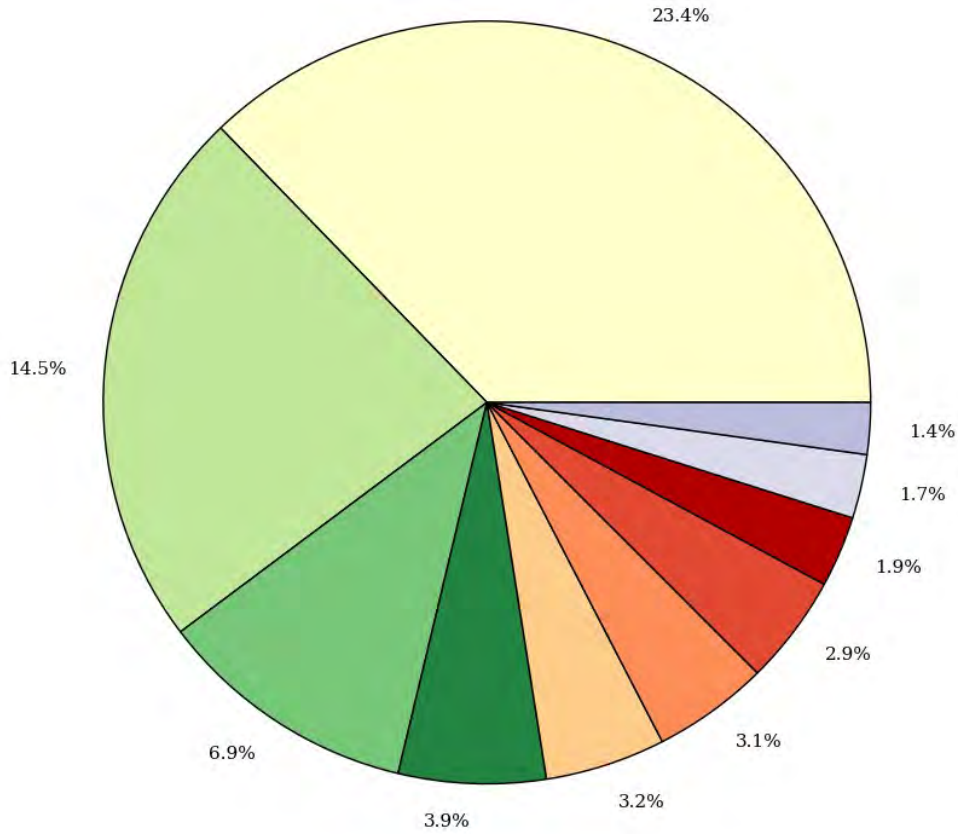


Note: Jobs in All Other Locations
 (39.8%) are not shown in chart.

All Jobs from New Smyrna Beach to Work Places in 2017		
Places (Cities, CDPs, etc.) as Work Destination Area	Count	Share
All Places (Cities, CDPs, etc.)	9,701	100.0
New Smyrna Beach city, FL	2,053	21.2
Daytona Beach city, FL	1,086	11.2
DeLand city, FL	746	7.7
Port Orange city, FL	492	5.1
Edgewater city, FL	416	4.3
Orlando city, FL	306	3.2
Jacksonville city, FL	295	3.0
Ormond Beach city, FL	215	2.2
Sanford city, FL	132	1.4
Tampa city, FL	103	1.1
All Other Locations	3,857	39.8

(Source: U.S. Census Bureau)

Figure 2-9: Employment Destinations for Homes in New Smyrna Beach



Note: Jobs in All Other Locations (37.0%) are not shown in chart.

All Jobs from Port Orange to Work Places in 2017		
Places (Cities, CDPs, etc.) as Work Destination Area	Count	Share
All Places (Cities, CDPs, etc.)	23,535	100.0
Daytona Beach city, FL	5,518	23.4
Port Orange city, FL	3,420	14.5
DeLand city, FL	1,632	6.9
Ormond Beach city, FL	920	3.9
New Smyrna Beach city, FL	752	3.2
Jacksonville city, FL	726	3.1
Orlando city, FL	688	2.9
South Daytona city, FL	447	1.9
Holly Hill city, FL	402	1.7
Daytona Beach city, FL	324	1.4
All Other Locations	8,706	37.0

(Source: U.S. Census Bureau)

Figure 2-10: Employment Destinations for Homes in Port Orange

2.1.3 Are there important uncertainties in the estimates of travel time savings? For example, are the travel time savings provided by this project contingent on other transportation system improvements that have not yet been constructed? Uncertainty can be important in determining whether induced growth is foreseeable.

The estimates of travel time savings provided by the regional planning model included the planned roadway improvements identified in the River to Sea Transportation Planning Organization (TPO) 2040 Long Range Transportation Plan (LRTP). Minor uncertainties are a part of the funding and timing of LRTP roadway improvement projects. If the LRTP improvements (such as widening Pioneer Trail from two to four lanes) were not constructed, the travel times between origins and destinations may be impacted. Increased travel times for the unimproved facilities could result in decreased travel time savings for the new interchange. However, areas abutting interchanges are prime locations for development activity (such as commercial centers with office/retail uses), thus the interchange itself will provide some of the induced growth that is foreseeable in this area. Therefore, uncertainties in travel time savings is not expected to be the determinant of whether induced growth is foreseeable.

2.1.4 To what extent is the travel model capable of taking into account induced travel? Is induced travel a factor that could meaningfully affect travel time savings?

Induced demand or induced travel is described as “the observed increase in traffic volume that occurs soon after a new highway is opened or a previously congested highway is widened” (FHWA, 2017). More broadly, induced demand includes changes in travel demand as a direct or indirect result from a new infrastructure investment. Induced travel accounts for the increases in travel beyond that which would occur anyway as a result of demographic changes such as population and employment growth, increased income, increased vehicle ownership, fuel prices and workforce participation. Since induced travel adds traffic to an area, additional vehicles are expected to increase travel time thereby impacting travel time savings. The typical 4-step modeling process considers the cost of travel (primarily determined by time) as well as the demographics within each traffic analysis zone to pair origins and destinations within the trip distribution step. The model then routes travel between origins and destinations by shortest travel time using the provided network within the highway assignment step. The shortest travel time is impacted by infrastructure improvements and can change the pairing of origins and destinations, mimicking induced travel/ demand. While it is not a function of a regional travel demand model, a substitute procedure to determine the effects of induced travel/ demand can be accomplished. CFRPM can provide results that skip the origin-destination shifts due to the travel time changes created by an infrastructure investment. In the case of the Pioneer Trail interchange with I-95, the differences between travel times with and without induced travel are not meaningful.

2.2 STEP 2: ASSESS THE POTENTIAL FOR INDUCED GROWTH

The AASHTO handbook states that induced growth includes changes to the “type, location, and place of growth.” The areas for potential induced growth include undeveloped land parcels that currently do not have any permits or are in any stage of current planning/ development and are not located within conservation/ preservation areas. The existing and future land use maps along with aerial maps and data from community development and the current planning divisions of the Cities of New Smyrna Beach and Port Orange were reviewed to determine where current developments exist and to identify areas for potential future growth. The majority of the land within the induced growth area is currently undeveloped, though a significant portion is under planned development, as shown on **Figure 2-4**. The current land

use includes primarily residential uses, conservation lands and agriculture. The parcels in three of four quadrants of the proposed I-95 and Pioneer Trail interchange are currently vacant (a nursery is located in the southeast corner). Development plans exist for portions of all four quadrants.

2.2.1 Is growth already occurring in the Indirect Effects Study Area? Is it likely that the current growth trends would continue regardless of whether the project is implemented?

Steady growth has been occurring within and surrounding the indirect effects study area over the last two decades. According to the US Census Bureau and University of Florida, Bureau of Economic and Business Research (BEBR, 2018), the average annual growth rate was 2.2% for New Smyrna Beach and 1.1% for Port Orange, based on the population change between 2010 and 2018. Comparatively, the average annual growth rate was 0.92% for Volusia County as a whole and 1.35% for the state of Florida for the same time period. Development planned for the indirect effects study area is described in the Future Land Use Element of the cities' respective Comprehensive Plans (City of Port Orange, 2010 & City of New Smyrna Beach, 2016). The area surrounding the proposed interchange is currently undeveloped, but all of the quadrants are anticipated to be developed in the near future as part of the development occurring in this fast-growing region of the County. Based on data from the current planning divisions of the cities of Port Orange and New Smyrna Beach, portions of the adjacent vacant lands are under various phases of development including planning, zoning and/or construction. In the northwest and northeast quadrants of the proposed interchange, the Woodhaven 983-acre Planned Unit Development (PUD) for which a master development agreement has been executed proposes approximately 1,300 dwelling units and 650,000 square feet of non-residential use including an outdoor village shopping district. The southwest quadrant is proposed as a 745-lot residential subdivision (Shell Pointe Colony) with two village shopping centers. East of the southeast quadrant, the approximate 870-acre Coastal Woods PUD is planned for 1,330 residential units and commercial uses that include 341,000 square feet for a regional shopping center, 407,000 sq. ft. of office, industrial and public/civic land uses and a 98-room hotel. The future land use element of the City of New Smyrna Beach projects continued growth near the proposed interchange and surrounding areas based on several key trends: urban development that has already occurred around the I-95 and SR 421 interchange to the north, the need for quality residential communities to support employment growth associated with the Regional Activity Center planned near the SR 44 interchange, and for workers employed in the Orlando Metropolitan area and residing in or maintaining second homes near the coastal communities. Based on the historic growth trends and current rate of land development activity, development of the adjacent lands is not expected to be entirely dependent on the interchange being built. However, the type of development and timing has the potential to be impacted by the interchange.

2.2.2 What is the magnitude of the increase in accessibility? Would the travel time reductions be large enough to influence travel patterns? For example, would the project bring currently rural areas within a reasonable commuting time of a major metropolitan area?

The most common measure of increase in accessibility is travel time savings. As far as the travel demand model is concerned, even small changes in travel time can influence travel patterns. As previously shown in **Table 2-1**, travel time savings ranged from 42 seconds to over 90 seconds for some of the key corridors in the project study area. The project lies within the City of New Smyrna Beach, and the City of Port Orange is immediately to the north, as previously shown in **Figure 1-1**. The next closest metropolitan area (population over 50,000) is the City of Orlando, which is

approximately 55 miles to the southwest, a commuting time of at least one hour. Based on commuting characteristics data from the U.S. Census 2013-2017 American Community Survey, the mean travel time to work is 26.4 minutes in the U.S., 27.0 minutes in Florida and 25.4 minutes in Volusia County. Thus, a commute time in excess of one hour is not deemed to be reasonable when compared with the average commuting times based on the Census data. As such, this action would not bring current rural areas within a reasonable commute of the City of Orlando. The effect on travel patterns of the project is expected to be more localized. The addition of the new interchange is anticipated to mainly affect accessibility and commuting time from residential areas to employment centers within the existing and/or planned activity centers in New Smyrna Beach and Port Orange as well as the Deltona-Daytona Beach-Ormond Beach metropolitan area.

2.2.3 For areas that would experience improved accessibility, what other factors are present that might enable or inhibit growth?

This project is consistent with Volusia County and the River to Sea Transportation Planning Organization (R2C TPO) 2040 Long Range Transportation Plan (LRTP). It is also supported by the local governments of City of New Smyrna Beach and City of Port Orange. In addition, public and private stakeholders in the region including property owners, reported interest in and support of an interchange at Pioneer Trail at the April 2019 public meeting for the project. This interest represents one facet of development in attracting commercial uses and related employment opportunities that could contribute to accelerated growth. Furthermore, the Future Land Use Elements of City of Port Orange and City of New Smyrna Beach Comprehensive Plans have specified preferred land use categories with maximum development densities/ intensities for each type of use. Development of currently vacant individual parcels would be dictated by the Comprehensive Plans, and any future adjustments would require the local planning agency's approval. The future land use elements also set limitations on development of rural areas such that growth occurs in an effective manner in conjunction with the availability of public services and facilities and in consideration of the area's natural features. Other factors that affect growth are: natural limitations such as topography and soil condition, the cities' development guidelines that include minimum design standards, land development regulations and smart growth initiatives that promote sustainability and protection of natural and cultural resources while promoting development that contributes to livability as well as the economic health of the area.

2.2.4 If current laws or policies limit growth, is it likely that those restrictions would be modified if the project were constructed?

The current laws do not limit growth; however, there is a regulatory framework for sustainable development as outlined in **Table 2-2**. The federal Clean Water Act (CWA) Section 404 and SJRWMD Environmental Resource Permit (ERP) regulate wetlands, wildlife, water quantity and quality and floodplains. The Florida Fish and Wildlife Conservation Commission (FWC) has species-specific permits if impacts occur. Finally, Volusia County and City of New Smyrna Beach have specific open space, buffers, and wildlife linkage corridors required for development. There are no restrictions to growth for which modifications to these laws and policies would be required.

Table 2-2. Potential Permit List

Permit/ Approval	Agency	Regulated Activity	Authority	Comment
CWA Section 404 Permit	USACE	Section 404 (dredge and fill permit)	33 U.S.C. 1251 et seq.	<ul style="list-style-type: none"> Required permit USFWS is consulting agency for habitat Requires mitigation for wetland impact
Environmental Resource Permit (ERP)	SJRWMD	Wetlands, habitat, stormwater, and floodplain	40C-4, 40C-40, 40C-41, 40C-42 F.A.C.	<ul style="list-style-type: none"> Required permit Mitigation for unavoidable wetland impact FFWCC is consulting agency for habitat
Gopher Tortoise Relocation Permit	FWC	Tortoise relocation	Rules 68A-25.002 and 68A-27.004 F.A.C.	Required if avoidance of burrows is not feasible at design.
Local Development Approval	City of New Smyrna Beach	Land Development Regulations	Article VII 701 Article VII 702 Article VII 704	Wetland protection, mitigation Flood prone areas Historical, architectural or archeological resources
	City of Port Orange	Land Development Code	Ch. 9, Article I, Sec. 3-4 Ch. 9, Article II, Sec. 9-22 Ch. 9, Article III, Sec. 25 Ch. 9, Article IV, Sec. 31-33	Wetlands protection, mitigation Tree preservation Spruce Creek environmental corridor Listed species protection
	Volusia County	Land Development Regulations	Sec. 72-884 Sec. 72-886 Sec. 72-887	Wetlands permits, buffer, mitigation
			Sec 72-745	Flood Hazard areas, Floodplain permits
			Sec. 72-831 – 72-845	Open Space & Tree Preservation Tree protection, retention areas, relocation requirements
		Sec. 72-1141	Gopher Tortoise protection standards	

2.2.5 Are there noteworthy differences within the study areas in terms of the potential for induced growth?

A review of the travel demand model for the design year 2045 shows that in the study area the Traffic Analysis Zones (TAZs) with the highest population and employment densities occur around the existing I-95 and SR 421 interchange which is completely built out and located north of the indirect effects study area. Numerous residential projects are

proposed within the indirect effects study area. Several of these include mixed-use centers that would create new destinations for employment, shopping or recreational trips. To the south of the proposed Pioneer Trail interchange, a regional activity center is currently in various stages of development at the I-95 and SR 44 interchange. The northwest and southeast quadrants are partially developed with commercial retail and/ or medical office uses while the other two quadrants are vacant. Future phases of development around the SR 44 interchange will include a variety of mixed uses that would provide high-intensity employment bases as well as recreational and shopping destinations for the surrounding neighborhoods. Based on the planned developments currently approved and the socioeconomic data in the travel demand model as shown in **Table 2-3**, it is possible that the I-95 and Pioneer Trail interchange will develop with housing and population densities similar to the SR 421 existing interchange to the north and employment density similar to the SR 44 interchange to the south.

Table 2-3. Travel Demand Model Socioeconomic Data (Horizon Year 2045)				
Location	CFRPM Traffic Analysis Zone (TAZ)	Dwelling Units	Population	Employment
I-95 & SR 421 Interchange Area	2412, 2414, 2416, 2417, 2175, 2182, 2183, 2193	6,485	12,969	8,591
I-95 & Pioneer Trail Interchange Area	2425, 2426, 2432, 2433, 2469, 2480, 2481	5,207	11,746	2,168
I-95 & SR 44 Interchange Area	2437, 2444, 2480, 2523, 2524	2,242	3,970	1,303

2.2.6 Is it feasible to quantify the amount of additional growth that is expected to occur, either in the study area as a whole or in specific zones within the study area?

The travel demand model developed for this project utilized a socioeconomic data set for future year 2045 based on Census population and employment projections for Volusia County. The data was disaggregated by proportionality to develop estimates for each of the Traffic Analysis Zones (TAZs) within the study area. The same population and employment data set was used for year 2045 for both No-Build and Build scenarios. The difference in the model between the two scenarios was a modification to the highway network to include the proposed interchange at Pioneer Trail. Thus, while the model shows the projected changes in traffic and shifts in routes due to the new interchange, it is not possible to quantify the amount of additional growth based on the travel demand model. However, as previously noted, based on the current planned developments and the development patterns of the existing adjacent interchanges to the north at SR 421 and to the south at SR 44, the potential exists around the four quadrants of the interchange and along the main feeder roadways that provide connectivity and access to the future interchange. However, as previously mentioned, there are proposed developments that have either already been approved or have begun construction within two of the four quadrants at the interchange, and along both Pioneer Trail and Turnbull Bay Road. Therefore it is not feasible to consider the entirety of these areas for induced growth, as the growth is occurring prior to and independent of the interchange.

2.2.7 Are there important areas of uncertainty that affect the assessment of induced growth?

The Comprehensive Plans for both the City of Port Orange and City of New Smyrna Beach have designated future land use based on several factors including economic, social, physical, environmental and political influences. Although preferred land uses and maximum allowable densities have been designated, land development regulations allow for changes in zoning as part of local development review processes. Additionally, although transportation infrastructure improvements influence land use and development patterns, there are other factors which have the potential to impact induced growth. These include changes in income levels, local governmental policies/ tax structure, changes in fuel prices and vehicle affordability, usage and ownership.

2.3 STEP 3: ASSESS THE POTENTIAL FOR IMPACTS ON SENSITIVE RESOURCES

The potential for impacts on sensitive resources is the “final step in the chain of causation” of the connection between induced growth and environmental impacts. The process to determine the potential sensitive resources started with the ETDM screening comments, direct effects evaluation, and agency coordination, summarized in Section 1 of this report. The ETDM resources that were ranked as 4 - *Substantial* (Wetlands and Surface Waters) are found within the Indirect Effects Study Area and are considered as a potentially sensitive resource. The resources ranked with a 3 - *Moderate* degree of effect (Historic and Archeological Sites, Water Quality and Quantity, Wildlife and Habitat and Special Designations) were evaluated further to determine applicability for the Indirect Effects Analysis as shown in **Table 2-4**.

Table 2-4. Moderate Degree of Effect Resource Evaluation List

Resource with Overall Degree of Effect Rating 3 - Moderate	Focus of Agency Concerns	Evaluation to Identify Potential Sensitive Resources for the Indirect Effects Analysis
Historic and Archeological Sites	<ul style="list-style-type: none"> No documented field surveys High probably of unrecorded cultural resources 	<ul style="list-style-type: none"> Cultural Resources Survey provided in this action with concurrence from the SHPO for no effects. Each project in Florida requires an ERP with SHPO concurrence required for permit issuance. Conditions of the permit address any archaeological finds during construction. <i>Conclusion to remove Historic and Archeological Sites from consideration as a resource for evaluation</i>
Water Quality and Water Quantity	<ul style="list-style-type: none"> Project is located within Northern Coastal Basin; Spruce Creek – Outstanding Florida Water Stormwater harvesting potential Surficial aquifer system and recharge area Potential for increase in water quality degradation 	<ul style="list-style-type: none"> The project was determined to lie inside the Volusia Aquifer boundaries. Sole Source Aquifer review had a finding of “no significant impact” by US EPA Region 4 office. Future SJRWMD permits for the project require stormwater ponds to address water quality and quantity. <i>Conclusion to remove Water Quality and Quantity from consideration as a potential sensitive resource.</i>

Table 2-4. Moderate Degree of Effect Resource Evaluation List

Resource with Overall Degree of Effect Rating 3 - Moderate	Focus of Agency Concerns	Evaluation to Identify Potential Sensitive Resources for the Indirect Effects Analysis
Wildlife and Habitat	<ul style="list-style-type: none"> Habitat loss from roadway surface area, drainage retention areas and cleared land Potential adverse effects to Federally or State listed species Potential for water quality impacts 	<ul style="list-style-type: none"> Natural Resources Evaluation has been conducted for the project No adverse effects to listed wildlife or habitat Future SJRWMD permits for the project require stormwater ponds to address water quality and quantity. <i>Conclusion to include Wildlife and Habitat as a potential sensitive resource.</i>
Special Designation	<ul style="list-style-type: none"> Project area connected to Spruce Creek – Outstanding Florida Water 	<ul style="list-style-type: none"> Future SJRWMD permits for the project require stormwater ponds to address water quality and quantity to meet Special Designation requirements. Special Designation is not directly within project area. <i>Conclusion to remove Special Designation from consideration as a potential sensitive resource.</i>

2.3.1 What sensitive resources are present in the study area? What is the condition of those resources?

As identified in the preceding section, Wetlands and Surface Waters and Wildlife and Habitat are the sensitive resources present in the Indirect Effects Study Area. The wetlands in the study area consist of hardwood forest (2,975 acres, 42%), forested mixed (2,108 acres, 30%), vegetated, non-forested (1,121 acres 16%) and coniferous forest (917 acres, 13%). Reservoirs (896 acres, 73%), streams and waterways (317 acres, 26%) and lakes (19 acres, 2%) comprise the surface waters in the study area. The wetlands are primarily concentrated throughout the central portion of the study area on both sides of Interstate 95, while the surface waters are found along the eastern and western periphery of the study area. Spruce Creek borders the study area to the north and consists of approximately 2,040 acres designated as Outstanding Florida Waters. An additional approximately 1,550 acres of conservation area is located with portions of Spruce Creek and extending south toward the northeast quadrant of the proposed interchange. The remainder of the wetlands and surface waters in the study area are situated on private, undeveloped lands. The wetland resources identified are in good condition and are not depleted. The existing land uses based on designations from Florida Land Use, Cover, and Forms Classification System (FLUCCS) are shown in **Table 2-5**.

Table 2-5. Land Use and Habitat Cover in Study Area

Land Use	Land Use Description
2110	Improved pasture
2130	Woodland Pastures
3200	Shrub and brushland
4110	Pine Flatwoods
4210	Xeric Oak
4410	Coniferous plantations
5100	Streams and waterways
5130	Ditch/Swale

5300	Stormwater Drainage Features
6210	Cypress
6250	Hydric Pine Flatwoods
6300	Wetland Forested Mixed
6420	Saltwater marshes
6430	Wet Prairies
6460	Mixed scrub-shrub wetland
8140	Roads and Highways
8145	Right-of-Way/ Median
8146	Primitive/Trail/Field Road

Wildlife and habitat resources with potential to occur within the indirect effects study area within were identified using FLUCCS and species lists from FWS and FWC for this portion of Volusia County. **Table 2-6** Lists the federal and state listed species with potential to occur within the indirect effects study area and are described in detail in the following sections.

Table 2-6. Potential Protected Species and Habitat in Study Area

Common Name	Scientific Name	Listing Status	Habitat within Indirect Effects Study area	Habitat within Induced Growth Area
Federal Listed Animals				
Eastern indigo snake	<i>Drymarchon couperi</i>	T	Yes	Yes
Atlantic salt marsh snake	<i>Nerodia clarkia taeniata</i>	T	Yes	No
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	T	Yes	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	N/A*	Yes	Yes
Wood stork	<i>Mycteria americana</i>	T	Yes	Yes
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No	No
Everglade Snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E	No	No
Piping Plover	<i>Charadrius melodus</i>	T	No	No
Red knot	<i>Calidris canutus rufa</i>	T	No	No
West Indian Manatee	<i>Trichechus manatus</i>	T	Yes	No
Federal Listed Plants				
Rugel's pawpaw	<i>Deeringothamnus rugelii</i>	E	Yes	Yes
Okeechobee Gourd	<i>Cucurbita okeechobeensis spp.</i>	E	No	No
Fragrant prickly apple	<i>Harrisia fragrans</i>	E	No	No
State Listed Animals				
Gopher tortoise	<i>Gopherus polyphemus</i>	T	Yes	Yes
Southeastern American kestrel	<i>Falco sparverius paulus</i>	T	Yes	Yes
Florida sandhill crane	<i>Grus canadensis pratensis</i>	T	Yes	Yes
Florida burrowing owl	<i>Athene cunicularia floridana</i>	T	Yes	Yes
Roseate spoonbill	<i>Ajaia ajaja</i>	T	Yes	Yes

Table 2-6. Potential Protected Species and Habitat in Study Area

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

E=Endangered, T=Threatened

2.3.1.1 Eastern indigo snake

The eastern indigo snake was listed as Federally threatened on January 31, 1978, (43 Fed. Reg. 4028), due to population declines caused by habitat loss, over-collecting for the domestic and international pet trade, and mortality caused by rattlesnake collectors who gas gopher tortoise burrows to collect snakes. A 5-year review was completed in 2008 resulting in no change to the species designation (FWS 2008). No critical habitat has been designated for the eastern indigo snake. FWS also does not have a designated consultation area for this species. Documented occurrences of the eastern indigo snake were reviewed through GIS databases and the closest documented sighting of the Eastern indigo snake is from 2003 within the New Smyrna coastal strand, over 7 miles to the southeast of the project location and outside of the indirect effects study area.

2.3.1.2 Florida scrub-jay

The FWS has designated Consultation Areas for the Florida scrub-jay which include the project study area. Consultation Areas encompass all areas where specific species populations exist. Volusia County environmental permitting keeps official “Landcover with Florida Scrub Jays and Scrub Natural Communities” mapping. Based on the map of the Port Orange area, several parcels along the east and west sides of I-95 north of Pioneer Trail and parcels on the north and south sides of Turnbull Bay Road east of Pioneer Trail have been identified as landcover with Florida Scrub Jays. Additionally, parcels along the east side of I-95 and south of Pioneer Trail have been identified as natural scrub communities. Field surveys determined that much of this habitat is no longer suitable for scrub-jays. A five-day scrub-jay survey was conducted during late July and early August 2019 in the areas of remaining habitat along Pioneer Trail south of Turnbull Bay Road. Survey stations were established along both sides of Pioneer Trail south of Turnbull Bay Road in areas of potential habitat. No scrub-jays were identified during the survey.

2.3.1.3 Bald eagle

The bald eagle was de-listed by the FWS in 2007; however, it is still federally protected by the Bald and Golden Eagle Protection Act (BGEPA) in accordance with 16 United States Code 668 and the Migratory Bird Treaty Act of 1918. Bald eagle nests within Florida are closely monitored by the FWC, and the FWC Center for Biostatistics and Modeling maintains a website of known bald eagle nest locations, which is current through the 2016-2017 nesting season. Three nesting territories were identified within the indirect effects study area as shown in **Table 2-7**, though none were identified within the project study area.

Nest ID	Approximate Location	Last Survey	Last Known Active
VO041	5.3 miles southeast of proposed interchange	2016	2016
VO097	2.5 miles northeast of proposed interchange	2016	2012
VO122	2.5 miles east of proposed interchange	2016	2009

2.3.1.4 Wood stork

The wood stork was listed as endangered under the Endangered Species Act (ESA) on February 28, 1984 (49 Fed. Reg. 7332). On July 30, 2014, the FWS reclassified the U.S. breeding population of the wood stork from endangered to threatened (79 Fed. Reg. 37078). No critical habitat has been designated for this species. FWS also does not have

a designated consultation area for this species. According to the FWS wood stork colony website, the closest wood stork nesting colony is over 20 miles to the west (Hontoon Island), outside of the FWS-defined core foraging area (CFA) which encompasses a 15-mile buffer surrounding a wood stork rookery.

2.3.1.5 Red-cockaded woodpecker

The red-cockaded woodpecker (RCW) was listed as endangered under the ESA in 1973. A 5-year review was completed in 2006 resulting in no change to the status of the species (FWS 2006a). No critical habitat has been designated for this species. The FWS has designated Consultation Areas for the RCW which occur approximately 13 miles to the west of the project study area. The closest documented red-cockaded woodpecker cluster is east of Barberville, approximately 20 miles to the northwest of the project area. During field events, biologists inspected large slash and longleaf pine within the pine flatwoods habitats of the corridor footprint for signs of red-cockaded woodpecker cavities. No cavities were identified within the proposed interchange or roadway footprint areas.

2.3.1.6 Everglade Snail kite

The Everglade snail kite was listed as endangered under the ESA in 1973. In total, about 841,635 acres of critical habitat for the Everglade snail kite were designated in 1977 (42 Fed. Reg. 40685 (Aug. 11, 1977)). No critical habitat for the Everglade snail kite has been designated in Volusia County. The FWS has designated Consultation Areas for the Everglade snail kite which occur approximately 4.3 miles to the west of the project study area. The habitats within the proposed interchange and the associated roadway do not provide substantial habitat for their preferred food source, the apple snail. The closest documented snail kite occurrence is in southern Brevard County within the marshes that surround the upper St. Johns River.

2.3.1.7 Additional Federally Listed Species

The threatened red knot and piping plover lack habitat within the project area for direct impacts. These birds all prefer coastal habitats including intertidal, marine, estuaries and bays. The threatened west Indian Manatee is a federally listed mammal that occurs within large aquatic habitats in Volusia County. The threatened Atlantic salt marsh snake is a federally listed reptile that occurs within Volusia County. The closest areas of potential habitat for these species are within Spruce Creek to the north and the tidal wetlands associated with Turnbull Bay to the east.

2.3.1.8 Rugel's pawpaw

This plant species endemic to Volusia County occurs within open slash pine or longleaf pine flatwoods with wiregrass and saw palmetto in the understory and is federally listed as endangered. There is habitat (pine flatwoods) within the project study area that could support this species if it was properly managed (prescribed fire or mowing). However, in its current condition, the pine flatwoods are far too overgrown. Field surveys were carried out to ascertain whether this species is within the corridor. No individual pawpaw were observed within the study area.

2.3.1.9 Okeechobee Gourd

The Okeechobee Gourd is a vine with long, twisting tendrils and slender stems that is endemic to central Florida. This member of the gourd family listed as endangered by FWS occurs within pond apple swamps and mucky soils on Lake Okeechobee shores and islands as well as floodplain forests along the St. Johns River. The project corridor is over 20

miles east of the St. Johns River. Nonetheless, the large wetland forests within the floodplain area were inspected for this gourd. No specimens of Okeechobee gourd were found during field surveys

2.3.1.10 Fragrant prickly apple

This endangered plant is a member of the cactus family and is found in coastal hammocks and shell middens. These habitat types do not occur within the project study area and no specimens of cactus were observed during field reviews.

2.3.1.11 Gopher tortoise

This gopher tortoise is a medium-sized land tortoise listed as threatened by the FWC. The tortoise prefers areas of well-drained loose soils that support adequate low-growing herbs. Very few gopher tortoise burrows were identified within the project study area during field reviews. Most of the upland habitat within the study area has a high-water table that is not ideal for this species, which prefers well-drained soil types to dig its burrows in.

2.3.1.12 Southeastern American kestrel

The southeastern American kestrel is the smallest falcon within the United States. This non-migratory subspecies is listed as threatened by the FWC, and is most common in peninsular Florida, and rarer in the panhandle. Another subspecies of the American Kestrel (*Falco sparverius sparverius*) which is indistinguishable from the southeastern subspecies is a non-listed wintering migrant bird species that is found throughout Florida between September and March. There is a small amount of suitable kestrel foraging habitat within open portions of the woodland pasture; however, most of the project study area is much too overgrown to be suitable habitat for this species. The dead pine trees observed within the corridor were inspected for signs of nesting kestrel, although none were observed. There have been no documented sightings of the kestrel within one (1) mile of the project corridor and there was no direct observation of a southeastern kestrel or a nest during field reviews.

2.3.1.13 Florida sandhill crane

The Florida sandhill crane is a tall, long necked and long-legged bird with a red head and is listed as threatened by FWC. The greater sandhill crane (*Grus canadensis tabida*), another species of crane, is a migratory winter visitor to Florida and is indistinguishable in the field. No sandhill cranes have been observed during field reviews, nor have any nest sites been identified.

2.3.1.14 Florida burrowing owl

The Florida burrowing owl is a small, long-legged, ground-dwelling burrowing owl that is listed as threatened by FWC. The marsh systems within the corridor are typically much too shallow to provide nesting habitat; although foraging habitat is plentiful. Foraging and nesting habitat within the project study area is restricted to the maintained utility easements and roadsides grass side slopes (foraging only). There were no direct observations of this species foraging within the corridor during field reviews.

2.3.1.15 Roseate spoonbill

The roseate spoonbill is a large pink and white wading bird with a flat, spoon-like bill and is listed as threatened by the FWC. There is foraging habitat for this species within the project corridor; however, there is no nesting habitat. The

closest wading bird rookery is over five miles to the southeast. No direct observations of the roseate spoonbill were made during field reviews of the project corridor.

2.3.1.16 Little blue heron

The little blue heron is a medium-sized, slate-blue, wading bird that is listed as threatened by the FWC. The preferred habitats are fresh and saltwater habitats including fresh and saltwater mudflats and marshes, beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps. A specimen of little blue heron was observed utilizing a drainage ditch west of I-95. The closest wading bird rookery is over 5 miles to the southeast.

2.3.1.17 Tricolored heron

The tricolored heron is a medium-sized, two-toned, wading bird that is listed as threatened by the FWC. This bird prefers both fresh and saltwater habitats such as fresh and saltwater marshes and mudflats, brackish marshes, beaches, mangrove swamps, hardwood and cypress swamps, and wet prairies. Although habitat is available within the study area, no tricolored herons were observed during field reviews. The closest wading bird rookery is over 5 miles to the southeast.

2.3.1.18 Least tern

The Least tern is a light grey bird with a black cap and nape and is listed as threatened by the FWC. This species occurs in both fresh and saltwater habitats. Beaches, open fresh and saltwater, fresh and saltwater marshes, wet prairies, and agricultural environments are preferable habitats for the species. While there is freshwater marsh within the study area, no least terns were observed during field reviews.

2.3.1.19 State Listed Plant Species

A number of State listed plant species have the potential to occur within the study area as shown in **Table 2.6**. State listed species are regulated by the Florida Department of Agriculture and Consumer Services (FDACS), and state regulations only address the harvesting, transport, and/or sale of listed plant species. State rules do not specifically regulate or prohibit the incidental taking of state listed plants in the course of project activities, but general principles of avoidance and minimization are applied to projects that may impact listed state plants.

2.3.2 Is it possible to determine the general locations where induced growth is likely to occur?

As stated in Section 2.2.1, steady growth has been occurring within and surrounding the indirect effects study area over the last two decades. The rate of development activity in the cities of New Smyrna Beach and Port Orange reflects this growth. The addition of new infrastructure is assumed to benefit existing and planned future communities by providing the needed accessibility and relief to traffic congestion in the region. Numerous projects are already in planning, construction or other stages of development without an interchange at Pioneer Trail. It may be assumed that there would be some amount of induced growth attributable to a new facility. In general, this growth can be expected to occur in the immediate quadrants of the proposed interchange and along the frontage of the other roadways connecting to Pioneer Trail that would provide access to the interchange (see **Figure 2-3**). Again, as previously stated, there are

developments that have been approved, and others already under construction within this area, reducing the areas available for induced growth (**Figure 2-4**).

2.3.3 If induced growth is expected in areas where sensitive resources are present, are there reasons to believe that impacts to those resources will be avoided? For example, are regulatory or land use restrictions in place that can be relied upon to protect those resources? Overall, what specific resources are most likely to be impacted by induced development as a result of this project?

Based on the information presented in Section 2.3 of this report and in the Natural Resources Evaluation (NRE) for this project, two sensitive resources, Wetlands, and Wildlife and Habitat, were identified for further assessment for indirect impacts. Regulatory protections and land use/ planning restrictions exist to safeguard these sensitive resources.

2.3.3.1 Indirect Effects on Wildlife and Habitat

The *I-95 at Pioneer Trail Interchange Natural Resources Evaluation* (NRE) identified those species with potential habitat in the direct impacts area for this project. The six federally protected animals and three plant species were analyzed for potential involvement with the proposed project. A “not likely to adversely affect” determination was made for four of the federally-listed species (eastern indigo snake, Florida scrub-jay, bald eagle, and wood stork) and for two of the plant species (Rugel’s pawpaw and Okeechobee gourd), with the other three animals and one plant being given a “no effect” determination. The project’s direct effects study area also had the potential to contain habitat for nine potential state protected animals and 32 state protected plants. Wildlife surveys for both animals and habitat were conducted. No adverse effects are anticipated with any state protected animal or plant. Since the project is already demonstrating that there is no direct effect (no impact or no likely adverse effect) for the species identified to potentially occur in the direct impacts study area, it is further assumed that there will be no indirect effects in the overall indirect effects study area to these species from the proposed project. Since regulatory protections are in place to assess projects that would be part of any induced growth or encroachment, the potential for these species to have indirect effects from this project are limited.

Among the possible indirect effects of the project on wildlife in the project area are restrictions on the ability to use controlled burning to maintain habitat, habitat fragmentation due to induced growth from the project, and habitat connectivity and wildlife movement.

- ***Indirect Effects from Suppression of Controlled Burning***

Prescribed burning is essential to managing habitat for scrub-jay. Prescribed burning maintains and enhances scrub habitat within conservation lands, as stated in the Florida Prescribed Burning Act (Chapter 590 F.A.C.):

“Most of Florida’s natural communities require periodic fire for maintenance of their ecological integrity. Prescribed burning is essential to the perpetuation, restoration, and management of many plant and animal communities. Significant loss of the state’s biological diversity will occur if fire is excluded from fire-dependent systems”.

There are relatively few areas of scrub habitat within the indirect effects study area, limiting the chances that this will be a significant indirect effect.



- ***Indirect Effects from Habitat Fragmentation***

Habitat fragmentation can occur as a direct result of the project, but later in time, or from growth induced by the project. Habitat fragmentation will not occur as a result of constructing the interchange but could potentially occur from additional roadways that occur within the effects area at a later time. I-95 already has severed habitat in the area, though a significant connection is still maintained just to the north of the project area at the large bridge over Spruce Creek. There are also numerous connections via culvert all along I-95 in Volusia County.

Wetland regulations would prevent the direct loss of foraging habitat and minimize wetland habitat fragmentation for wetland dependent species, such as the wood stork and Everglade snail kite, though the study area is not within any Core Foraging Area for wood storks. The proposed interchange and the areas of growth induced by the project would not represent a barrier to movement of either the wood stork or Everglade snail kite because both species are wide-ranging and frequently fly over roadways.

Scrub-jay habitat in the indirect effects study area will not be impacted by induced growth related to the interchange and will not be fragmented by the project. Regulatory guidelines would still be in place should future projects propose impacts to any occupied habitat.

The eastern indigo snake in central Florida inhabits a variety of environments and does not nest exclusively in gopher tortoise burrows, but also uses other animals' burrows, hollows, and trash piles as nests. The ideal environment for eastern indigo snakes involves both xeric sandhills with gopher tortoise burrows, and wetlands. There is little xeric habitat in the study area, though some is present. Very few gopher tortoise burrows were identified within the area of direct impacts, though they are common in upland communities in Volusia County.

Sufficient habitat will remain after the project is constructed to allow the eastern indigo snake and gopher tortoise to survive, although some potential habitat may be lost. The FFWCC requires the relocation of gopher tortoises from areas subject to development if they cannot be avoided and requires restoration and management of suitable habitat at their relocation sites (Rules 68A-25.002 and 68A-27.004 F.A.C.).

Gopher tortoises have very small home ranges, generally less than 0.01 square miles, which decreases the likelihood that their movement patterns will be disrupted by the construction of the project.

There are no old-growth, longleaf pine communities (red-cockaded woodpecker habitat) within or adjacent to the project area or within the indirect effects area. Due to the range of the red-cockaded woodpecker (0.9 mile), the likelihood of occurrence in the project area is very low. The nearest known colony is east of Barberville, approximately 20 miles northwest of the project area. Habitat fragmentation is not an issue for the red-cockaded woodpecker in relation to the project.

2.3.3.2 Indirect Effects on Wetlands

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

Additionally, development associated with induced growth could potentially affect wetlands and surface waters in the indirect effects study area. These potential indirect effects to wetlands include placement of fill that could produce degradation/ changes in wetland functions. The total estimated wetlands in the indirect effects study area as shown on **Figure 2-11** is approximately 7,500 acres (25.5%). The wetlands within the potential growth parcels within the Indirect Effects Study Area shown on **Figure 2-12** is approximately 3,700 acres (30.3%). The amount of wetlands within the Induced Growth Area (**Figure 2-13**) is approximately 1,000 acres (25%). Of these, approximately 600 acres (30%) are within the boundaries of the No Build planned future development growth areas (those areas with planned developments at the current time unrelated to this project) as shown on **Figure 2-14**. Wetlands in the induced development parcels identified in the Build forecasted growth area (**Figure 2-15**) include approximately 200 acres (22.2%).

Any proposed development has to comply with regulations for the filling and encroachment of wetlands as specified in Sections 401 and 404 of the Clean Water Act. Additionally, the federal regulatory program has a policy in place of no overall net loss of aquatic resource functions, which is achievable through compensatory mitigation for any unavoidable impacts. Based on the estimated limited involvement with wetlands in the entire indirect effects study area and considering that any unavoidable impacts to those wetlands would be governed by regulatory policy requiring mitigation, the indirect effects on wetlands is deemed to be unsubstantial.

Table 2-8. Wetland Coverage in Study Area			
Description	Area (acres)	Wetlands (acres)	Wetlands (%)
Indirect Effects Study Area	29,400	7,500	25.5%
Potential Growth Parcels	12,200	3,700	30.3%
Induced Growth Area	4,000	1,000	25%
Independent Growth Parcels (No-Build)	2,000	600	30%
Induced Growth Parcels (Build)	900	200	22.2%
Notes:			
1) Wetland area includes Surface Waters that are Streams or Lakes			
2) Area is approximate to the nearest:			
10 for >100, <1,000			
100 for > 1,000			

FIGURE 2-11: WETLAND AND WATER RESOURCES
(INDIRECT EFFECTS STUDY AREA)

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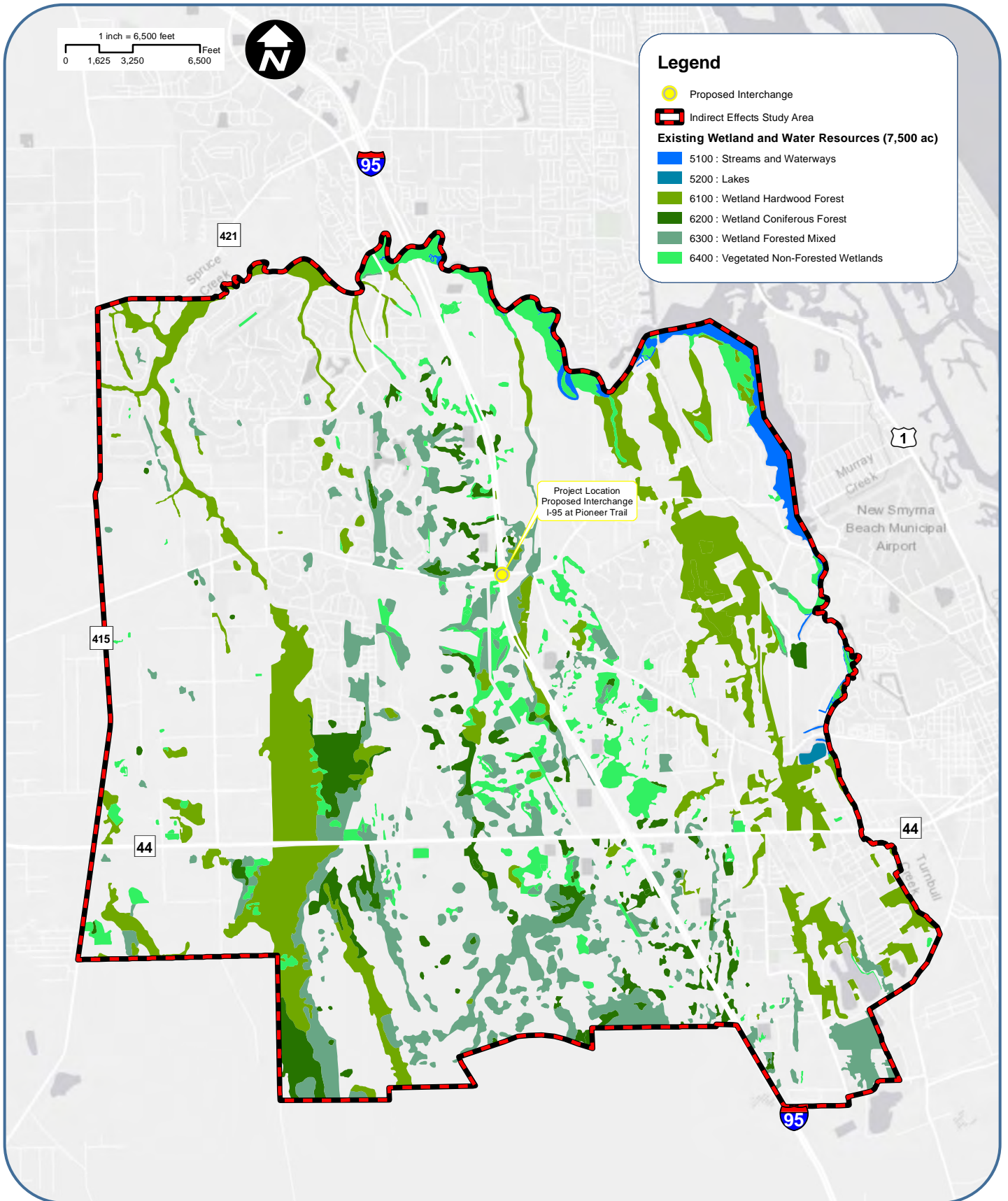
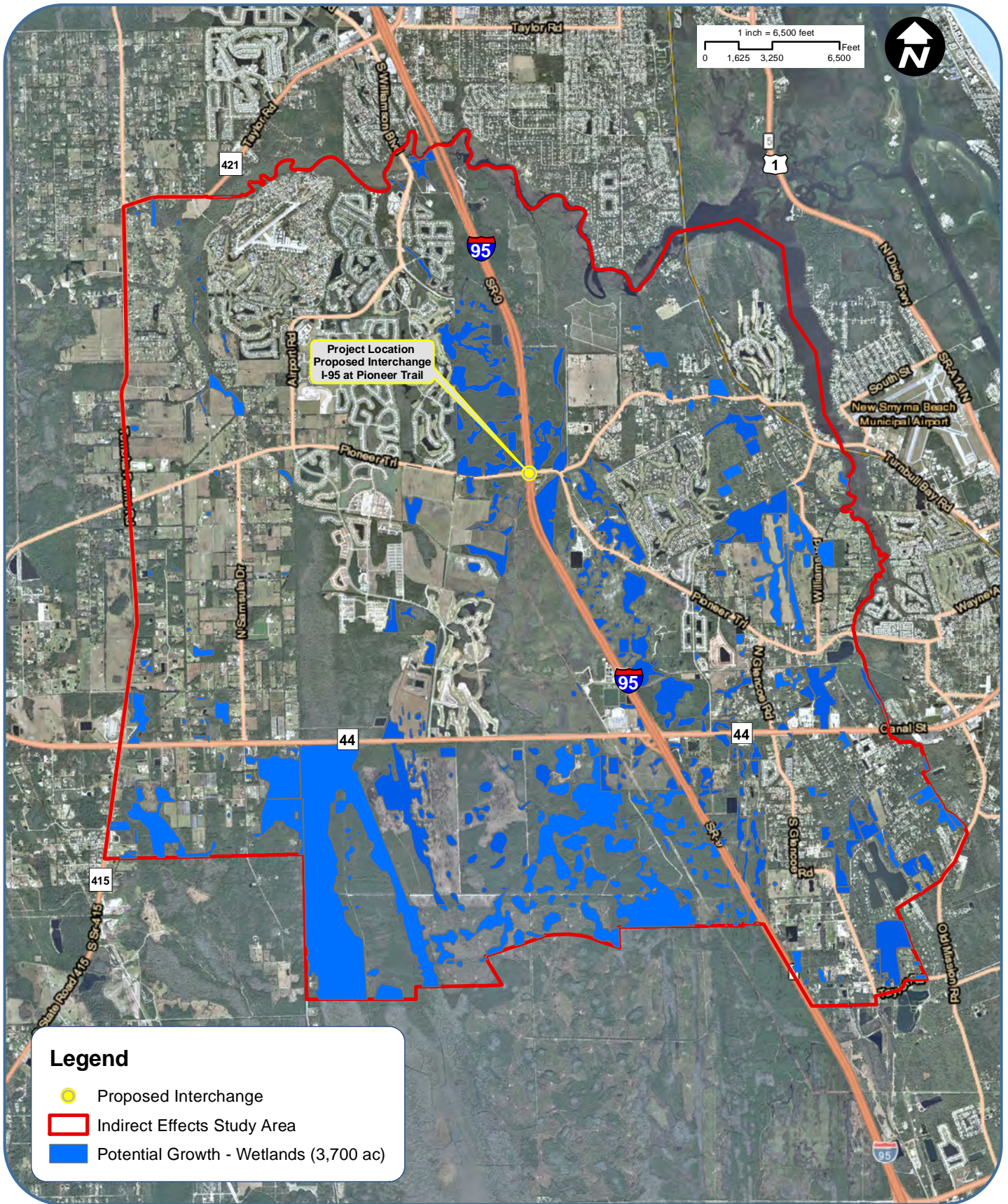


FIGURE 2-12: POTENTIAL GROWTH PARCELS
WETLAND COVERAGE

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Legend

- Proposed Interchange
- Indirect Effects Study Area
- Potential Growth - Wetlands (3,700 ac)

FIGURE 2-13: WETLAND AND WATER RESOURCES
(INDUCED GROWTH AREA)

I-95 at Pioneer Trail Interchange PD&E Study
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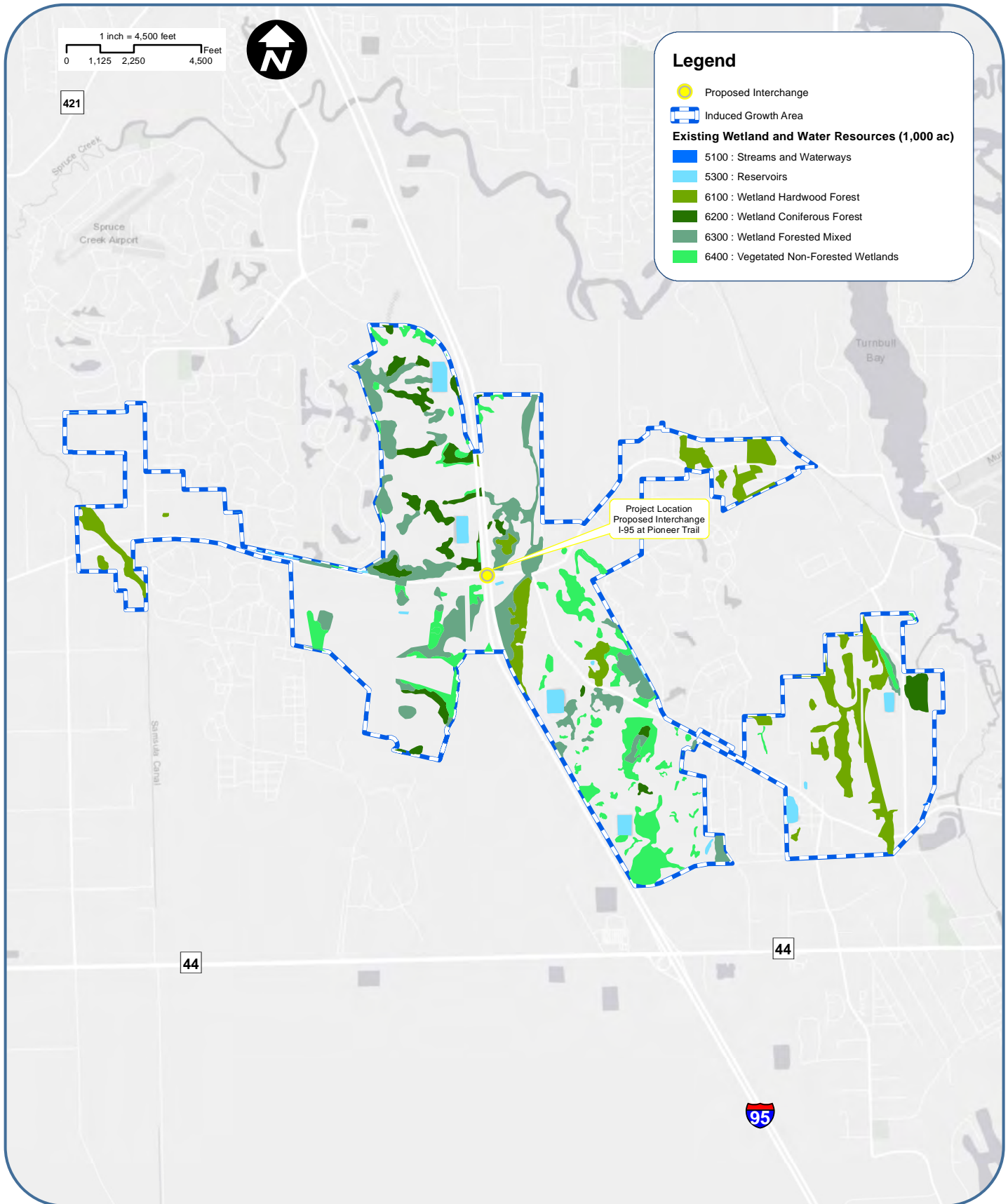


FIGURE 2-14: INDEPENDENT GROWTH PARCELS (NO-BUILD CONDITION)
WETLAND COVERAGE

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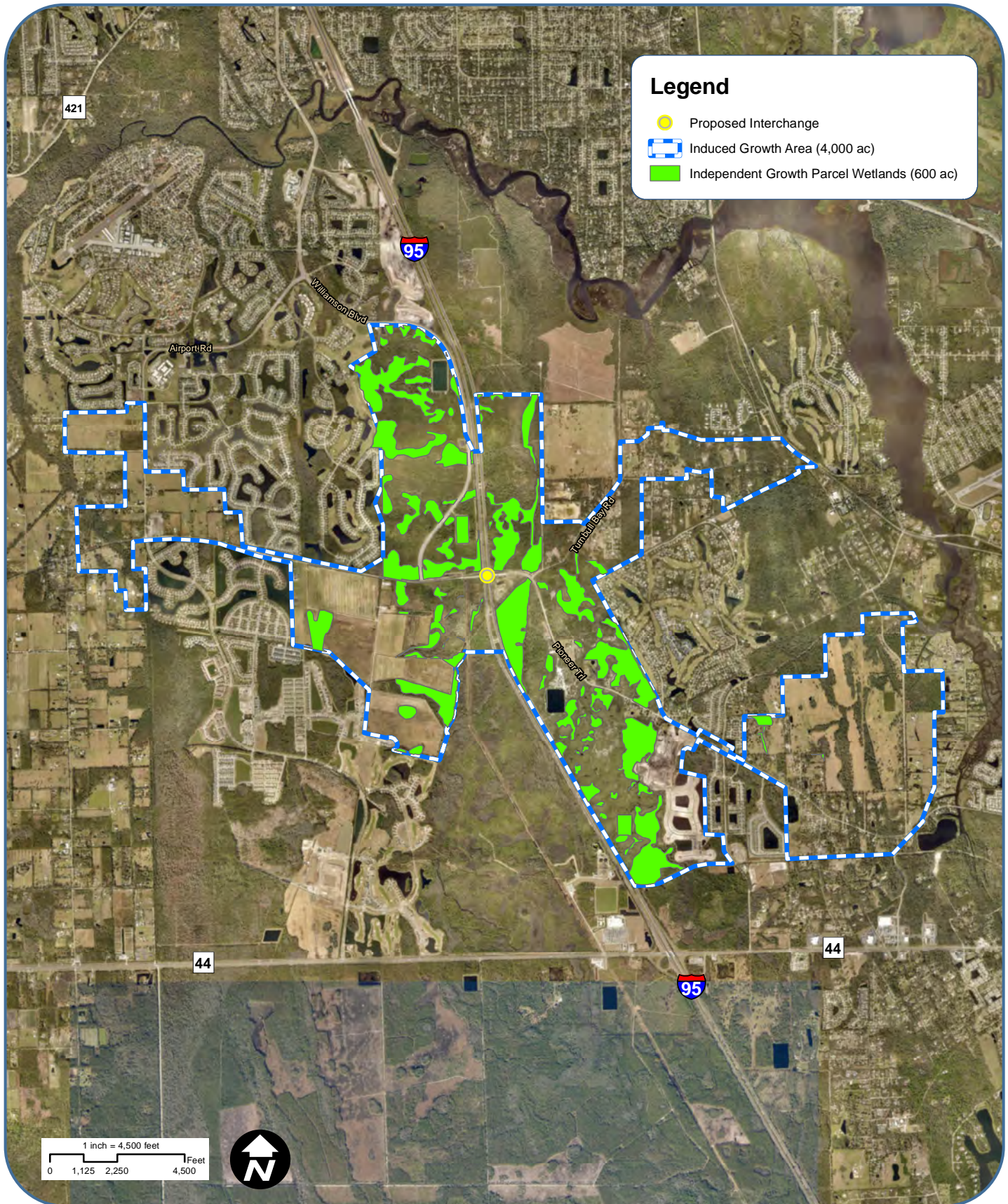
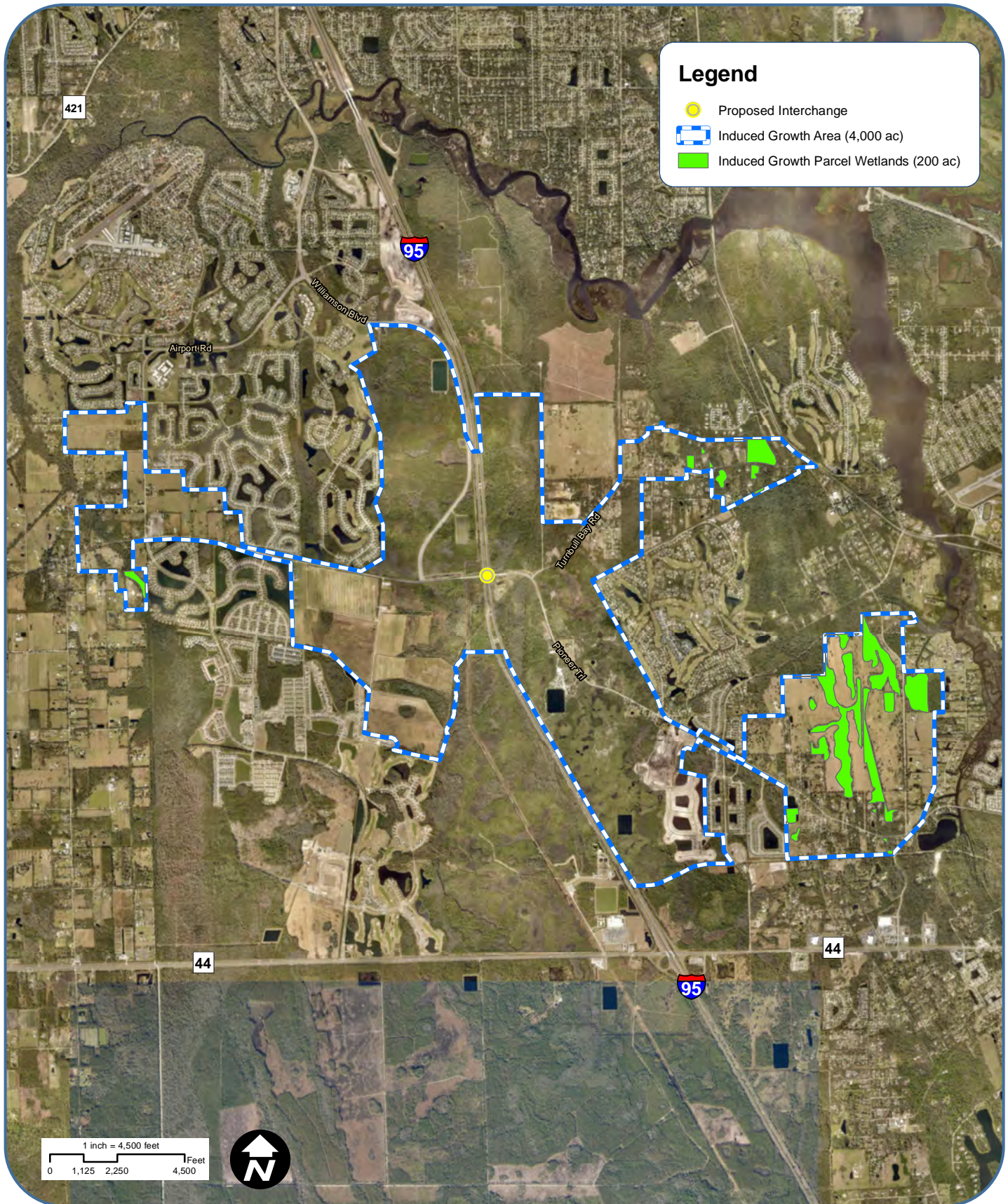


FIGURE 2-15: INDUCED GROWTH PARCELS (BUILD CONDITION)
WETLAND COVERAGE



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2.3.3.3 Summary of Indirect Effects on Resources

The resources most likely impacted are as follows:

Wetlands and surface waters within the study area that would be impacted would be subject to permitting guidelines and would require mitigation.

Potential habitat for listed species such as wood stork and eastern indigo snake may be impacted, though for wood stork, this would be offset via wetland mitigation during permitting, and any undeveloped land could be considered suitable for a habitat generalist such as the indigo snake.

The FFWCC requires the relocation of gopher tortoises if they cannot be avoided and requires restoration and management of suitable habitat at their relocation sites (Rules 68A-25.002 and 68A-27.004 F.A.C.).

2.3.4 Will the project have incremental effects, in combination with other projects that are affecting the same resource?

Potentially, though as described previously, there are numerous projects that will occur prior to and without the interchange, and others that may be related. **Figure 2-16** depicts this growth pattern. This is further described in Section 3.0

2.3.5 To the extent that impacts are identified, what measures are available to minimize and mitigate those impacts? Who would be responsible for implementing those measures?

Minimization and mitigation were previously discussed in Section 2.3.3. Any landowner/developer will be responsible for mitigating the impacts from their projects. The FDOT commits to avoidance and minimization practices during design and permitting of the interchange and other projects in the future. Please refer to Section 2.3.3 regarding wildlife and habitat issues.

2.4 STEP 4: ASSESS POTENTIAL MINIMIZATION AND MITIGATION MEASURES

Minimal impact will occur for the key resources identified above in the Indirect Effects Analysis. The following are potential mitigation:

Wildlife and Habitat. As discussed in 2.3.3.2, indirect effects on wildlife are related to habitat loss, and increased habitat fragmentation. Habitat fragmentation has already occurred from I-95 and will not increase significantly from this project. During permitting, all potential gopher tortoise habitat that could be impacted by the project will be systematically surveyed according to the current guidelines published by the *Florida Fish and Wildlife Conservation Commission (FWC)*. If gopher tortoise burrows are found, all practicable design measures will be employed to avoid impacts to the burrows. For burrows which cannot be avoided, a permit will be obtained from FWC for relocation of gopher tortoises and commensals, and relocation will be performed at a time as close as practicable to the start of



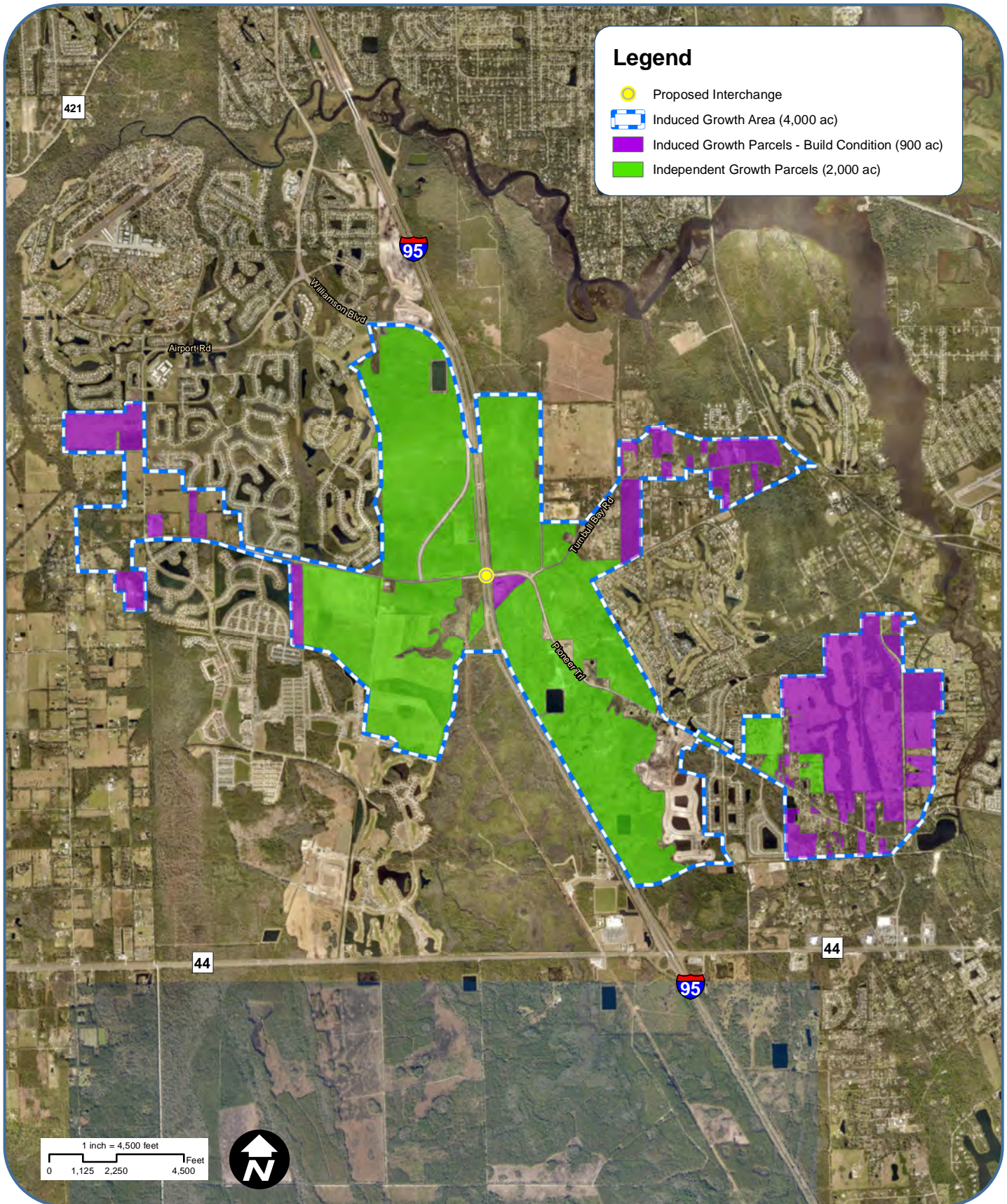
construction activities at the site of the burrows. Gopher tortoises will be relocated to areas of suitable habitat which are required to be restored and managed for gopher tortoises (Rules 68A-25.002 and 68A-27.004 F.A.C.).

Wetlands. As discussed in Section 2.3.3.3, direct and indirect effects on wetlands have been avoided as much as possible. State and federal permitting processes ensure mitigation for unavoidable impacts to wetlands. It is anticipated that wetland mitigation credits will be purchased from a bank to offset the direct and secondary impacts from this project. All mitigation will occur within the same drainage basin as the project impacts.



FIGURE 2-16: POTENTIAL GROWTH WITHIN INDUCED GROWTH AREA

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3.0 CUMULATIVE IMPACT ANALYSIS

Cumulative impacts can result from individually minor, but collectively significant, actions that take place over a period of time. Such impacts include the total of all impacts to a particular resource that may have occurred, are occurring, and will likely occur as a result of any action or influence, including the direct and reasonably foreseeable indirect effects of the proposed action. In addition to the proposed project and the indirect effects resulting from the proposed project, the cumulative effects analysis includes past, present, and reasonably foreseeable future projects that do not depend on the proposed project but contribute to the state of the resources.

Study Area for Cumulative Impacts Analysis

The study area is the same as for the indirect effects analysis previously detailed in this report (**Figure 3-1**). The study area was developed based on the categories of resources that would potentially be impacted including socioeconomic, natural and cultural. The specific method used to delineate the study area for this project included evaluation of various geographic boundaries including: groupings of traffic analysis zones (TAZs) from the travel demand model (used to identify areas of potential induced growth), limits of environmental systems such as natural watershed areas identified by hydrologic unit code (HUC) boundaries, and wildlife management/ species habitat areas that may include potentially impacted resources/ features. Further, guidance for indirect and cumulative impact analysis suggests that the potential for induced growth effects of freeway interchanges generally extends up to a one-mile radius and up to two to five miles along major feeder roadways to the interchange.

Utilizing the development plans for both New Smyrna Beach and Port Orange, as well as the transportation program from FDOT, a list of major projects has been identified that presents the potential to affect the state of the resources.

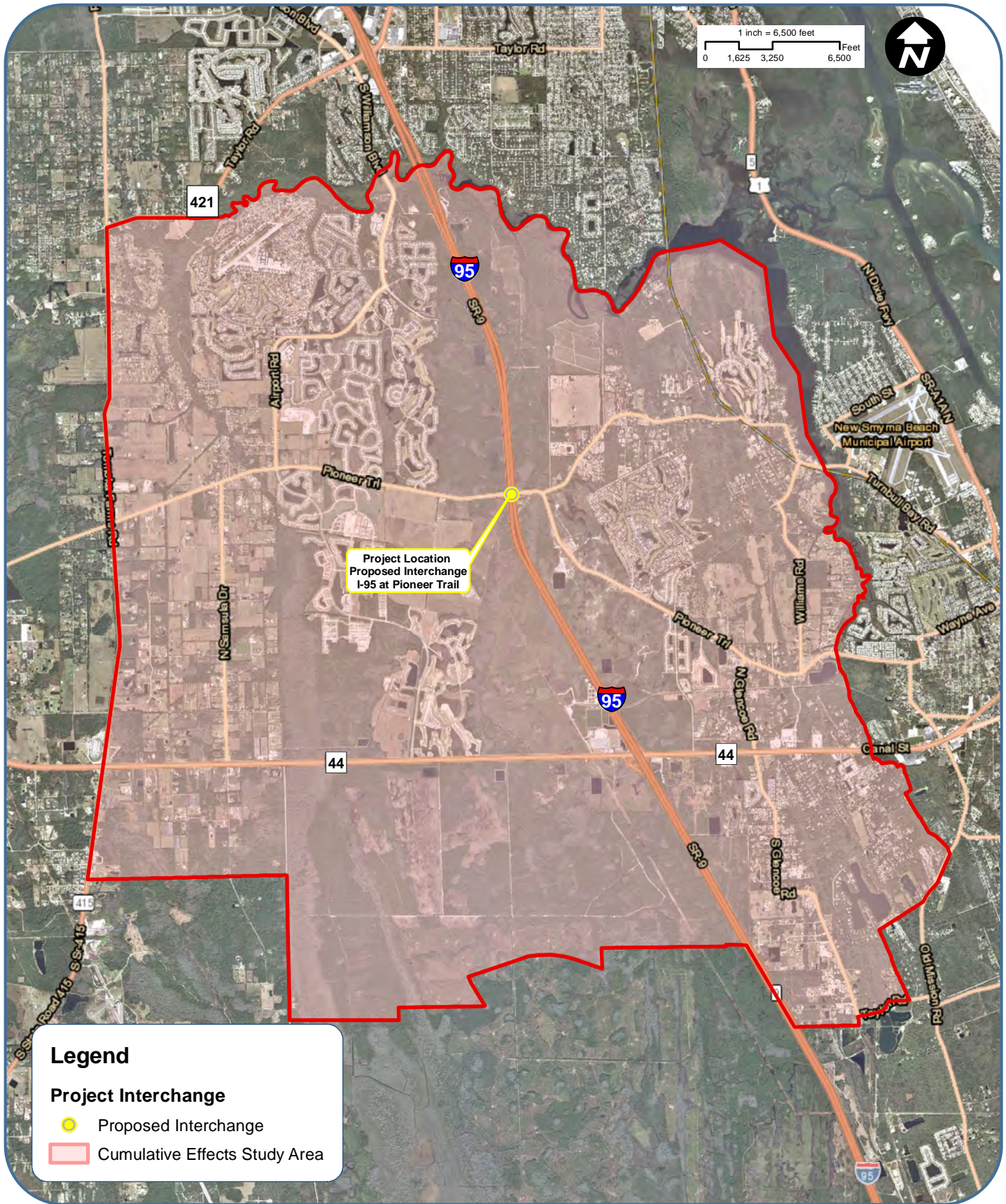
Major projects that have been identified as occurring within this study area either currently or in the future include:

- I-95 from SR 44 to I-4 Widening (from 4 to 6 lanes) - completed
- Coastal Woods – future
- Woodhaven – future
- Shell Pointe Colony – future
- Venetian Bay – current/future
- Turnbull Crossings – current
- Elbert Land Estates – current/future
- Ocean Gate – future
- The Palms at Ashton Lakes – future

Additional projects have also been identified as planned, approved, or under construction within the study area that are not considered as “major”. **Figure 3-2** depicts the areas where these projects occur.



FIGURE 3-1: CUMULATIVE EFFECTS STUDY AREA
 I-95 at Pioneer Trail Interchange PD&E Study
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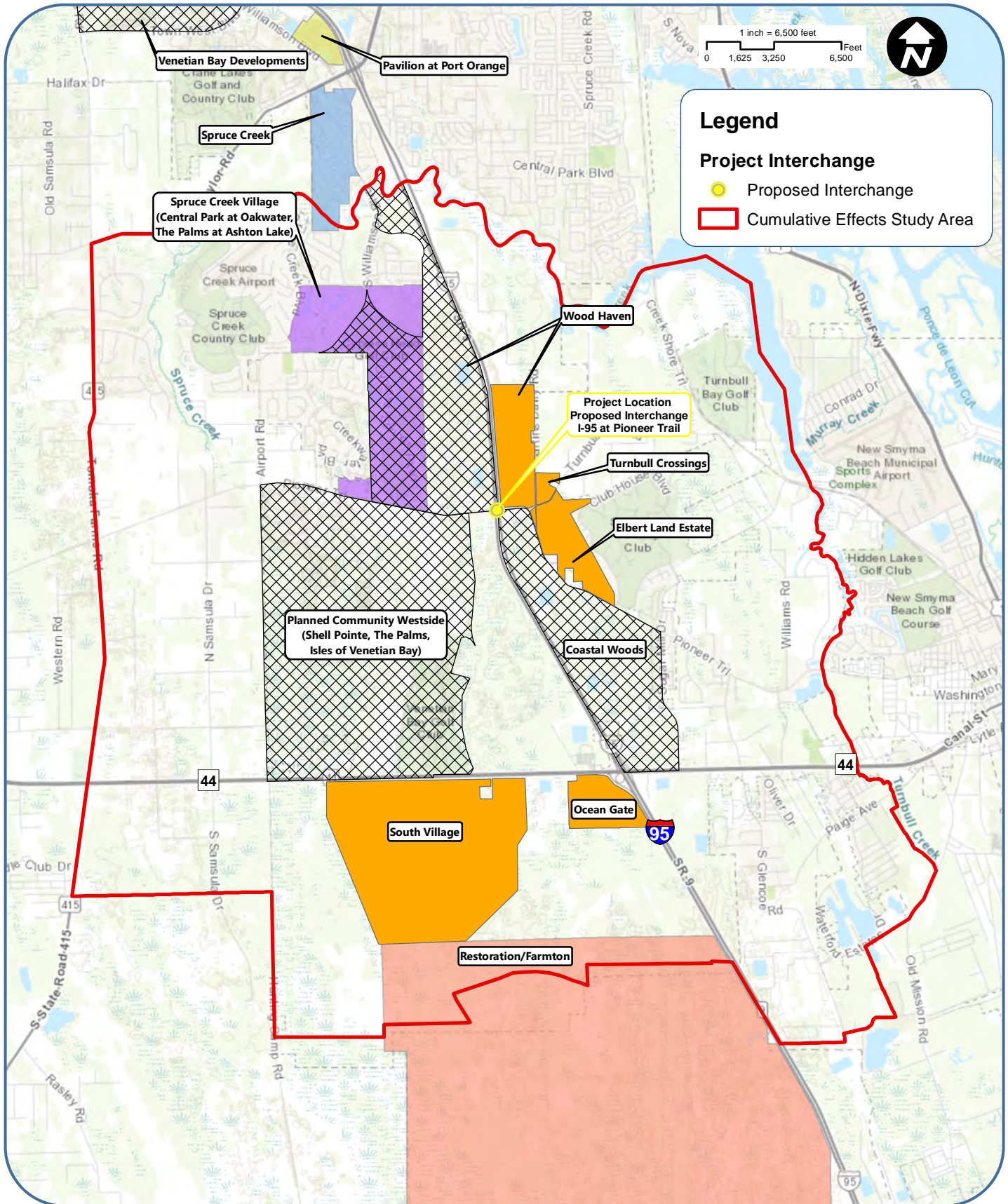
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Project Interchange

- Proposed Interchange
- Cumulative Effects Study Area



FIGURE 3-2: REGIONAL PLANNED DEVELOPMENTS
 I-95 at Pioneer Trail Interchange PD&E Study
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3.1 DETERMINATION OF SENSITIVE RESOURCES FOR CUMULATIVE IMPACTS ANALYSIS

According to the AASHTO handbook: “A cumulative impacts analysis typically focuses on a sub-set of the resources considered in the analysis of direct and indirect effects.” Impacts to wetlands and floodplains, while not minimal, are subject to well-established regulations which require mitigation, and will be discussed together. Additional concerns are for public lands, including wildlife habitat management within the public lands; and impacts to threatened and endangered species and their habitat. Species of concern include the Florida scrub-jay, eastern indigo snake, and wood stork.

3.2 STEP 1: DESCRIBE RESOURCE CONDITIONS AND TRENDS

The current conditions for resources in the study area varies from place to place. There are presently several large tracts of undeveloped wetlands that are part of a larger regional system in east central Florida. There are a number of developments both in planning and already approved that will convert areas of natural land use. I-95 has been in place in this location since the early 1970’s bisecting the land in some form. Widening projects and other interchange projects have further impacted the resources. Major arterial roadways such as SR 44 and SR 421 have provided access to I-95 from adjacent development. The general trend within the study area is for increased residential development with the associated commercial and retail development supported by the population increase. Regulatory practices minimize impacts to resources, and typically ensure protection over those wetlands not impacted by a project. Conservation areas have increased in the study area as a result of the regulatory practices of requiring preservation of wetlands not directly impacted. No significant impacts to listed species have been noted as available habitat is not optimal for those species with the potential to occur in the study area.

3.2.1 Public Conservation/Recreation Lands

The only significant public lands within the study area is the Spruce Creek Preserve. This is located to north of the proposed project east of I-95. Smaller parcels such as the Howe and Currier parcels are very small “postage stamp” parcels, and the Turnbull Colony Historic Park is also included in the study area (**Figure 3-3**).

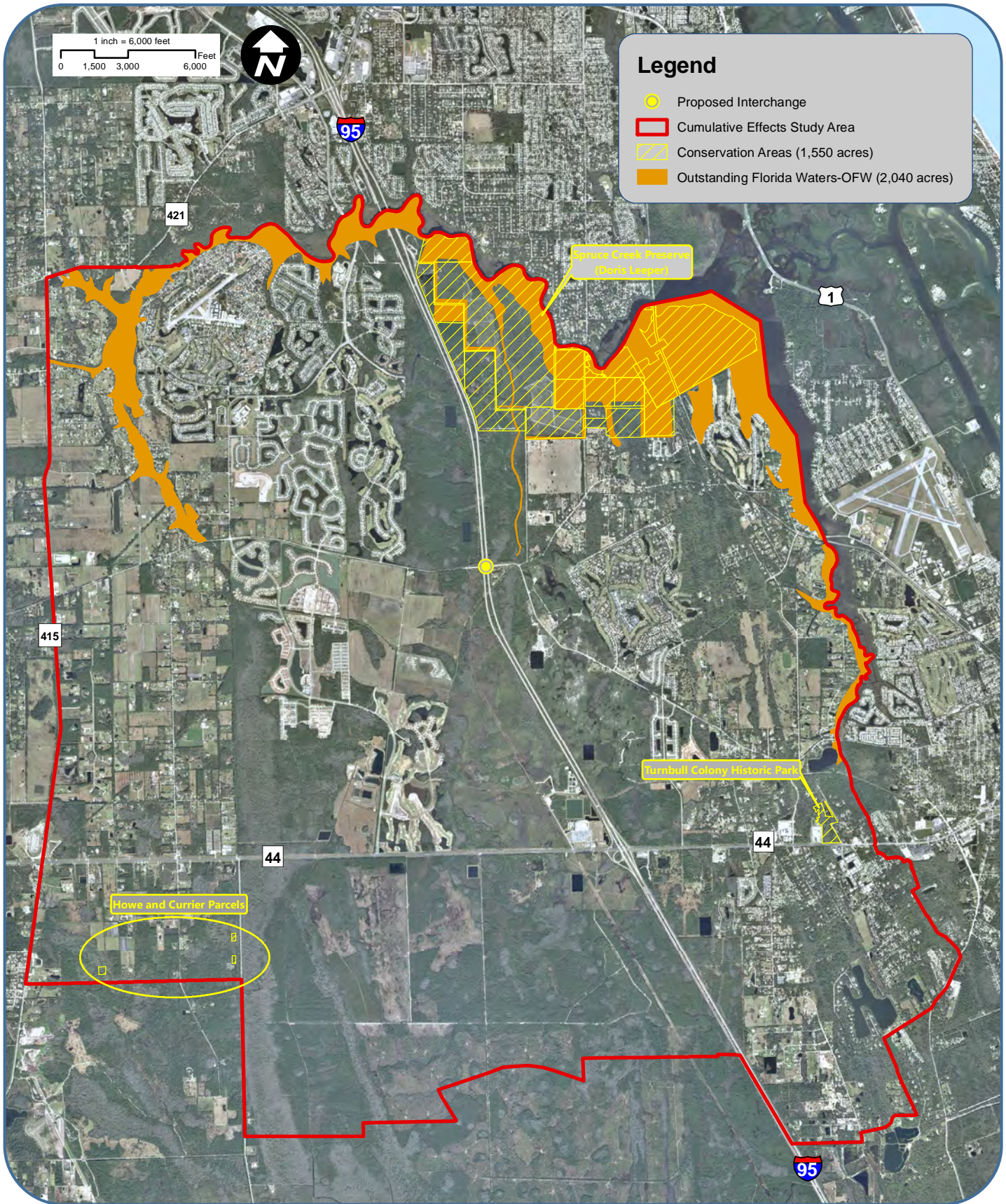
3.2.2 Wildlife and Habitat

Florida scrub-jay. Previous surveys have identified Florida scrub-jays within the study area, though a survey for this project did not find any present within the project area.

According to the *Florida Scrub-Jay Umbrella Habitat Conservation Plan and Environmental Assessment (USFWS, 2007)*, scrub-jays were originally found in all Florida counties except Monroe County. The 1992-1993 state-wide scrub-jay census estimated that scrub-jays were extirpated in Alachua, Broward, Clay, Dade, Duval, Gilchrist, Hernando, Hendry, Pinellas, and St. Johns Counties and functionally extinct in Flagler, Hardee, Levy, Orange, and Putnam Counties. Because of the protection afforded this bird under the ESA, any project that may affect the bird or occupied habitat must undergo consultation with USFWS for analysis of the project impacts.

FIGURE 3-3: CUMULATIVE EFFECTS STUDY AREA
PUBLIC AND CONSERVATION LANDS

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Some remnant scrub habitat remains in the study area based upon the data provided in the 1992 Statewide Florida scrub-jay survey. This is located north and east of the proposed interchange north of Turnbull Bay Road.

Eastern indigo snake. Eastern indigo snake in south-central Florida inhabits a variety of environments. According to the *Survey Protocol for the Eastern Indigo Snake, Drymarchon couperi, in North and Central Florida* (USFWS, 2011) and the *Eastern Indigo Snake, Drymarchon couperi 5-Year Review: Summary and Evaluation* (USFWS, 2008) the “broad distribution and large territory size of the eastern indigo snake complicate evaluation of its population status and trends.” The use of gopher tortoise burrows is found in central and coastal Florida sandy ridge habitats.

As with the scrub-jay, this species is listed under the ESA and any project that proposed potential impacts to the animal or a significant acreage of suitable habitat (greater than 25 acres of xeric oak) must be assessed by FWS. The fact that I-95 has already bisected the study area for a species such as this that requires a large home range leaves less potential that this type of project will provide significant additional effects. The long bridge at Spruce Creek provides a large connection for animals to the north of the study area already. Documented sightings of this animal are rare, with the closest sighting being well east of the study area in the coastal strands at New Smyrna Beach in 2003. No documented sightings have been made within the project area.

Wood stork. The entire study area lies within the core foraging area of eight known colonies of wood storks. According to the *Wood stork (Mycteria americana) 5-Year Review: Summary and Evaluation* (USFWS, 2007), a decline of the nesting pairs decreased from 20,000 in the 1930’s to 10,000 nesting pairs in 1960. The lowest total was 2,500 pairs in 1978. Based on this summary, the Florida population “declined in southern Florida and increased in northern Florida, Georgia, and South Carolina.” Also, “between 1983 and 1995 surveys documented a population in the Southeast U.S. ranging between 4,073 and 7,853 pairs.” Subsequent surveys showed increased numbers with the 2006 survey documenting 11,279 pairs, which was “the first time the nesting population was greater than 10,000 pairs since the early 1960s.” The *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* (USACE, USFWS, State of Florida, 2008), was developed to facilitate review and mitigation for impacts on foraging habitat.

Regulatory requirements require projects that impacts foraging habitat for wood storks to provide compensatory mitigation to offset these impacts already. Additionally, projects that occur within the proximity of nesting colonies must be assessed by FWS for impacts under the ESA. The study area does not contain any documented nesting colonies and does not intersect with the 15.0 mile Core Foraging Area of any nesting colony. As such, the wetlands within the study area will not be designated as suitable foraging habitat for this bird.

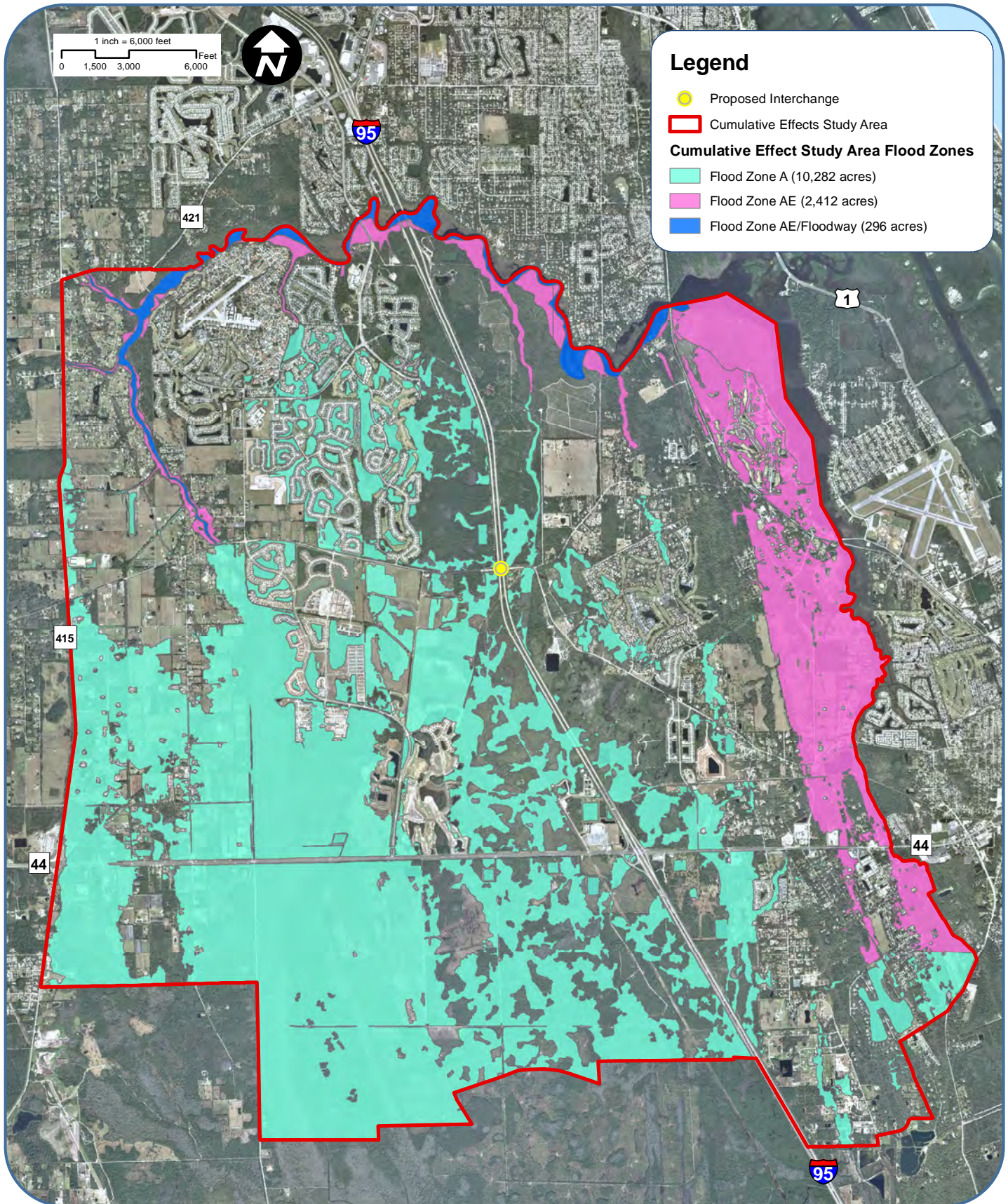
3.2.3 Wetlands and Floodplains

As reported in the National Wetland Inventory (NWI) publication *Status and Trends of Wetlands in the Conterminous United States: 1986 to 1997* (NWI, 2000), “wetlands have been drained, dredged, filled, leveled, flooded to the extent that less than half of the original wetland acreage remains.” The trend of wetland and floodplain loss, however, is decreasing. Between the mid 1950s and the mid 1970s, the rate of wetland loss in the continental United States was 458,000 acres per year; from the mid 1970s to the mid 1980s, the loss decreased to 290,000 acres per year; and from 1986 to 1997, the loss further decreased to 58,500 acres per year. This reduction reflects the efforts to protect and restore wetlands and floodplains. Wetlands within the study area are depicted on **Figure 2-11**, while floodplains are shown on **Figure 3-4**.



FIGURE 3-4: CUMULATIVE EFFECTS STUDY AREA FEMA FLOOD ZONES

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Similarly, the *Integrated Water Quality Assessment for Florida (FDEP, 2012)* states that “the state lost as many as 46% of its original wetlands between the 1780s and the 1980s.” The assessment notes, however, that the rate of wetland loss has significantly slowed since the mid-1970s, which is when federal and state wetland regulatory programs began.

Consistent with federal and state trends, in Volusia County, wetlands and floodplains were impacted or drained for agriculture as well as for development starting more than 60 years ago. With a significant acreage of wetlands and floodplains now protected within conservation/recreation lands, the overall condition of this resource is good.

Both state and federal regulatory programs review projects for impacts to wetlands and floodplains, and compensatory mitigation is required for impacts.

3.3 STEP 2: SUMMARIZE EFFECTS OF THE PROPOSED ACTION ON KEY RESOURCES

A summary of the effects on key resources of the proposed action was previously discussed in the indirect effects portion of this document.

Table 3-1: Summary of Proposed Action on Key Resources		
Resource	Direct Effect	Indirect Effect
Public Conservation and Recreation	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Minor potential for reduced burning if part of management plan, loss of some upstream habitat outside of boundary.
Resource	Direct Effect	Indirect Effect
Wildlife and Habitat (Florida scrub-jay, eastern indigo snake, wood stork)	<ul style="list-style-type: none"> Does not directly impact protected species 	<ul style="list-style-type: none"> Potential impacts to Florida scrub-jay (from suppression of prescribed burning), eastern indigo snake (from potential habitat loss), and small terrestrial mammals (from habitat loss).
Wetlands	<ul style="list-style-type: none"> Direct wetland impacts were avoided and minimized as much as possible. Mitigation will be provided for all direct and secondary impacts. 	<ul style="list-style-type: none"> Indirect wetland impacts will be avoided and minimized as much as possible. Additional projects subject to regulatory control and mitigation.
Floodplains	<ul style="list-style-type: none"> Direct floodplain impacts were avoided and minimized as much as possible. Mitigation will be provided for the direct impacts through construction of floodplain compensation ponds. Cross drains will be sized to prevent a significant increase in flood elevation. 	<ul style="list-style-type: none"> Indirect impacts to floodplains will be minimized by providing compensating storage for the lost floodplain volume, and appropriate sizing of conveyance structures. Additional projects subject to regulatory control.

3.4 STEP 3: DESCRIBE OTHER ACTIONS AND THEIR EFFECTS ON KEY RESOURCES.

The other actions that have been considered include a number of developments that have either been approved by local agencies (New Smyrna Beach, City of Port Orange, Volusia County) via planning, or have actively pursued permits for construction and land clearing with state and federal regulatory agencies. The consideration of these actions are “major” improvements, that involve multiple acres of land and have the potential to impact resources. A number of “minor” actions are also either in planning or construction, and typically refer to those projects that involve a single parcel and do not pose the same level of impact threat. Those projects that have been approved from a planning standpoint have been identified as either future or current, and the footprints of these developments have been shown on the Regional Planned Developments map (**Figure 3-2**).

Each of these projects will result in some level of impact on resources. Land use changes, stormwater systems, floodplain compensation, and introduction of large amount of impervious surface will no doubt affect the resources within the study area. However, a key consideration is that the vast majority of these projects have been approved and even begun construction without the requirement of this interchange on I-95. Each project must undergo the same level of impact analysis in order to proceed to construction and is to be judged on the impacts proposed as well as any mitigation efforts to compensate for the loss incurred. Major roads such as SR 44 have provided the connection to I-95 required for approval of many of the residential projects, and additional connections to the surface roads via the Williamson Boulevard extension provide sufficient travel routes. The traffic analysis has indicated that these projects are all self sufficient without the need of the proposed interchange. Each project is still responsible for its own impacts, regardless of the proposed interchange.

FDOT and County transportation plans have also been consulted for projects that may occur within the study area. With the exception of the I-95 six-laning project, there are no capacity improvement projects currently either in planning phases or study phases.

3.5 STEP 4: ESTIMATE COMBINED EFFECTS ON KEY RESOURCES

The overall effects on the resources consider the Direct and Indirect Effects (Step 2) and the Other Projects (Step 3).

- Public Lands

Direct Effects – None. The recommended alternative does not impact any public lands (See **Figure 3-3**).

Indirect Effects – If there is any use of prescribed fire on the Spruce Creek Preserve, it may be altered in the future if managers determine that burning would cause potential dangers near the interchange. This seems unlikely as the cover type within the preserve is not typical for high burn frequency.

Other Actions – The project and induced growth will not impact any public lands. Some areas of growth upstream of the Spruce Creek Preserve will convert land use from natural to developed and may have an effect on some aspects of the land.

Cumulative Impacts – The developments planned will potentially create altered land uses upstream of the preserve. Each of the projects will be required to be reviewed for direct and secondary impacts at that time, and potential mitigation to offset these will be required.

- Wildlife

Direct Effects – The recommended alternative will not adversely impact any listed species or habitat directly. Effects determinations made utilizing the Endangered Species Act Consultation Guidelines received concurrence from FWS staff.

Indirect Effects – Potential impacts to wetlands may reduce foraging area for wading birds such as the wood stork, though since the project study area is not within a CFA, suitable foraging habitat is not designated. Impacts to potential habitat for a habitat generalist such as the eastern indigo snake is possible, though no documented sightings have been made in the study area (or anywhere near it). Permitting will result in the creation of additional conservation lands via preservation, providing habitat continuity through future development.

Other Actions – All of the additional development projects have the potential to impact natural habitat, though as previously discussed, there are no documented sightings of listed species within the project area, with the exception of the 1992-1993 statewide Florida scrub-jay survey, which identified birds north of Turnbull Bay Road. Each subsequent project will still have to be analyzed under the ESA Consultation Guidelines and be subject to the regulatory controls in place. Minor impacts to habitat via suppression of prescribed fire, wetland development, and habitat fragmentation are still possible.

Cumulative Impacts – Development induced by the project and Other Actions have the potential for impacts to habitat suitable for scrub-jay, wood stork, eastern indigo snake, wading birds, and small terrestrial mammals due to fragmentation and habitat destruction. Still, via permitting, remnant wetland areas will be required to be placed under conservation, and compensatory mitigation has been determined to provide appropriate offsets for impacts for projects. All projects are still subject to the regulatory controls in place.

- Wetlands

Wetland impacts due to direct and indirect effects of the project as well as those from Other Actions are expected to be minimal due to regulations requiring avoidance and minimization efforts during design. Impacts will be reduced during both state and federal permitting processes to achieve the least environmentally damaging project alternative. Compensatory mitigation will still be required to offset impacts, and preservation of those wetlands not impacted will be included in the mitigation plan.

Cumulative Impacts – The cumulative effect of all of the development on wetlands will result in a net loss of wetlands in the study area. This is still acceptable under the regulatory guidelines as the compensatory mitigation to offsets the impacts will remain within the impacted basin. The Farnton Mitigation Bank is within the same basin as the impacts, and provides a significant ecological benefit to the region, more so than the individual wetland systems impacted by the development. Many if not all of the wetland systems have already been impacted (either directly or indirectly) from I-95, SR 44, Pioneer Trail, Turnbull Bay Road, and Williamson Blvd. Though hydrologic connections have been maintained, edge effects and fragmentation will have already reduced the functionality of all of these systems. Maintaining the existing systems that are outside of the impact areas and providing further mitigation at a regionally significant site such as Farnton provides the best long term ecological result.

- Floodplains

Direct and indirect floodplain impacts as well as those from Other Actions are subject to regulations requiring compensation floodplains are filled. This, along with the hydraulic study that determines the appropriate sizing of conveyance structures will maintain the floodplains within the study area. These resources have been protected from development by environmental regulations for a number of years and will continue to remain under protection. The floodplains are shown on **Figure 3-4**.

Cumulative Impacts – Any projects that propose impacts to floodplain resources will still be subject to the regulatory guidelines and have to offset these impacts via direct compensation and / or mitigation.

3.6 STEP 5: CONSIDER AVOIDANCE/MINIMIZATION AND MITIGATION

- Avoidance and minimization

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

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

Federal regulations require that applicants consider avoidance and minimization as a first step in the analysis of a site development plan. The project itself will be subject to an avoidance and minimization exercise during the design phase. This will consider all options for reducing impacts where feasible. Mitigation is inherent in the permitting process and will be applicable should unavoidable impacts be proposed. All projects (Other Actions, induced growth, etc.) are subject to the same requirements during permitting and will minimize impacts and provided mitigation as appropriate.

FDOT will continue to apply practices during design to reduce impacts and will be proactive in taking measures to mitigate for impacts as necessary. This includes working with regulatory agencies on local and regional plans where possible and participating in regional projects or partnerships with local governments when feasible.

It can be expected that the private development plans that have been permitted, are being permitted and will be permitted in the future will also be considering avoidance and minimization associated with site plan development. Avoidance and minimization is driven not only by regulatory constraints but also costs. The activities required to develop on wetlands (de-mucking, bringing in fill material, onsite compensation for floodplain impacts, and offsetting wetland impacts through wetland mitigation bank) make it cost prohibitive and therefore primarily an action that is avoided. An exception is squaring off development or the dredge and fill of isolated wetlands that are less than 0.5 acres in size.

The plan developments that have been approved or will be approved typically avoid large onsite wetland systems. A prime example is the Elbert Land Property development adjacent to Pioneer Trail and Turnbull Bay Road that currently has an application being reviewed by the SJRWMD. Their site plan is proposing 1.38 acres of wetland impact and the avoidance of the remaining 65 acres.

- Mitigation

Both state and federal regulatory authorities generally require that impacts to wetland resources are offset within the same basin and/or have a service area that includes the proposed area of impact. For the USACOE, the basin is defined in accordance with the 8-digit Hydrologic Unit Code (HUC 8). The study area is wholly within the Daytona-St. Augustine 8-digit HUC code (0308201). The USACOE will accept credits for the project impacts areas from banks within the service area.

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

The state of Florida has established Cumulative Impact Basins that are incorporated under the cumulative impact requirements of subsections 373.414(8)(a), F.S., 40C-4.301 (3), F.A.C., and 12.28, ERP A.H. The project study area is located within the Halifax River Cumulative Impact Basin (Basin 17). A total of two state permitted banks occur within this basin (Farmton, and Lake Swamp). Please note that this basin loosely follows the USACPE HUC basin but has two distinct differences; one, the basin is extended further to the south and, two, it is cut off to the north around the Flagler County line rather than around St. Augustine. The State of Florida will only allow a mitigation bank that is outside the Cumulative Impact Basin that contains the impact when a Cumulative Impact Study has been conducted and approved.

At the time of this PD&E study, there are two permitted mitigation banks that meet both state and federal criteria to offset impacts associated with this project. All planned developments (approved or pending approval) generally have to abide by Federal and State criteria that has a clear preference for mitigation banks. None of the mitigation banks occur within the cumulative impact study area, however, the Farmton Mitigation Bank does occur less than 4 miles to the south of the study area. This 23,922-acre site is the largest mitigation bank in the country.

4.0 CONCLUSION

This analysis for the proposed project has assessed the potential for Indirect Effects and Cumulative Effects within the study area. Direct effects were established in the individual PD&E Reports prepared for the project and included in the



examination for both the Indirect and Cumulative Effects from the project. This analysis has demonstrated that the proposed project may have some indirect and cumulative effects to the study area, but that primarily, impacts will be related to a number of large developments that have been planned independent of the proposed project. The amount of induced growth that may occur as a result of this project is limited (as shown on **Figure 2- 5**), and the cumulative effects of the project on the study area are limited as well due to the regulatory requirements in place. Wetland impacts are the primary effect, though due to the large amount of available mitigation credits at banks such as Farmton, the overall impact to the basin will be minimal. No adverse effects are anticipated to listed species and habitat from the project, and no impacts to public or conservation lands are anticipated either.

APPENDIX A



Florida Department of Transportation

**RICK SCOTT
GOVERNOR**

605 Suwannee Street
Tallahassee, FL 32399-0450

**MIKE DEW
SECRETARY**

ETDM Summary Report

Project #14193 - I-95 Interchange at Pioneer Trail

Preliminary Programming Screen - Published on 11/03/2017

Generated by Kathaleen Linger (on behalf of FDOT District 5)

Printed on: 11/03/2017

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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 recommendations 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.

#14193 I-95 Interchange at Pioneer Trail

District: District 5

County: Volusia

Planning Organization: FDOT District 5

Plan ID: Not Available

Federal Involvement: FHWA Funding Other Federal Permit

Phase: Programming Screen

From: Williamson Blvd.

To: Turnbull Bay Road

Financial Management No.: 436292-1-22-01

Contact Information: Heather Grubert 386-943-5540 Heather.Grubert@dot.state.fl.us

Snapshot Data From: Programming Screen Summary Report Published on 11/03/2017 by Kathaleen Linger
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 and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
Alternative #1 - I-95 Interchange at Pioneer Tr From: Williamson Blvd. To: Turnbull Bay Road Published: 11/03/2017 Reviewed from 08/03/2017 to 10/02/2017	1	2	N/A	2	2	1	1	2	3	N/A	4	3	2	3	0	2	2	2	2	N/A	3

Purpose and Need

Purpose and Need

PROJECT STATUS

The project is located within the jurisdiction of the River to Sea Transportation Planning Organization (TPO), which covers Volusia County and parts of Flagler County. An Interchange Justification Report (IJR), sponsored by Volusia County, was accepted by the Federal Highway Administration (FHWA) in May 2017. The Project Development and Environment (PD&E) Study is documented in the TPO's 2040 Long Range Transportation Plan (LRTP) as a local transportation project.

PURPOSE

The purpose of the interchange at I-95 and Pioneer Trail is to relieve traffic congestion on the two adjacent interchanges north and south of the project: I-95 at State Road 421 / Dunlawton Avenue and I-95 at State Road 44 / Lytle Avenue, respectively and to support economic development associated with existing and approved developments, including three Developments of Regional Impact (Farmton, Restoration, and Pavilion at Port Orange).

NEED

The need for the project is based on transportation demand/capacity and economic development.

ECONOMIC DEVELOPMENT

An economic impact analysis prepared by Fishkind and Associates of the proposed I-95/Pioneer Trail interchange concluded that the interchange would add \$2.5 billion to the local economy; employ nearly 700 temporary construction and construction-related jobs; support 13,410 permanent jobs; and provide an additional \$775 million per year of permanent, ongoing economic activity related to new households and office/retail/hotel activity and employment. An increased economic efficiency value of \$1,779,687, due to savings in travel time and reductions in pollution, was also identified.

TRANSPORTATION DEMAND

In the no-build condition, the southbound ramps at the existing interchange of I-95 and SR 421 / Dunlawton Avenue are projected to operate at LOS F during the design year (2042), while the northbound ramps are projected to operate at LOS E. In the build condition, the southbound ramps are projected to operate at LOS E in 2042, while the northbound ramps are projected to operate at LOS C. Also in the no-build condition, both the southbound and northbound ramps at the existing interchange of I-95 and SR 44 / Lytle Avenue are projected to operate at LOS E in 2042; however, in the build condition the northbound ramps are projected to operate at LOS C, while the southbound ramps are projected to operate at LOS D under signalized conditions. Additionally, relief to segments of SR 421 / Dunlawton Avenue and SR 44 / Lytle Avenue is also anticipated given the redistribution of traffic.

Project Description

This project involves a new interchange along Interstate 95 (I-95) at Pioneer Trail (County Road 4118) at Milepost (MP) 19.032 in Volusia County, Florida. The proposed interchange would be located between two existing interchanges on I-95: State Road 421 / Dunlawton Avenue at MP 23.300, approximately 4.25 miles to the north, and at State Road 44 / Lytle Avenue at MP 16.287, approximately 2.75 miles to the south.

Summary of Public Comments

Summary of Public Comments is not available at this time.

Planning Consistency Status

Lead Agency

Participating and Cooperating Agencies

Participating and Cooperating agencies are not applicable for this class of action.

Exempted Agencies

Agency Name	Justification	Date
Federal Rail Administration	There are no FRA facilities within the project area.	07/06/2017
Federal Transit Administration	FTA has requested to be exempt from reviewing any non-transit projects.	10/07/2014
US Forest Service	There are no USFS resources within the project area.	07/06/2017
National Park Service	There are no NPS resources within the project area.	07/06/2017

Community Desired Features

No desired features have been entered into the database. This does not necessarily imply that none have been identified.

User Defined Communities Within 500 Feet

No user defined communities were found within a 500 ft. buffer distance for this project.

Census Places Within 500 Feet

- Glencoe
- New Smyrna Beach
- Port Orange

Purpose and Need Reviews

FL Department of Agriculture and Consumer Services

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	09/07/2017	Steve Bohl (Steve.Bohl@freshfromflorida.com)	Taking traffic away from the DRI's may have an economic impact.

FL Department of Economic Opportunity

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	10/02/2017	Matt Preston (matt.preston@deo.myflorida.com)	No Purpose and Need comments found.

FL Department of Environmental Protection

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	09/05/2017	Suzanne Ray (plan.review@dep.state.fl.us)	No Purpose and Need comments found.

FL Department of State

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	08/09/2017	Ginny Jones (ginny.jones@dos.myflorida.com)	none

FL Fish and Wildlife Conservation Commission

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	09/22/2017	Jennifer Goff (jennifer.goff@MyFWC.com)	No Purpose and Need comments found.

National Marine Fisheries Service

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	08/17/2017	Jennifer Schull (Jennifer.Schull@noaa.gov)	No Purpose and Need comments found.

National Park Service

Acknowledgment	Date Reviewed	Reviewer	Comments
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Understood	09/19/2017	Anita Barnett (anita_barnett@nps.gov)	No Purpose and Need comments found.
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Natural Resources Conservation Service

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	08/10/2017	Rick Robbins (rick.a.robbins@fl.usda.gov)	No Purpose and Need comments found.

Saint Johns River Water Management District

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	09/07/2017	Gary Haddle (Ghaddle@sjrwmd.com)	No Purpose and Need comments found.

US Army Corps of Engineers

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	08/29/2017	Randy Turner (Randy.L.Turner@usace.army.mil)	No Purpose and Need comments found.

US Coast Guard

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	08/11/2017	Randall Overton (randall.d.overton@uscg.mil)	There are no navigable waters of the United States impacted by the proposed project as it currently scoped.

US Environmental Protection Agency

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	09/28/2017	Roshanna White (White.Roshanna@epa.gov)	No Purpose and Need comments found.

US Fish and Wildlife Service

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	09/05/2017	Zakia Williams (zakia_williams@fws.gov)	No Purpose and Need comments found.

The following organizations were notified but did not submit a review of the Purpose and Need:

- FDOT Office of Environmental Management
- Seminole Tribe of Florida

Alternative #1 - I-95 Interchange at Pioneer Tr

Alternative Description

Name	From	To	Type	Status	Total Length	Cost	Modes	SIS
I-95 Interchange at Pioneer Tr	Williamson Blvd.	Turnbull Bay Road	Traffic Operation Enhancement	ETAT Review Complete	? mi.		Roadway	Y

Segment Description(s)

Location and Length

Segment Record	Segment Name	Facility Name	Beginning Location	Ending Location	Length (mi.)	Roadway Id	BMP	EMP
S-005	Pioneer Trail	Pioneer Trail			1.065	Digitized		
S-004	I-95 Interchange	I-95 Interchange			1.065	Digitized		

Jurisdiction and Class

Segment Record	Segment Name	Jurisdiction	Urban Service Area	Functional Class
S-005	Pioneer Trail		In/Out	
S-004	I-95 Interchange		In/Out	

Base Conditions

Segment Record	Segment Name	Year	AADT	Lanes	Config
S-005	Pioneer Trail				
S-004	I-95 Interchange				

Interim Plan

Segment Record	Segment Name	Year	AADT	Lanes	Config
S-005	Pioneer Trail				
S-004	I-95 Interchange				

Needs Plan

Segment Record	Segment Name	Year	AADT	Lanes	Config
S-005	Pioneer Trail				
S-004	I-95 Interchange				

Cost Feasible Plan

Segment Record	Segment Name	Year	AADT	Lanes	Config
S-005	Pioneer Trail				
S-004	I-95 Interchange				

Funding Sources

No funding sources found.

Project Effects Overview for Alternative #1 - I-95 Interchange at Pioneer Tr

Issue	Degree of Effect	Organization	Date Reviewed
Social and Economic			
Land Use Changes	1 Enhanced	FL Department of Economic Opportunity	10/02/2017
Social	2 Minimal	US Environmental Protection Agency	09/19/2017
Farmlands	2 Minimal	Natural Resources Conservation Service	08/10/2017
Economic	1 Enhanced	FL Department of Economic Opportunity	10/02/2017
Cultural			
Historic and Archaeological Sites	3 Moderate	FL Department of State	08/09/2017
Recreation Areas	N/A N/A / No Involvement	National Park Service	09/19/2017
Recreation Areas	0 None	FL Department of Environmental Protection	09/05/2017

Recreation Areas	N/A	N/A / No Involvement	Saint Johns River Water Management District	09/01/2017
Natural				
Wetlands and Surface Waters	3	Moderate	US Environmental Protection Agency	09/28/2017
Wetlands and Surface Waters	3	Moderate	US Fish and Wildlife Service	09/21/2017
Wetlands and Surface Waters	4	Substantial	Saint Johns River Water Management District	09/07/2017
Wetlands and Surface Waters	0	None	FL Department of Environmental Protection	09/05/2017
Wetlands and Surface Waters	3	Moderate	US Army Corps of Engineers	08/29/2017
Wetlands and Surface Waters	0	None	National Marine Fisheries Service	08/17/2017
Water Quality and Quantity	3	Moderate	US Environmental Protection Agency	09/28/2017
Water Quality and Quantity	0	None	Saint Johns River Water Management District	09/07/2017
Water Quality and Quantity	0	None	FL Department of Environmental Protection	09/05/2017
Floodplains	0	None	Saint Johns River Water Management District	09/01/2017
Wildlife and Habitat	3	Moderate	FL Fish and Wildlife Conservation Commission	09/22/2017
Wildlife and Habitat	2	Minimal	US Fish and Wildlife Service	09/21/2017
Wildlife and Habitat	0	None	FL Department of Agriculture and Consumer Services	09/07/2017
Coastal and Marine	N/A	N/A / No Involvement	Saint Johns River Water Management District	09/07/2017
Coastal and Marine	0	None	National Marine Fisheries Service	08/17/2017
Physical				
Air Quality	2	Minimal	US Environmental Protection Agency	09/19/2017
Contamination	2	Minimal	US Environmental Protection Agency	09/20/2017
Contamination	0	None	FL Department of Environmental Protection	09/05/2017
Navigation	0	None	US Army Corps of Engineers	08/29/2017
Navigation	N/A	N/A / No Involvement	US Coast Guard	08/11/2017
Special Designations				
Special Designations	3	Moderate	US Environmental Protection Agency	09/28/2017
Special Designations	0	None	Saint Johns River Water Management District	09/07/2017

ETAT Reviews and Coordinator Summary: Social and Economic

Land Use Changes

Project Effects

Coordinator Summary Degree of Effect: **1** *Enhanced* assigned 11/03/2017 by FDOT District 5

Comments:

The Department of Economic Opportunity (DEO) commented that the proposed project is compatible with the community goals and local government comprehensive plans for the three local governments (New Smyrna Beach, Port Orange, and Volusia County), although it needs to be included in the future transportation maps. The DEO also noted that the project is expected to enhance emergency evacuation, as identified in the comprehensive plans. The project is being assigned a Degree of Effect of Enhanced due

to the project responding to planned growth in the area.

Degree of Effect: **1** *Enhanced* assigned 10/02/2017 by Matt Preston, FL Department of Economic Opportunity

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comprehensive Plan(s) Reviewed:

City of New Smyrna Beach Comprehensive Plan 2025, adopted on April 12, 2011; *City of Port Orange Comprehensive Plan 2010-2025*, adopted in October of 2010; and, *Volusia County Comprehensive Plan 2025*, adopted on March 12, 2008.

Comments on Effects to Resources:

Compatibility with Community Development Goals and Comprehensive Plan:

The project is consistent with the applicable comprehensive plans and compatible with community development goals.

The three local governments' (New Smyrna Beach, Port Orange, and Volusia County) community development goals are compatible with the proposed I-95 interchange at Pioneer Trail. This area is in an urban transitional area, consisting of existing and future planned unit developments and activity centers. Currently, most of the residents in this area commute daily to the Orlando metropolitan area for employment. The local governments comprehensive plans contain policies intended to reverse this trend by providing the necessary urban infrastructure and services in the area, including improved road access, in order to support existing and planned development and employment growth.

In addition, specific policies ensure coordination of land uses with transportation facilities, where existing and proposed land uses are consistent with the transportation modes and available services. The project is expected to enhance emergency evacuation as identified in the comprehensive plans.

Future Transportation Map:

The proposed project is not included on any of the City or County future transportation maps. DEO staff recommends that the City of New Smyrna Beach, City of Port Orange, and Unincorporated Volusia County update their respective maps to include this project.

Land Uses:

Future land uses surrounding the project include:

City of New Smyrna Beach - Rural, Low Density Residential, and Urban Transition Area Overlay.

City of Port Orange - Conservation, Rural Transition, and Mixed-Use Center.

Unincorporated Volusia County - Rural, Agriculture Resources, and Low Impact Urban.

Parks:

The project is not located within a quarter mile of any City or County parks.

Area of Critical State Concern (ACSC), Coastal High Hazard Area (CHHA), and Military Bases:

The project is not located within an Area of Critical State Concern, or the CHHA; nor does it encroach on any military installations (contacted Matt Schellhorn, CPLO NAS Jax/NS Mayport).

Other Planning-Related Items:

Planned Unit Developments, Activity Centers, and New Smyrna Beach Municipal Airport are located in close proximity to the proposed project.

Contact Information:

Jeff Gove (City of New Smyrna Beach) - Phone Number: (386) 410-2800. Penelope Cruz (City of Port Orange) - Phone Number: (386) 506-5671. Susan Jackson (Volusia County) - Phone Number: (386) 736-5959.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Economic Opportunity's Review (11/03/2017): Thank you for your review and comments. The FDOT will continue to coordinate with the Cities of New Smyrna Beach, Port Orange, and Volusia County during the PD&E Study. Any impacts / land use changes that may occur due to the project will be coordinated with these local governments and documented in the Preliminary Engineering Report and the environmental document.

Social

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

USEPA reviewed this issue with a Degree of Effect of Minimal. However, due to noted public opposition to the proposed project, a robust public involvement program will be carried out during the PD&E Study. The public involvement program, and components of the PD&E Study, will address public opposition in addition to indirect and cumulative effects.

Degree of Effect: 2 *Minimal* assigned 09/19/2017 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Sole Source Aquifer Impact Determination

Direct Effects

Identified Resources and Level of Importance:

The EPA is assigning a minimal level of importance to social impacts of the construction of a new interchange along I-95 at Pioneer Trail. The demographics of the area have been documented in terms of the existence of minority and low-income populations, along with a description of the US Census geographic units in the sociocultural data report.

Comments on Effects to Resources:

The construction of a new interchange along I-95 at Pioneer Trail direct social impacts may result in construction detours and traffic pattern disruptions for the residential population. The changes may temporarily effect quality of life for some individuals.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Ensure effective public involvement that enables transportation professionals to develop systems, services, solutions that meet the needs of the public; and include benefits from the associated developments of the interchange construction.

Additional Comments (optional):

Sole Source Aquifer Impact Determination

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (11/03/2017): Thank you for your review and comment. As stated above, the FDOT will carry out a comprehensive public involvement program as part of the PD&E Study to address and minimize any impacts to social resources.

Relocation Potential

Project Effects

Coordinator Summary Degree of Effect: N/A N/A / No Involvement assigned 11/03/2017 by FDOT District 5

Comments:

No ETAT Reviews were submitted for this issue. Because no relocations are anticipated, a Degree of Effect of Not Applicable / No Involvement is being assigned to this resource.

None found

Farmlands

Project Effects

Coordinator Summary Degree of Effect: 2 Minimal assigned 11/03/2017 by FDOT District 5

Comments:

As noted by the Natural Resources Conservation Service (NRCS), "there are no soils designated as Prime Farmland at all buffer widths within the Project footprint. However, there are areas currently used for agricultural production (primarily woodland pastures) at all buffer widths". The FDOT concurs with the NRCS that this project will have minimal impact on lands designated "farmlands or unique/local importance / prime farmlands"; therefore, a Degree of Effect of Minimal is being assigned to this issue.

Degree of Effect: 2 Minimal assigned 08/10/2017 by Rick Allen Robbins, Natural Resources Conservation Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

The USDA-NRCS considers soil map units with important soil properties for agricultural uses to be Prime Farmland (Important Farmland soils). Prime Farmland (as defined in ETDM) is classified in several different categories based on specific criteria. **Prime Farmland** must meet specific soil-related criteria, as defined by the USDA-Natural Resources Conservation Service. **Farmland of Unique Importance** is based on the ability of the soil to grow very specific crops, such as citrus, vegetables, sugar cane, and other high-value specialty crops. It is also based on the extent that a soil is used for these crops within a specific county. Therefore, a soil in one county may be Unique Farmland, but not in an adjacent county. **Farmland of Local Importance** is classified as being important to the local entities (counties) and worthy of special consideration. Locally Important Farmland soils were designated by local governance (Soil and Water Conservation Districts).

Nationally, there has been a reduction in the overall amount of Prime, Locally Important, and Unique Farmlands through conversion to non-farm uses. This trend has the possibility of impacting the nation's food supply and exporting capabilities.

Comments on Effects to Resources:

Conducting GIS analysis of Prime Farmland (using USDA-NRCS data) and Important Farmland Analysis (using 2009 SJRWMD data and 2015 SSURGO data) has resulted in the determination that there are no soils designated as Prime Farmland at all buffer widths within the Project footprint. However, there are areas currently used for agricultural production (primarily woodland pastures) at all buffer widths. Acreage of woodland pastureland ranges from 5.61 to 13.88 acres from 100 to 500 foot buffer widths.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to Natural Resources Conservation Service's Review (11/03/2017): Thank you for your review and comment. The FDOT concurs with your review and comments regarding the potential impacts / conversion of farmlands and will assign a degree of effect of minimal to this issue.

Aesthetic Effects

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

No ETAT Reviews were submitted for this issue. Given the undeveloped nature of the project area, impacts to aesthetics, view shed, etc. are anticipated to be minimal. The FDOT will work with the project stakeholders, local governments and others to minimize, and where possible, enhance aesthetics.

None found

Economic

Project Effects

Coordinator Summary Degree of Effect: 1 *Enhanced* assigned 11/03/2017 by FDOT District 5

Comments:

Future land uses have been designated by New Smyrna Beach, Port Orange, and Volusia County; therefore, this project is responding to planned growth. As DEO noted, the project is anticipated to enhance the economic conditions by providing support for economic and development initiatives within the study area.

Degree of Effect: 1 *Enhanced* assigned 10/02/2017 by Matt Preston, FL Department of Economic Opportunity

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comprehensive Plan(s) Reviewed:

City of New Smyrna Beach Comprehensive Plan 2025, adopted on April 12, 2011; *City of Port Orange Comprehensive Plan 2010-2025*, adopted in October of 2010; and, *Volusia County Comprehensive Plan 2025*, adopted on March 12, 2008.

Comments on Effects to Resources:

The project *is not* located within a Rural Area of Opportunity.

The project has the potential to attract new development and could potentially provide additional employment opportunities as mentioned in the Compatibility section above.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Economic Opportunity's Review (11/03/2017): Thank you for your review and comment. The FDOT concurs that the project has an opportunity to complement and therefore enhance the economic development objectives of the three municipalities in the study area.

Mobility

Project Effects

Coordinator Summary Degree of Effect: 1 *Enhanced* assigned 11/03/2017 by FDOT District 5

Comments:

No ETAT Reviews were submitted for this issue. Because the project will enhance mobility within in the study area in addition to the interchange locations north of (I-95 and Dunlawton Avenue) and south of (I-95 and State Road 44) the study area, a summary Degree of Effect of Enhanced is being assigned to this issue.

None found

ETAT Reviews and Coordinator Summary: Cultural

Section 4(f) Potential

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

No ETAT Reviews were submitted for this issue. The potential for impacts to resources protected under Section 4(f) have been reviewed and are anticipated to be minimal.

None found

Historic and Archaeological Sites

Project Effects

Coordinator Summary Degree of Effect: 3 *Moderate* assigned 11/03/2017 by FDOT District 5

Comments:

In agreement with the Department of State's review, a Degree of Effect of Moderate is being issued for this issue due to the fact that a majority of the study area has no documented field survey. As noted, it is unlikely there are any structures over 50-years old in the project area, but there is high probability that there are unrecorded cultural resources in the project vicinity based on the historic use of Pioneer Trail/Ft. Kingsbury to Smyrna Road and historic intersection of Pioneer Trail and Turnbull Bay Road, which could likely contain archaeological remains.

Degree of Effect: 3 *Moderate* assigned 08/09/2017 by Ginny Leigh Jones, FL Department of State

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

Coordination Document Comments:

Since the project area has not been comprehensively surveyed, a survey should be conducted for this project. All cultural resources, including potential historic districts, within the area of potential effect should be documented and assessed for NRHP eligibility. The resultant survey report shall conform to the specifications set forth in Chapter 1A-46 Florida Administrative Code, FDOT PD&E Manual Part 2, Chapter 12 and will need to be forwarded to this agency (or the appropriate Federal Agency) for review and comment.

The project area is within the boundaries of the Volusia County Certified Local Government (CLG), so the county historic preservation officer should be contacted during the survey and provided an opportunity to comment on the project.

Direct Effects

Identified Resources and Level of Importance:

As reported in the PED, there are 2 roadways (VO7656 and VO7660) recorded in the project area and the entire project area has not been comprehensively surveyed.

There is high probability that there are unrecorded cultural resources in the project vicinity based on the historic use of Pioneer Trail/Ft. Kingsbury to Smyrna Road, and its close proximity to Old Kings Road (VO255). The current location of the intersection of Pioneer Trail and Turnbull Bay Road is also historic. The intersection of so many historic roadways makes it likely to contain archaeological remains.

It is unlikely there are any structures over 50-years old in the project area, but that should be verified during field work.

Comments on Effects to Resources:

Ground disturbance from construction could have an adverse effect to archaeological sites in the project area.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

This office will consult with the project sponsors to avoid, minimize, or mitigate any adverse effects to significant cultural resources.

Additional Comments (optional):

Since the project area has not been comprehensively surveyed, a survey should be conducted for this project. All cultural resources, including potential historic districts, within the area of potential effect should be documented and assessed for NRHP eligibility. The resultant survey report shall conform to the specifications set forth in Chapter 1A-46 Florida Administrative Code, FDOT PD&E Manual Part 2, Chapter 12 and will need to be forwarded to this agency (or the appropriate Federal Agency) for review and comment.

The project area is within the boundaries of the Volusia County Certified Local Government (CLG), so the county historic preservation officer should be contacted during the survey and provided an opportunity to comment on the project.

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of State's Review (11/03/2017): Thank you for your review and comments. Further coordination with your agency will take place during the PD&E study and a Cultural Resource Assessment Survey will be conducted.

The following organization(s) were expected to but did not submit a review of the Historic and Archaeological Sites issue for this alternative: Seminole Tribe of Florida

Recreation Areas

Project Effects

Coordinator Summary Degree of Effect: N/A N/A / No Involvement assigned 11/03/2017 by FDOT District 5

Comments:

The National Park Service and Saint Johns River Water Management District assigned a Degree of Effect of N/A/ No Involvement for this project, while FDEP assigned a Degree of Effect of None. No recreation areas are present within the study area; a summary degree of effect of not applicable / no involvement is being assigned to this resource.

Degree of Effect: N/A N/A / No Involvement assigned 09/19/2017 by Anita Barnett, National Park Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to National Park Service's Review (11/03/2017): Thank you for your review.

Degree of Effect: 0 *None* assigned 09/05/2017 by Suzanne E. Ray, FL Department of Environmental Protection

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

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Environmental Protection's Review (11/03/2017): Thank you for your review.

Degree of Effect: N/A N/A / *No Involvement* assigned 09/01/2017 by Ken Lewis, Saint Johns River Water Management District

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to Saint Johns River Water Management District's Review (11/03/2017): Thank you for your review.

ETAT Reviews and Coordinator Summary: Natural Wetlands and Surface Waters

Project Effects

Coordinator Summary Degree of Effect: 4 *Substantial* assigned 11/03/2017 by FDOT District 5

Comments:

The Wetlands and Surface Water issue was given a Moderate Degree of Effect by the US Environmental Protection Agency (USEPA), US Fish and Wildlife Service (USFWS), and US Army Corps of Engineers (USACOE), while the Florida Department of Environmental Protection (FDEP) and National Marine Fisheries Service (NMFS) assigned a Degree of Effect of None. Saint Johns River Water Management District (SJRWMD) assigned a Degree of Effect of Substantial. The FDOT recognizes the potential impacts to wetlands and surface water and will therefore assign an overall degree of effect of substantial to this resource. This is based on the agency

comments related to the loss of function, degradation, etc. associated with wetlands and corresponding habitat. The FDOT will work to avoid and minimize impacts to surrounding wetlands and surface waters and will work with the USEPA, USFWS, USACOE and the water management district during the PD&E Study.

Degree of Effect: 3 *Moderate* assigned 09/28/2017 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Sole Source Aquifer Impact Determination

Direct Effects

Identified Resources and Level of Importance:

Within a 500-foot buffer area of the proposed construction of the new interchange along I-95 at Pioneer Trail there are approximately 70 acres of wetlands. Wetlands are important because they are a critical natural resource and serve several functions including filtration and treatment of surface water runoff, flood control, erosion control, groundwater recharge and discharge, wildlife and species habitat, and recreational activities. Therefore, the EPA determined the degree of effect on wetlands and surface waters is Moderate.

Comments on Effects to Resources:

The loss of wetlands function, loss of wildlife habitat, degradation of water quality in wetlands, degradation of water quality in surface waters, and reduction in flood storage and capacity can be impacted by the construction of a new interchange along I-95 at Pioneer Trail. An increase in the impervious surface area will increase storm water runoff and increase pollutants into surface waters and wetlands as a result of the project. Impervious or semi-impervious surfaces will contribute to surface drainage and non-point sources that will impact surface and groundwater quality.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

For the environmental evaluation of the construction of a new interchange along I-95 at Pioneer Trail, the EPA recommends the following practices for direct wetland and surface water impacts :

- Avoidance of wetlands to the maximum extent practicable.
- Maximize the collection and treatment of storm water. Storm water runoff should be diverted from open water bodies. Best management practices should be implemented during construction.
- Storm water collection and treatment mechanisms should be designed to protect the function of surrounding wetlands, floodplains, and surface water that have already experienced secondary impacts from roadway runoff.

Additional Comments (optional):

Sole Source Aquifer Impact Determination

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (11/03/2017): Thank you for your review and comments. The FDOT recognizes the potential effects to wetlands and surface waters and concurs with the opportunities for avoidance, minimization and mitigation

Degree of Effect: 3 *Moderate* assigned 09/21/2017 by Zakia Williams, US Fish and Wildlife Service

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

Direct Effects

Identified Resources and Level of Importance:

Wetlands provide important habitat for fish and wildlife. Best Management Practices (BMPs) should be used to prevent degradation of wetland and other aquatic resources from erosion, siltation, and nutrient discharges associated with the project site.

Comments on Effects to Resources:

The USFWS 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.

Dependent upon the alternative(s) selected, the proposed project is expected to result in minimal to moderate involvement with wildlife and habitat resources. If it is determined the project will affect and federally listed species and/or their habitat, the Department will initiate consultation with FWS during the Project Development process.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Fish and Wildlife Service's Review (11/03/2017): Thank you for your review and comment. As noted, the FDOT will utilize "Best Management Practices (BMPs) to prevent degradation of wetland and other aquatic resources from erosion, siltation, and nutrient discharges associated with the project site."

Degree of Effect: 4 *Substantial* assigned 09/07/2017 by Gary Haddle, Saint Johns River Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

Individual ERP from SJRWMD will be required.

Direct Effects

Identified Resources and Level of Importance:

Based on the design it appears that the project will have wetland and surface water impacts and will require mitigation.

Comments on Effects to Resources:

Proposed wetland and surface water impacts will require mitigation.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

There appears to be multiple mitigation opportunities in the basin (Regulatory Mitigation Basin 17, Halifax River) including multiple mitigation banks with available credits. In order to receive the Environmental Resource Permit from the SJRWMD the expectation is that the adverse wetland and surface water impacts will be reduced and eliminated to the greatest extent practicable, and fully mitigated and offset.

Additional Comments (optional):

Individual ERP from SJRWMD will be required.

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Based on the design it appears that the project will have wetland and surface water impacts and will require mitigation.

Comments on Effects to Resources:

Proposed wetland and surface water impacts will require mitigation.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

There appears to be multiple mitigation opportunities in the basin (Regulatory Mitigation Basin 17, Halifax River) including multiple mitigation banks with available credits. In order to receive the Environmental Resource Permit from the SJRWMD the expectation is that the adverse wetland and surface water impacts will be reduced and eliminated to the greatest extent practicable, and fully mitigated and offset.

FDOT District 5 Feedback to Saint Johns River Water Management District's Review (11/03/2017): Thank you for your review and comment and for identifying the mitigation opportunities in the basin (Regulatory Mitigation Basin 17, Halifax River). The FDOT recognizes the issuance of the ERP from the SJRWMD will be contingent upon reduction of adverse impacts to wetlands and surface waters.

Degree of Effect: 0 *None* assigned 09/05/2017 by Suzanne E. Ray, FL Department of Environmental Protection

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

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Environmental Protection's Review (11/03/2017): Thank you for your review.

Degree of Effect: 3 *Moderate* assigned 08/29/2017 by Randy Turner, US Army Corps of Engineers

Coordination Document: Permit Required

Coordination Document Comments:

There are nowaters of the U.S. (navigable waters) that are jurisdictional under Section 10 of the Rivers and Harbors Act, however, the proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act. The project as proposed, would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

Direct Effects

Identified Resources and Level of Importance:

A review of the EST revealed the presence of approximately 69.86 acres of palustrine wetlands within a 500 foot buffer; 23.34 acres of palustrine wetlands within a 200 foot buffer; and, 9.57 acre of palustrine wetlands within a 100 foot buffer. Any palustrine wetland impacts would most likely be a majority of palustrine forested wetlands with a small amount of palustrine emergent (wet prairie) associated with Spruce Creek to the north and Spruce Creek Swamp to the south of the project area. The level of importance would be moderate.

Comments on Effects to Resources:

Any palustrine wetlands in the project area deemed to be jurisdictional within this major interchange roadway already have been secondarily impacted so a functional assessment should reveal a lower quality of wetlands. Given the dispersed wetland locations

surrounded by roadways, any wetland impacts to jurisdictional wetlands would be moderate.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

The Corps recommends a continued emphasis on wetland avoidance and minimization opportunities throughout the planning process. A wetland survey should be conducted within the study area to identify the wetlands and a jurisdictional determination should be completed. A review of the Corps RIBITS indicates that the proposed project corridor would traverse the geographical service areas of the Farmton Mitigation Bank (WRAP Credits) that currently has 3,884.77 palustrine credits; Lake Swamp Mitigation Bank (UMAM Credits) that currently has 0.72 palustrine emergent credits and 57.87 palustrine forested credits available; and Port Orange Mitigation Bank (WRAP Credits) that currently has 216.62 palustrine forested credits available. All banks are assessed in either WRAP or UMAM. Any unavoidable wetland impacts should be assessed using WRAP or UMAM dependent on the functional assessment of the bank that is proposed. The project as proposed, would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

Additional Comments (optional):

There are nowaters of the U.S. (navigable waters) that are jurisdictional under Section 10 of the Rivers and Harbors Act, however, the proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act. The project as proposed, would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

See direct effects.

Comments on Effects to Resources:

New, previously non-disturbed, adjacent wetlands would incur secondary effects along the or new interchange footprint.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

See direct impacts.

FDOT District 5 Feedback to US Army Corps of Engineers's Review (11/03/2017): Thank you for your review and comment and for identifying the potential mitigation opportunities. The FDOT recognizes the proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act.

Degree of Effect: 0 None assigned 08/17/2017 by Jennifer Schull, National Marine Fisheries Service

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

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 mixed forested wetlands, hydric pine flatlands, mixed hardwood wetlands, mixed scrub-shrub wetlands, wet prairies, emergent aquatic vegetation, and cypress are located within the project corridor. These wetlands range from low to high in quality. There are no coastal or marine habitats within the project area.

Comments on Effects to Resources:

The wetlands within the project corridor provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support these aquatic ecosystems. Wetlands may be impacted from construction activities, fill, and through sedimentation and runoff. 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.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Magnuson-Stevens Act: Based on the project location, information provided in the ETDM website, and GIS-based analysis of impacts, NOAA's National Marine Fisheries Service (NMFS) concludes that essential fish habitat (EFH) would not be impacted by the proposed action; accordingly, we offer no comments pursuant to the EFH provisions of the Magnuson-Stevens Act (P.L. 104-297); and this project will not require an EFH Assessment. Further consultation on this matter is not necessary unless future modifications are proposed and you believe that the proposed action may result in adverse impacts to EFH.

Endangered Species Act: We are not aware of any threatened or endangered species or critical habitat under the purview of NMFS that occur within the project area. However, it should be noted that a "no effect" determination must be made by the action agency and the reasoning underlying the determination should be documented in a project file. Please coordinate closely with the U.S. Fish and Wildlife Service for other species listed under the Endangered Species Act that may require consultation.

Fish and Wildlife Coordination Act: The comments NMFS provided regarding sequential mitigation are in accordance with the Fish and Wildlife Coordination Act.

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to National Marine Fisheries Service's Review (11/03/2017): Thank you for your review and for identifying that this project will not require an EFH Assessment.

Water Quality and Quantity

Project Effects

Coordinator Summary Degree of Effect: 3 Moderate assigned 11/03/2017 by FDOT District 5

Comments:

The US Environmental Protection Agency, Saint Johns River Water Management District, and Florida Department of Environmental Protection all reviewed this issue. Because the project is within the Spruce Creek basin, a summary degree of effect of moderate is being assigned to this issue. The FDOT will work with agency partners to reduce impacts to water quality and quantity requirements.

Degree of Effect: 3 Moderate assigned 09/28/2017 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Sole Source Aquifer Impact Determination

Direct Effects

Identified Resources and Level of Importance:

The construction of the new interchange along I-95 at Pioneer Trail is located within a 500-foot buffer of a principle aquifer, Surficial Aquifer System, and recharge area; and Spruce Creek, an Outstanding Florida Water. Both the Surficial Aquifer System and Spruce Creek affect Florida water quality, so water quality and quantity degree of effect on these resources is Moderate.

Comments on Effects to Resources:

It is important to maintain and protect good quality water because it provides drinking water for human health, and contributes to the health and habitat of wildlife. The new interchange at I-95 at Pioneer Trail can cause disturbance of vegetation and soils due to vehicular passing during project activities. Soil erosion and disturbance of vegetation due to the use of heavy equipment and vehicular passing lead to the detachment of soils. Soil erosion and sediment delivery to surface water results in turbidity increase

and mobilizes fine sediments. Construction runoff and storm water effect the increase in turbidity of the water body which can cause an increase in water temperature, as turbid waters heat more rapidly when exposed to sunlight. Turbidity decreases primary production and dissolved oxygen levels. Therefore, there is a potential for an increase in water degradation.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

For the environmental evaluation of the new interchange at I-95 at Pioneer Trail, the EPA recommends the following practices for direct water quality and quantity impacts :

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

Additional Comments (optional):

Sole Source Aquifer Impact Determination

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (11/03/2017): Thank you for your review and comment. The FDOT concurs with your assessment of the effects to resources and the corresponding avoidance, minimization and mitigation options.

Degree of Effect: 0 None assigned 09/07/2017 by Gary Haddle, Saint Johns River Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

Stormwater Harvesting potential may be present for this project, as there will be volume created. Nearby needs have been identified, including a nearby golf course, sod farm, and permitted subdivision (not yet constructed). Please contact Marc von Canal, (407) 659-4841, mvoncanal@sjrwmd.com for further discussion.

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

Stormwater Harvesting potential may be present for this project, as there will be volume created. Nearby needs have been identified, including a nearby golf course, sod farm, and permitted subdivision (not yet constructed). Please contact Marc von Canal, (407) 659-4841, mvoncanal@sjrwmd.com for further discussion.

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to Saint Johns River Water Management District's Review (11/03/2017): Thank you for your review and comment. The FDOT acknowledges your comment regarding stormwater harvesting potential and will coordinate with Mr. von Canal as stated.

Degree of Effect: 0 *None* assigned 09/05/2017 by Suzanne E. Ray, FL Department of Environmental Protection

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

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Environmental Protection's Review (11/03/2017): Thank you for your review.

Floodplains

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

Given the conditions in the area, a Degree of Effect of Minimal is being assigned to this issue. A Location Hydraulics Report will be prepared as part of the Project Development and Environment (PD&E) study. An evaluation of floodplain impacts and alternatives to avoid adverse effects and incompatible development in the floodplains will be undertaken. Efforts will be made to avoid or minimize impacts to floodplain resources and functions. Engineering design features and hydrological drainage structures will be designed such that stormwater transport, flow, and discharge meet or exceed flood control requirements.

Degree of Effect: 0 *None* assigned 09/01/2017 by Ken Lewis, Saint Johns River Water Management District

Coordination Document: Permit Required

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to Saint Johns River Water Management District's Review (11/03/2017): Thank you for your review. The FDOT will continue to coordinate with the water management district to avoid and compensate for floodplain impacts.

Wildlife and Habitat

Project Effects

Coordinator Summary Degree of Effect: **3** *Moderate* assigned 11/03/2017 by FDOT District 5

Comments:

Because of the potential wildlife and habitat issues in the area, the FDOT will assign an overall Degree of Effect of Moderate to this issue. The FDOT will conduct wildlife surveys during the Project Development and Environment (PD&E) study phase and coordinate with the USFWS and FWC.

A Natural Resource Evaluation (NRE) will be conducted during the PD&E Study to assess potential impacts to listed species, develop avoidance and minimization efforts as part of the project coordination, and to document any involvement with wildlife and habitat resources. The NRE will assess potential floral and faunal species within the corridor, as well as potential habitat for these species. The results of the NRE will be coordinated with federal and/or state resource/regulatory agencies as applicable.

Degree of Effect: **3** *Moderate* assigned 09/22/2017 by Jennifer Goff, FL Fish and Wildlife Conservation Commission

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed ETDM #14193 in Volusia County from FDOT District 2 of the Florida Department of Transportation (FDOT) and provides the following comments related to potential effects to fish and wildlife resources on this Programming Phase project.

The Project Description Summary states this project involves construction of a new Interchange on I-95 at Pioneer Trail to support economic development including three Developments of Regional Impact in this area of Volusia County. While the project area is within or immediately adjacent to the boundary of the City limits of New Smyrna Beach, the proposed Interchange site is in a rural undeveloped area with three large freshwater wetland systems located within the Northeast, East, and near the Southwest quadrants of the project area. The Project Description did not specifically address the probable need or location for new Drainage Retention Areas (DRAs) to handle stormwater from the expanded roadway surface area and cleared land, which will also result in additional habitat loss.

An assessment of the project area was performed on lands within 500 feet of the proposed alignment to determine potential impacts to habitat which supports listed species and other fish and wildlife resources. Our inventory included a review of aerial and ground-level photography, various wildlife observation and landcover data bases, along with coordination with FWC biologists and other state and federal agencies. A GIS analysis was performed using the Florida FDOT's Environmental Screening Tool to determine the potential quality and extent of upland and wetland habitat, and other wildlife and fisheries resource information. We have reviewed the Preliminary Environmental Discussion Comments Report provided by the FDOT, and offer the following comments and recommendations.

Our assessment reveals that landcover within the 500-foot assessment area along the roadway includes upland forests (69.2 acres, 34.4%), wetlands (76.4 acres, 39.5%), and High and Low Impact disturbed lands (50.9 acres, 25.4%) which for the most part includes the existing Right-of-way (ROW) and recovery zone along the north and southbound lanes of I-95 and cleared ROW along Pioneer Trail. Uplands consist of dry prairie (1.1 acres, 0.6%), mixed hardwood pine forests (2.5 acres, 1.2%), pinelands (50.3 acres, 25.0%), sand pine scrub (2.2 acres, 1.1%), xeric oak scrub (4.5 acres, 2.2%), and shrub and brushland (8.7 acres, 4.3%). Wetlands consist of cypress swamp (37.8, 18.8%), hardwood swamp (0.2 acres, 0.1%), freshwater marsh (5.6 acres, 2.8%), mixed wetland forest (24.0 acres, 12.0%), shrub swamp (7.1 acres, 3.5%), and open water (4.7 acres, 2.3%).

Based on known range and preferred habitat type, the following species listed by the Federal Endangered Species Act (ESA) and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), State-Threatened (ST), or State Species of Special Concern (SSC) have the potential to occur in or near the project area: red-cockaded woodpecker (FE), Eastern indigo snake (FT),

wood stork ((FT), gopher tortoise (ST), Sherman's fox squirrel (SSC), Southeastern American kestrel (ST), Florida pine snake (ST), little blue heron (ST), and the tricolored heron (ST), while the Florida scrub Jay (FT) has been documented within one mile of the project area. The project area is within the Central Bear Management Unit and our FWC's data base shows that the black bear is abundant in the regional area, and one black bear roadkill has been reported near the project area.

The GIS analysis identified 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 and habitat resources. FWC's Integrated Wildlife Habitat Ranking System shows that a total of 135.9 acres or approximately 67.7 percent of the land within 500 feet of the project overpass location on I-95 is ranked as either medium or moderately high quality wildlife habitat. FWC's Reclassification of Wetland Habitats of High Priority to Endangered and Threatened Species also shows that 64.9 acres of upland habitat can support 1 to 3 focal species; 72.3 acres of wetlands can support 1 to 3 focal species; and 6.2 acres of wetlands can support 4 to 6 focal species. Also, 107.4 acres or 59.5 percent of habitat within the project assessment area is ranked as medium quality in FWC's Strategic Habitat Conservation Priority Rankings. Furthermore, a total of 107.4 acres or 53.5 percent of the assessment area is within a defined strategic Habitat Conservation Area where the habitat capable of supporting the Swallow-tailed kite. And finally, the Spruce Creek Florida Forever Board of Trustees project is located within 500 feet of the project area, while the mountain mullet has been documented within Middle Spruce Creek.

Comments on Effects to Resources:

Primary wildlife issues associated with this project include: potential direct loss and degradation of upland and isolated wetland habitats due to roadway expansion and construction of Drainage Retention Areas outside of the cleared ROW; impacts due to improved access for future commercial development around the Interchange, and improved access for residential development, along with potential adverse effects to a number of species listed by the Federal Endangered Species Act as Threatened, or by the State of Florida as Threatened or Species of Special Concern; and the potential for water quality impacts. Based on the project information provided, we believe that direct and indirect effects of this project could be in the high-moderate range due to the need for additional offsite stormwater ponds which will result in the loss and degradation of upland and wetland habitat. Impacts to natural habitats could be minimized by the strategic location of Drainage Retention Areas in disturbed areas, and the use of Best Management Practices and a project commitment to control and treat roadway runoff to avoid water quality degradation in streams and wetlands.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

We recommend that the Project Development and Environment Study address natural resources by including the following measures for conserving fish and wildlife and habitat resources that may occur within and adjacent to the project area.

1. Plant community mapping and wildlife surveys for the occurrence of wildlife 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 should be performed along the ROW and within sites proposed for equipment staging. Basic guidance for conducting wildlife surveys may be found in the FWC's Florida Wildlife Conservation Guide at <http://myfwc.com/conservation/value/fwcg/>.
2. Based on the survey results, a plan should be developed to address direct, indirect, and cumulative effects of the project on wildlife and habitat resources, including listed species. Avoidance, minimization, and mitigation measures should also be formulated and implemented. Equipment staging areas should be sited in previously disturbed sites to avoid habitat destruction or degradation. The plan should address specific habitat needs which are biologically compatible with the recovery of the target species. For guidance in this effort, FWC's Species Action Plans should be consulted at <http://myfwc.com/wildlifehabitats/imperiled/species-action-plans/>.
3. Due to the potential presence of gopher tortoises in the project area, we recommend that the applicant refer to the FWC's Gopher Tortoise Permitting Guidelines (Revised January 2017) (<http://www.myfwc.com/license/wildlife/gopher-tortoise-permits/>) for survey methodology and permitting guidance. Survey methodologies require a burrow survey covering a minimum of 15 percent of potential gopher tortoise habitat to be impacted by development activities including staging areas (refer to Appendix 4 in the Gopher Tortoise Permitting Guidelines for additional information). Specifically, the permitting guidelines include methods for avoiding impacts (such as preservation of occupied habitat) as well as options and state requirements for minimizing, mitigating, and permitting potential impacts of the proposed activities. Any commensal species observed during burrow excavation should be handled in accordance to Appendix 9 of the Gopher Tortoise Permitting Guidelines.
4. Sherman's fox squirrels are known to utilize habitats with mature oaks and pines and are often found foraging along road edges. Because of this, we recommend the applicant review permitting guidelines (<http://myfwc.com/media/4105895/Final-Shermans-Fox-squirrel-Species-Guidelines-2016.pdf>) for this species. Recommendations for appropriate surveys to identify nests, individual animals, and evidence of foraging can be found within the Species Guidelines. Surveys should include 20% of the suitable habitat, which includes road edges, open forests, and pastures. If fox squirrel nests are found within the development area, then those trees should be flagged and avoided. It is recommended that large mature hardwood trees are preserved because they are important habitat for fox

squirrels.

5. A compensatory mitigation plan should include the replacement of wetland, upland, or aquatic habitat functional values for listed species which are lost due to the project. Replacement habitat for mitigation should be type for type, as productive, and equal to or of higher functional value. Please notify us immediately if the design, extent, or footprint of the current project is modified, as we may choose to provide additional comments and/or recommendations.

We appreciate the opportunity to provide input on highway design and the conservation of fish and wildlife resources. Please contact Biologist Terry Gilbert at (850) 728-1103 or email terry.gilbert@MyFWC.com to initiate the process for further overall coordination on this project.

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Fish and Wildlife Conservation Commission's Review (11/03/2017): Thank you for your review and comments. The FDOT has noted USFWS' assessment of the study area, the potential effects to resources and the key points related to avoidance, minimization and mitigation and will address these issues in the Natural Resources Evaluation.

Degree of Effect: 2 *Minimal* assigned 09/21/2017 by Zakia Williams, US Fish and Wildlife Service

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

Direct Effects

Identified Resources and Level of Importance:

Wood Stork (*Mycteria americana*)

The surrounding area mainly consists of wetland forests, pine flatwoods, scrub-shrub wetlands, wet prairies, and has emergent aquatic vegetation. Although, the project doesn't directly fall within the Core Foraging Area (CFA) for the wood stork the project area does provide suitable foraging habitat for the wood stork.

Eastern Indigo Snakes (*Drymarchon corais couperi*)

It is very likely that this species may occur within the action area. The addition of a new roads and the widening of roads will likely increase the risks to this species from direct mortality and indirectly from habitat fragmentation and noise disturbance.

Coordination with the Office of Migratory birds will be needed for an eagle nest located within 200 feet of corridor.

Surveys for all federally listed plants found in Volusia County (the list can be found on our website <http://www.fws.gov/northflorida>) should be conducted by a trained botanist during the appropriate time of year.

Comments on Effects to Resources:

Wood Stork (*Mycteria americana*)

To minimize adverse effects to the wood stork and other wetland dependent species, we recommend that impacts to suitable foraging habitat be avoided. If avoidance is not possible, minimization measure should be employed and best management practices to avoid further degradation of the site. Mitigation for wetland impacts should be discussed with USFWS and will require further coordination. Please refer to the North Florida Field Office website for WOST colony locations. <http://www.fws.gov/northflorida>

Eastern Indigo Snakes (*Drymarchon corais couperi*)

Individual snakes may have large home ranges of 200 to 250 acres. Direct impacts from vehicles, loss and fragmentation of habitat would contribute to the further decline of this species. Implementing the current standard construction conditions and protection measures for EIS will reduce the direct risks to snakes during the construction phase but not the long term impacts from habitat fragmentation and loss of individuals from interactions with vehicles for the life of the facility. Complete surveys for gopher tortoise burrows (currently a federal candidate species, which may be listed as Threatened before construction begins) should be conducted.

Protection guidelines can be found on the North Florida Ecological Services website: <http://www.fws.gov/northflorida>. Surveys for gopher tortoise burrows will also facilitate the use of the EIS Effect determination key utilized by the Army COE.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Fish and Wildlife Service's Review (11/03/2017): Thank you for your review and comments. The FDOT has noted your comments as they related to the Eastern Indigo Snake, Wood Stork and plant species. The FDOT will review the materials provided or suggested and incorporate all actions in the Natural Resources Evaluation.

Degree of Effect: 0 *None* assigned 09/07/2017 by Steve Bohl, FL Department of Agriculture and Consumer Services

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Agriculture and Consumer Services's Review (11/03/2017): Thank you for your review.

Coastal and Marine

Project Effects

Coordinator Summary Degree of Effect: 0 *None* assigned 11/03/2017 by FDOT District 5

Comments:

A summary Degree of Effect of None is being assigned to this issue and agrees with the National Marine Fisheries Service assessment regarding the lack of coastal or marine habitats within the project area. NMFS also noted that for the currently proposed project an Essential Fish Habitat (EFH) Assessment will not be required.

Degree of Effect: N/A N/A / *No Involvement* assigned 09/07/2017 by Gary Haddle, Saint Johns River Water Management District

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to Saint Johns River Water Management District's Review (11/03/2017): Thank you for your review.

Degree of Effect: 0 *None* assigned 08/17/2017 by Jennifer Schull, National Marine Fisheries Service

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

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 mixed forested wetlands, hydric pine flatlands, mixed hardwood wetlands, mixed scrub-shrub wetlands, wet prairies, emergent aquatic vegetation, and cypress are located within the project corridor. These wetlands range from low to high in quality. There are no coastal or marine habitats within the project area.

Comments on Effects to Resources:

The wetlands within the project corridor provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support these aquatic ecosystems. Wetlands may be impacted from construction activities, fill, and through sedimentation and runoff. 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.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Magnuson-Stevens Act: Based on the project location, information provided in the ETDM website, and GIS-based analysis of impacts, NOAA's National Marine Fisheries Service (NMFS) concludes that essential fish habitat (EFH) would not be impacted by the proposed action; accordingly, we offer no comments pursuant to the EFH provisions of the Magnuson-Stevens Act (P.L. 104-297); and this project will not require an EFH Assessment. Further consultation on this matter is not necessary unless future modifications are proposed and you believe that the proposed action may result in adverse impacts to EFH.

Endangered Species Act: We are not aware of any threatened or endangered species or critical habitat under the purview of NMFS that occur within the project area. However, it should be noted that a "no effect" determination must be made by the action agency and the reasoning underlying the determination should be documented in a project file. Please coordinate closely with the U.S. Fish and Wildlife Service for other species listed under the Endangered Species Act that may require consultation.

Fish and Wildlife Coordination Act: The comments NMFS provided regarding sequential mitigation are in accordance with the Fish and Wildlife Coordination Act.

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to National Marine Fisheries Service's Review (11/03/2017): Thank you for your review and comments.

ETAT Reviews and Coordinator Summary: Physical

Noise

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

No ETAT Reviews were submitted for this issue. A Degree of Effect of Minimal will assigned to this issue given the lack of existing noise receptors in the study area.

None found

Air Quality

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

In agreement with USEPA, a summary Degree Effect of Minimal is being assigned to this issue.

Degree of Effect: 2 *Minimal* assigned 09/19/2017 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Sole Source Aquifer Impact Determination

Direct Effects

Identified Resources and Level of Importance:

A wide variety of air pollutants can be emitted from mobile sources. The EPA establishes the National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and regulates emissions of hazardous air pollutants. The project area of I-95 Interchange at Pioneer Trail is in an attainment area, so criteria pollutants under NAAQS are considered to be an acceptable level. Therefore, EPA expects the project to have minimal impact on air quality.

Comments on Effects to Resources:

The I-95 Interchange at Pioneer Trail project can possibly effect air quality through airborne dust, and other ambient air pollutants from project construction.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

The EPA recommends that the I-95 Interchange at Pioneer Trail project follow the Florida State Implementation Plan to ensure consistency with the state's emissions levels. The EPA also recommends the use of diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil movement, or other project activities, including:

- Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.

Additional Comments (optional):

Sole Source Aquifer Impact Determination

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (11/03/2017): Thank you for your review and comment. An Air Quality Technical Memorandum will be completed during the project.

Contamination

Project Effects

Coordinator Summary Degree of Effect: 2 Minimal assigned 11/03/2017 by FDOT District 5

Comments:

The USEPA reviewed the project and noted that contamination may have a minimal adverse effect on the STORET Stations and well since construction of the project may affect ground water quality. A summary Degree of Effect of Minimal will be assigned to this issue. A contamination screening evaluation will be conducted in Project Development, and a Contamination Screening Evaluation Report (CSER) will be prepared.

Degree of Effect: 2 Minimal assigned 09/20/2017 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Sole Source Aquifer Impact Determination

Direct Effects

Identified Resources and Level of Importance:

The interchange at I-95 and Pioneer train construction activities may effect ground water quality. Therefore, contamination has a minimal adverse effect on the STORET Stations and well.

Comments on Effects to Resources:

Construction activities (i.e. clearing of land, over spraying of water as a dust control measure, and excavations) may increase ground water vulnerability to pollution.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Ensure that contaminated groundwater and any other contaminated materials are managed, stored or disposed of appropriately in accordance to federal and state law. Preserve and maintain all existing and future monitoring wells, notify EPA and FDEP of any damaged monitoring wells, and receive approval from EPA and FDEP before removing or replacing any monitoring wells. Use best management practices (BMPs) that reduce environmental impact.

Additional Comments (optional):

Sole Source Aquifer Impact Determination

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (11/03/2017): Thank you for your review and comment. The FDOT concurs with the USEPA's assessment of the study area resources and the recommended avoidance, minimization and mitigation opportunities presented.

Degree of Effect: 0 None assigned 09/05/2017 by Suzanne E. Ray, FL Department of Environmental Protection

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

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to FL Department of Environmental Protection's Review (11/03/2017): Thank you for your review.

Infrastructure

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 11/03/2017 by FDOT District 5

Comments:

No ETAT Reviews were submitted for this issue. The EST's GIS analysis results do not show any Infrastructure resources within the 500 foot project buffer area. The FDOT will assign a Degree of Effect of Minimal.

None found

Navigation

Project Effects

Coordinator Summary Degree of Effect: N/A *N/A / No Involvement* assigned 11/03/2017 by FDOT District 5

Comments:

As confirmed by the US Army Corps of Engineers and US Coast Guard, there are no navigable waterways within the project limits. The FDOT is assigning a Degree of Effect of Not Applicable / No Involvement to this resource. The comments from the USACOE are addressed in the Wetlands and Surface Waters section of the summary report.

Degree of Effect: 0 *None* assigned 08/29/2017 by Randy Turner, US Army Corps of Engineers

Coordination Document: Permit Required

Coordination Document Comments:

There are nowaters of the U.S. (navigable waters) that are jurisdictional under Section 10 of the Rivers and Harbors Act, however, the proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act. The project as proposed, would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

Direct Effects

Identified Resources and Level of Importance:

No navigational resources exist within the proposed project area.

Comments on Effects to Resources:

N/A

Recommended Avoidance, Minimization, and Mitigation Opportunities:

N/A

Additional Comments (optional):

There are nowaters of the U.S. (navigable waters) that are jurisdictional under Section 10 of the Rivers and Harbors Act, however, the proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act. The project as proposed, would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

No navigational resources exist within the proposed project area.

Comments on Effects to Resources:

N/A

Recommended Avoidance, Minimization, and Mitigation Opportunities:

N/A

FDOT District 5 Feedback to US Army Corps of Engineers's Review (11/03/2017): Thank you for your review and comments. The comments from the USACOE are addressed in the wetlands and surface waters section of the summary report.

Degree of Effect: N/A N/A / *No Involvement* assigned 08/11/2017 by Randall D Overton, US Coast Guard

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

There are no navigable waters of the United States impacted by the proposed project as it currently scoped.

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Coast Guard's Review (11/03/2017): Thank you for your review and comments.

ETAT Reviews and Coordinator Summary: Special Designations
Special Designations

Project Effects

Coordinator Summary Degree of Effect: 3 *Moderate* assigned 11/03/2017 by FDOT District 5

Comments:

The US Environmental Protection Agency and Saint Johns River Water Management District reviewed this issue. The FDOT recognizes the importance of the Spruce Creek and Tomoka Hydrologic Basins, and is assigning a Degree of Effect of Moderate to this issue.

Degree of Effect: 3 *Moderate* assigned 09/28/2017 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Sole Source Aquifer Impact Determination

Direct Effects

Identified Resources and Level of Importance:

The new interchange at I-95 at Pioneer Trail is within a 500-foot buffer of tributary to Spruce Creek. Spruce Creek special designation is to protect its existing good water quality. Therefore, this special designation is of moderate level of importance.

Comments on Effects to Resources:

The new interchange at I-95 at Pioneer Trail can potentially have construction runoff, soil erosion, and storm water runoff, which increases water pollutants and degrades water quality. Therefore, the preservation of wetlands can assist with maintaining good water quality. Wetlands are a critical natural resource and serve several functions including filtration and treatment of surface water runoff, flood control, erosion control, groundwater recharge/discharge, and wildlife habitat. Therefore, avoiding and minimizing any degradation to these reserves and wildlife refuge and management areas will contribute to the maintenance of good water quality.

Recommended Avoidance, Minimization, and Mitigation Opportunities:

For the environmental evaluation of the new interchange at I-95 at Pioneer Trail, the EPA recommends the following practices for direct special designation impacts :

- Avoidance of wetlands to the maximum extent practicable.
- Use best management practices to control erosion, sediment release, and storm water surface runoff to minimize adverse impacts on water resources.
- Maximize the collection and treatment of storm water. Storm water runoff should be diverted from open water bodies. Best management practices should be implemented during construction.
- Storm water collection and treatment mechanisms should be designed to protect the function of surrounding wetlands, floodplains, and surface water that have already experienced secondary impacts from roadway runoff.

Additional Comments (optional):

Sole Source Aquifer Impact Determination

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (11/03/2017): Thank you for your review and comment. The FDOT concurs with the recommendations by the EPA.

Degree of Effect: 0 *None* assigned 09/07/2017 by Gary Haddle, Saint Johns River Water Management District

Coordination Document: Permit Required

Direct Effects

Identified Resources and Level of Importance:

Proposed project is located within the Spruce Creek and Tomoka Hydrologic Basin, which is subject to the applicable regulatory

criteria in Section 13.5 of the Applicant's Handbook Volume II.

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

Additional Comments (optional):

CLC Recommendations:

Indirect Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Recommended Avoidance, Minimization, and Mitigation Opportunities:

FDOT District 5 Feedback to Saint Johns River Water Management District's Review (11/03/2017): Thank you for your review and comment. Section 13.5 of the Applicant's Handbook Volume II will be consulted during the preparation of the environmental and supporting documents.

Eliminated Alternatives

There are no eliminated alternatives for this project.

Project Scope

General Project Recommendations

There are no general project recommendations identified for this project in the EST.

Anticipated Permits

Permit	Type	Conditions	Assigned By	Date
Dredge and Fill Permit	FDEP		FDOT District 5	11/02/17
Environmental Resource Permit	FDEP		FDOT District 5	11/02/17
NPDES General Permit	FDEP		FDOT District 5	11/02/17
Gopher Tortoise Permit	FFWCC		FDOT District 5	11/02/17
Section 404 Nationwide Permit	USACE		FDOT District 5	11/02/17
Standard (Individual) Permit	USACE		FDOT District 5	11/02/17
Sole Source Aquifer Review	USEPA		FDOT District 5	11/02/17

Anticipated Technical Studies

Technical Study Name	Type	Conditions	Assigned By	Date
Final Preliminary Engineering Report (signed and sealed)	ENGINEERING		FDOT District 5	11/02/2017
Location Hydraulics Report	ENGINEERING		FDOT District 5	11/02/2017
Geotechnical Report	ENGINEERING		FDOT District 5	11/02/2017
Typical Section Package	ENGINEERING		FDOT District 5	11/02/2017
Value Engineering Information Report	ENGINEERING		FDOT District 5	11/02/2017
Public Involvement Plan	ENVIRONMENTAL		FDOT District 5	11/02/2017
Noise Study Report	ENVIRONMENTAL		FDOT District 5	11/02/2017
Contamination Screening Evaluation Report	ENVIRONMENTAL		FDOT District 5	11/02/2017
Public Hearing Transcript	ENVIRONMENTAL		FDOT District 5	11/02/2017
Secondary and Cumulative Impact Evaluation	ENVIRONMENTAL		FDOT District 5	11/02/2017
Comments and Coordination Report	ENVIRONMENTAL		FDOT District 5	11/02/2017
Public Involvement Summary	ENVIRONMENTAL		FDOT District 5	11/02/2017
Preliminary Engineering Report	ENGINEERING		FDOT District 5	11/02/2017
Air Quality Technical Memorandum	ENVIRONMENTAL		FDOT District 5	11/02/2017
Water Quality Impact Evaluation (WQIE)	ENVIRONMENTAL		FDOT District 5	11/02/2017
Design Variations and Exceptions Package	ENGINEERING		FDOT District 5	11/02/2017
Type II Categorical Exclusion	ENVIRONMENTAL		FDOT District 5	11/02/2017
Utility Assessment Package	ENGINEERING		FDOT District 5	11/02/2017
Traffic Operations Analysis Report	ENGINEERING		FDOT District 5	11/02/2017
QA/QC Plan	ENGINEERING		FDOT District 5	11/02/2017
Lighting Justification Report	ENGINEERING		FDOT District 5	11/02/2017
Pond Siting Report	ENGINEERING		FDOT District 5	11/02/2017

Sole Source Aquifer Letter	ENVIRONMENTAL		FDOT District 5	11/02/2017
Natural Resources Evaluation (NRE)	ENVIRONMENTAL		FDOT District 5	11/02/2017

Dispute Resolution Activity Log

There are no dispute actions identified for this project in the EST.

Appendices

Preliminary Environmental Discussion Comments

Social and Economic

Land Use Changes

Project Level

Comments:

Land uses within the 500 foot project buffer area (District 5 Generalized Land Use) are 56.16% agricultural, 10.21% public/semi-public, 7.92% acreage not zoned for agriculture, 0.88% other, 0.37% vacant residential, and 0.29% water. The future land use (2008) at the 500 foot buffer area shows this area as primarily medium density residential (30.95%), conservation (24.02%), agricultural (23.94%), and low density residential (21.06%).

Social

Project Level

Comments:

The Environmental Screening Tool (EST) Sociocultural Data Report (SDR) was used for demographic data (the SDR can be found within the Community Coordination section of the EST). The SDR uses the Census 2015 American Community Survey (ACS) data and reflects the approximation of the population based on a 500-foot project buffer area intersecting the Census Block Groups along the project corridor. Using the 500-foot project buffer area, the SDR identified the following demographics:

Population and Income

The SDR identified 42 households with a population of 112 people. The median household income is \$63,229. Several households are below poverty level (7.14%), although none receive public assistance, according to the data. Although looking a bit farther out, as noted under the Economic issue, according to the 2015 ACS Block Group Data, 5,298 housing units are within 1/2 mile of the project area, with 987 of the households below the poverty level (and 46 households on public assistance). Seventy-eight of those households had no vehicle available.

Race and Ethnicity

The minority population makes up 18.75% of the total population comprising of "Black or African American Alone" with a population of 11 people (9.82%), "Asian Alone" with 4 people (3.57%), and "Some Other Race Alone" also with 4 people (3.57%) within the 500-foot project buffer area. There are 5 people (4.46%) that have a "Hispanic or Latino of Any Race" ethnicity.

Age and Disability

The median age is 48, and persons age 65 and over comprise 24.11% of the population. There are 6 people (10.53%) between the ages of 20 and 64 that have a disability.

Housing

There are 51 housing units. The housing consists of single family units (98%), multi-family units (2%), and 0 mobile home units (<1%). These units are owner occupied (73%), renter occupied (10%), and vacant units (16%).

Language

There is only 1 person that reported that they speak English "not well" within the 500 foot buffer identified within the SDR report. Although looking a bit farther out, as noted under the Economic issue, according to the 2015 ACS Block Group Data, of the 11,994 persons living in

the census data blocks within a half mile of the project, 85 speak no English, and 73 do not speak English well. Limited English Proficiency (LEP) services may be required. Refinement of the LEP population totals and requirements will be further evaluated in Project Development as part of the public involvement efforts.

The EST Geographic Information System (GIS) analysis did not identify any existing community facilities within the 500-foot project buffer area.

This project will be developed in accordance with the Civil Rights Act of 1964, the Civil Rights Act of 1968, along with Title VI of the Civil Rights Act, Executive Order 12898 (Environmental Justice), which requires Federal agencies to take the appropriate steps to identify and address any disproportionately high and adverse human health or environmental effects of Federal programs, policies, and activities on minority and low-income populations. Where there is potential for disproportionately high and adverse effects on minority and low-income populations, proactive measures will be taken to involve the affected community in the decisions related to alternative selection, impact analysis, and mitigation.

The social characteristics identified will serve as a baseline for data collection activities that will take place during the PD&E Study. The public involvement plan will be conducted to incorporate the concerns of residents regarding the proposed development and associated interchange.

Relocation Potential

Project Level

Comments:

Although additional right-of-way may be needed for the proposed interchange, roadway and drainage improvements, it is not anticipated to result in any residential relocations or business displacements.

Farmlands

Project Level

Comments:

Within the 500 foot buffer area, there are no Prime Farmlands, although 56.16% of the project area within a 500 foot buffer is agriculture according to the Generalized Agricultural Land Use data layer.

Aesthetic Effects

Project Level

Comments:

According to the GIS analysis, there are three 2010 census designated places within the 500 foot buffer area of the project: Port Orange, New Smyrna Beach, and Glencoe. During the PD&E Study, coordination with local governments and stakeholders will occur regarding potential aesthetic enhancements at the interchange and along the project corridor.

Economic

Project Level

Comments:

According to the 2015 American Community Survey Block Group Data, within 1/2 mile there were 5,298 housing units of which 840 were vacant; 987 of those households were below the poverty level with 46 households on public assistance. Seventy-eight of those households had no vehicle available. Of the 11,994 persons living in the census data blocks within a half mile of the project, 85 speak no English, and 73 do not speak English well. Within the four block group numbers adjacent to the project, there was 14.9%, 10.7%, 9.7%, and 10.6% of the population between age 20 to 64 with a disability. The largest overall population group was age 50 to 64.

The interchange is anticipated to support economic development by providing the transportation infrastructure needed to support approved development in the area.

Mobility

Project Level

Comments:

The proposed interchange would enhance mobility in the area by adding a new access point along I-95. Additionally, the proposed interchange is anticipated to relieve congestion at the I-95 and Dunlawton Avenue interchange and at the I-95 at SR 44 interchange. The proposed roadway improvement has the potential to enhance mobility by providing pedestrian and bicycle facilities and connections to other important roadways in the project area.

Cultural

Section 4(f) Potential

Project Level

Comments:

As noted under the Recreation Area PED summary, according to the data in the EST and a 2015 report for Spruce Creek on DEP's website, the northeast quadrant of the proposed Pioneer Trail interchange falls within what is designated as the Florida Forever conservation and acquisition area. However, the Volusia County Property Appraiser's current data shows that the property currently remains under private ownership.

Other data showing in the EST under this issue is the Ft. Kingsbury to Smyrna Rd./Pioneer Trail. As mentioned in the Historic and Archaeological Sites issue summary, it shows as having had insufficient information for determination of listing on the NRHP by SHPO, although evaluation notes show that it "does not maintain the majority of the 7 aspects of historical integrity and no longer conveys its significance as a pioneer trail and is considered ineligible for NRHP listing."

If it is determined that the project may have involvement with a potential Section 4(f) resource, a Determination of Section 4(f) Applicability will be conducted during the PD&E Study.

Historic and Archaeological Sites

Project Level

Comments:

There are two Florida Site File resource groups found within the 100 foot buffer: Ft. Kingsbury to Smyrna Rd./Pioneer Trail are listed as Linear Resource(s). They show as having had insufficient information for determination of listing on the NRHP by SHPO, although evaluation notes show that it "does not maintain the majority of the 7 aspects of historical integrity and no longer conveys its significance as a pioneer trail and is considered ineligible for NRHP listing." A Cultural Resource Assessment Survey (CRAS) will be conducted during the PD&E Study as over a third of the area within a 500 ft buffer of the proposed project limits has no field survey present.

Recreation Areas

Project Level

Comments:

There are no parks or trails located within the 500 foot project buffer area. According to the data in the EST, the northeast quadrant of the proposed Pioneer Trail interchange falls within what is designated as the Florida Forever conservation and acquisition area; however, the property was never acquired and remains under private ownership as shown by the Volusia County Property Appraiser website.

Natural

Wetlands and Surface Waters

Project Level

Comments:

Wetlands fall within 3 of the 4 quadrants of this project. The St. John River Water Management District Wetlands 2009 shows 49.65 acres of wetland forested mixed, 8.63 acres of hydric pine flatwoods, 8.29 acres of mixed wetland hardwoods, 1.6 acres of mixed scrub-shrub wetland, 1.02 acres of wet prairies, .7 acres of emergent aquatic vegetation, and .3 acres of cypress within the 500 foot project buffer area. Potential impacts to wetlands will be avoided or minimized to the extent practicable. A Natural Resources Evaluation (NRE) will be conducted during the PD&E Study.

Water Quality and Quantity

Project Level

Comments:

According to the GIS analysis, the project area is located within a principal aquifer (Surficial Aquifer System) and recharge area for the Floridan Aquifer. Spruce Creek, identified as one of the Special or Outstanding Florida waters, falls within a 500 foot buffer of the project area. There are no Basin Management Action Plans or impaired water bodies within the 500 foot project buffer area. No potable water wells are located within the project area. A Water Quality Impact Evaluation (WQIE) will be completed as part of the PD&E Study.

Floodplains

Project Level

Comments:

Within the 500 foot buffer area, there are 69.7 acres of DFIRM 100 year Flood Plain area. An area of 113.33 acres with the 500 foot buffer of the proposed project is classified as Special Flood Hazard Areas within Zone A, subject to inundation by the one percent annual chance flood event.

Wildlife and Habitat

Project Level

Comments:

The USFWS IPac report (attached) identified several species (i.e., Southeastern Beach Mouse, West Indian Manatee, Everglade Snail Kite, Florida Scrub Jay, Piping Plover, Red Knot, Wood Stork, Atlantic Salt Marsh Snake, Green Sea Turtle, Hawksbill Sea Turtle, Leatherback Sea Turtle, and Loggerhead Sea Turtle) that could occur in the project's county (Volusia), but aerials and maps show no habitat for these species. Field visits would need to identify the likelihood of the following additional species listed: Red-cockaded Woodpecker, Eastern Indigo Snake, Okeechobee Gourd, and Rugel's Pawpaw. Field evaluation for state listed species for the gopher tortoise would be conducted as well. An NRE (Natural Resources Evaluation) will be conducted during the PD&E Study to evaluate the likelihood of involvement with any of these species and to document avoidance and minimization and potential impacts to their habitats.

Coastal and Marine

Project Level

Comments:

The project falls within the Daytona-St. Augustine Coastal Drainage Area.

Physical

Noise

Project Level

Comments:

According to the EST's data layers, no noise receptors are present in the proposed project area of effect. A noise study will be conducted during the PD&E Study to determine and document highway traffic noise levels.

The proposed project is expected to result in minimal to no involvement with noise issues.

Air Quality

Project Level

Comments:

The project is not located in an air quality maintenance area. Air Quality Modeling is not anticipated to be conducted for this project (located in an attainment area).

Contamination

Project Level

Comments:

Based on the preliminary analysis of data from the EST and FDEP's Map Direct Gateway website, there are two STORET Sampling Stations on the unnamed canal in the SE quadrant. That quadrant also contains a 700 foot deep well owned by the USGS that could be impacted by the project. According to satellite imagery and aerials, a small impromptu plant nursery was present in that same area in the recent past.

A contamination screening evaluation will be conducted in Project Development, and a Contamination Screening Evaluation Report (CSER) will be prepared. Any source identified will be assessed to determine the need for remediation during construction.

Infrastructure

Project Level

Comments:

The EST's GIS analysis results do not show any Infrastructure resources within the 500 foot project buffer area. Impacts and enhancements to existing and planned infrastructure will be evaluated during the PD&E Study.

Navigation

Project Level

Comments:

There are no navigable waterways within the project limits.

Special Designations

Special Designations: Outstanding Florida Waters

Project Level

Comments:

According to the GIS data in the EST, the proposed interchange falls within the 500 foot buffer area of a tributary to Spruce Creek, an Outstanding Florida Water.

Special Designations: Aquatic Preserves

Project Level

Comments:

There are no Aquatic Preserves located within the 500 foot buffer area of the project.

Special Designations: Scenic Highways

Project Level

Comments:

The proposed project is not on a designated Scenic Highway.

Special Designations: Wild and Scenic Rivers

Project Level

Comments:

There are no Wild and Scenic Rivers within the 500 foot buffer area of the project.

Advance Notification Comments

FL Department of State Comment --

no additional comments

--Ginny Leigh Jones, 8/9/2017

No response

US Army Corps of Engineers Comment --

The Corps has no issues with the Advance Notification Package and concurs with the initial assessment of Wetlands and Surface Water and Navigation issues. Further comments on project effects are provided in the Review Project tool.

--Randy Turner, 8/29/2017

No response

GIS Analyses

Since there are so many GIS Analyses available for Project #14193 - I-95 Interchange at Pioneer Trail, they have not been included in this ETDM Summary Report. GIS Analyses, however, are always available for this project on the Public ETDM Website. Please click on the link below (or copy this link into your Web Browser) in order to view detailed GIS tabular information for this project:

<http://etdmpub.fl.a-etat.org/est/index.jsp?tpID=14193&startPageName=GIS%20Analysis%20Results>

Special Note: Please be sure that when the GIS Analysis Results page loads, the **Programming Screen Summary Report Published on 11/03/2017 by Kathaleen Linger Milestone** is selected. GIS Analyses snapshots have been taken for Project #14193 at various points throughout the project's life-cycle, so it is important that you view the correct snapshot.

Project Attachments

There are no attachments for this project.

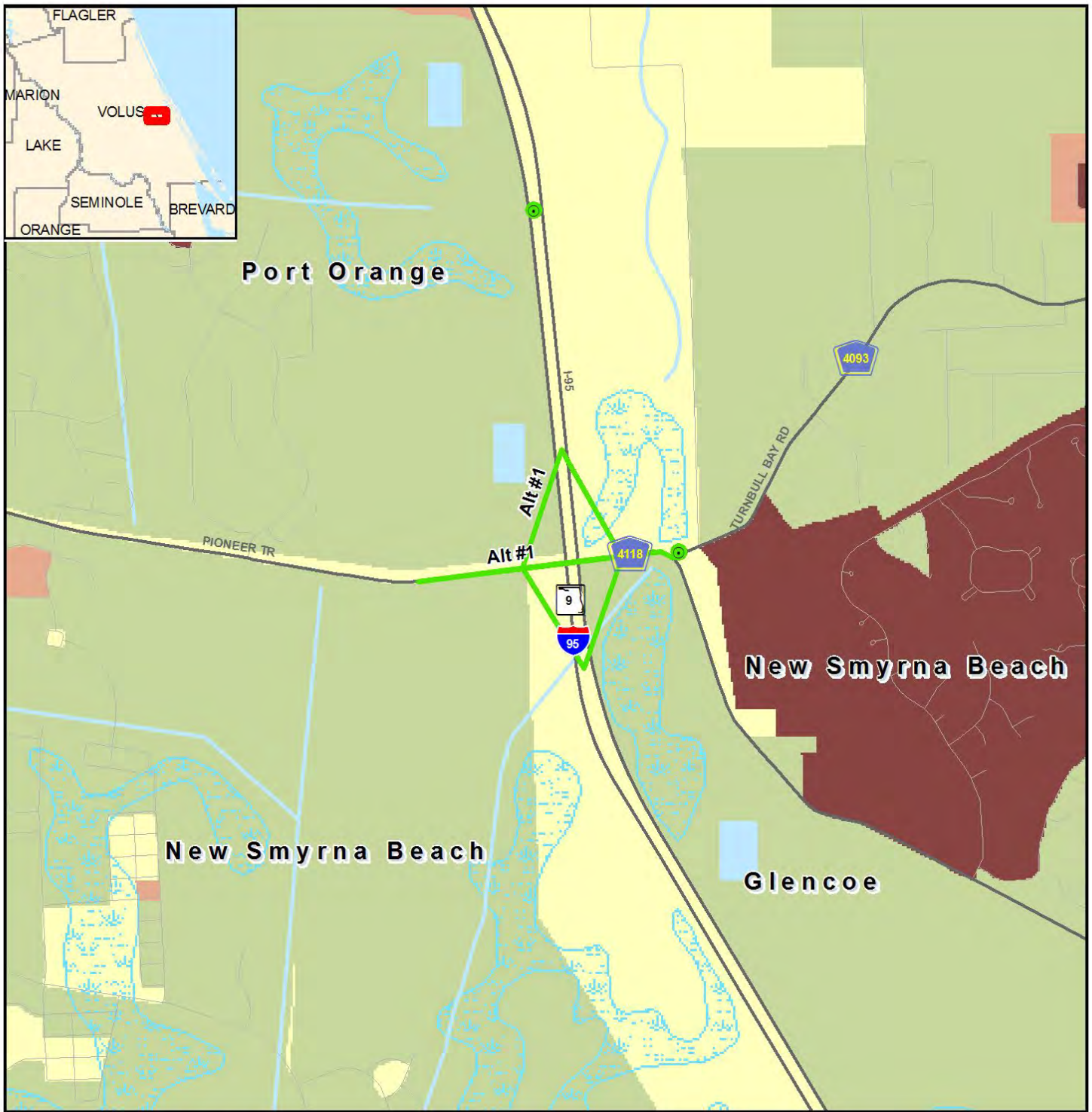
Degree of Effect Legend

Color Code	Meaning	ETAT	Public Involvement
N/A	Not Applicable / No Involvement	There is no presence of the issue in relationship to the project, or the issue is irrelevant in relationship to the proposed transportation action.	
0	None (after 12/5/2005)	The issue is present, but the project will have no impact on the issue; project has no adverse effect on ETAT resources; permit issuance or consultation involves routine interaction with the agency. The <i>None</i> degree of effect is new as of 12/5/2005.	No community opposition to the planned project. No adverse effect on the community.
1	Enhanced	Project has positive effect on the ETAT resource or can reverse a previous adverse effect leading to environmental improvement.	Affected community supports the proposed project. Project has positive effect.
2	Minimal	Project has little adverse effect on ETAT resources. Permit issuance or consultation involves routine interaction with the agency. Low cost options are available to address concerns.	Minimum community opposition to the planned project. Minimum adverse effect on the community.
2	Minimal to None (assigned prior to 12/5/2005)	Project has little adverse effect on ETAT resources. Permit issuance or consultation involves routine interaction with the agency. Low cost options are available to address concerns.	Minimum community opposition to the planned project. Minimum adverse effect on the community.
3	Moderate	Agency resources are affected by the proposed project, but avoidance and minimization options are available and can be addressed during development with a moderated amount of agency involvement and moderate cost impact.	Project has adverse effect on elements of the affected community. Public Involvement is needed to seek alternatives more acceptable to the community. Moderate community interaction will be required during project development.

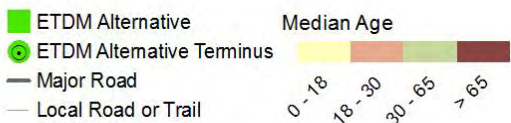
4	Substantial	The project has substantial adverse effects but ETAT understands the project need and will be able to seek avoidance and minimization or mitigation options during project development. Substantial interaction will be required during project development and permitting.	Project has substantial adverse effects on the community and faces substantial community opposition. Intensive community interaction with focused Public Involvement will be required during project development to address community concerns.
5	Potential Dispute (Planning Screen)	Project may not conform to agency statutory requirements and may not be permitted. Project modification or evaluation of alternatives is required before advancing to the LRTP Programming Screen.	Community strongly opposes the project. Project is not in conformity with local comprehensive plan and has severe negative impact on the affected community.
5	Dispute Resolution (Programming Screen)	Project does not conform to agency statutory requirements and will not be permitted. Dispute resolution is required before the project proceeds to programming.	Community strongly opposes the project. Project is not in conformity with local comprehensive plan and has severe negative impact on the affected community.
	No ETAT Consensus	ETAT members from different agencies assigned a different degree of effect to this project, and the ETDM coordinator has not assigned a summary degree of effect.	
	No ETAT Reviews	No ETAT members have reviewed the corresponding issue for this project, and the ETDM coordinator has not assigned a summary degree of effect.	

Project-Level Hardcopy Maps

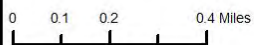
14193 I-95 Interchange at Pioneer Trail



Age Distribution Map



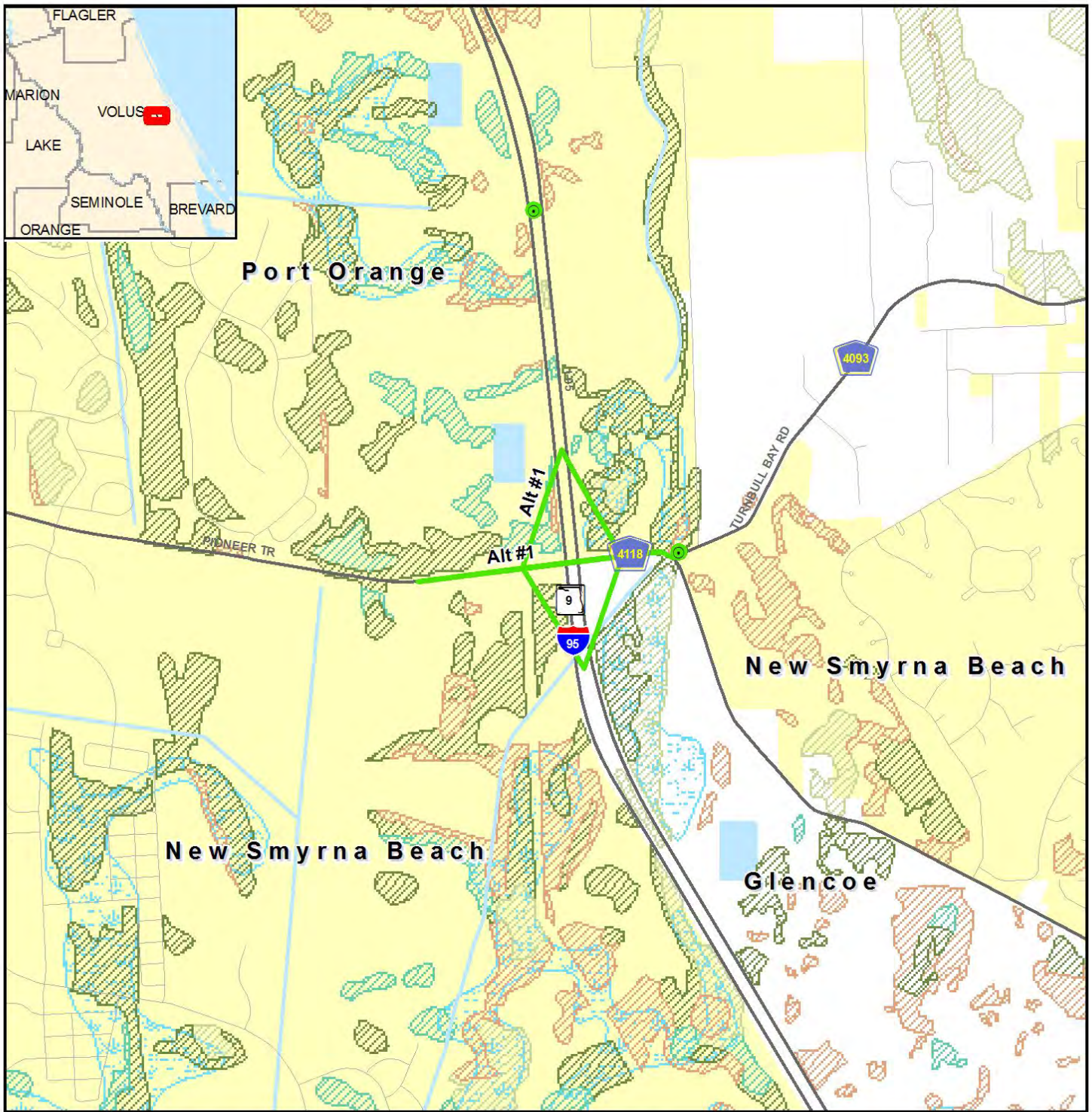
Data Sources:
 US Geological Survey
 FL Department of Transportation
 NAVTEQ
 US Census Bureau (2010)



6/16/2017

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14193 I-95 Interchange at Pioneer Trail

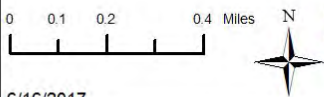


Coastal and Marine Map

- ETDM Alternative
- ETDM Alternative Terminus
- City Limits
- Navigable Water Way
- Swamp or Marsh
- Exposed Rocky Platform
- Sand Beach
- Gravel Beach/Riprap
- Exposed Tidal Flat
- Sheltered Tidal Flat
- Mixed Sand And Gravel Beach
- Sheltered Rock/Seawall/Vegetated
- Exposed Vertical Rocky Shore/Seawall

- Coastal Barrier Resource Area
- Continuous Seagrass
- Discontinuous Seagrass
- Aquatic Preserve
- Non-vegetated Wetland
- Vegetated Non-forested Wetland
- Wetland Forested Mixed
- Wetland Coniferous Forest
- Wetland Hardwood Forest

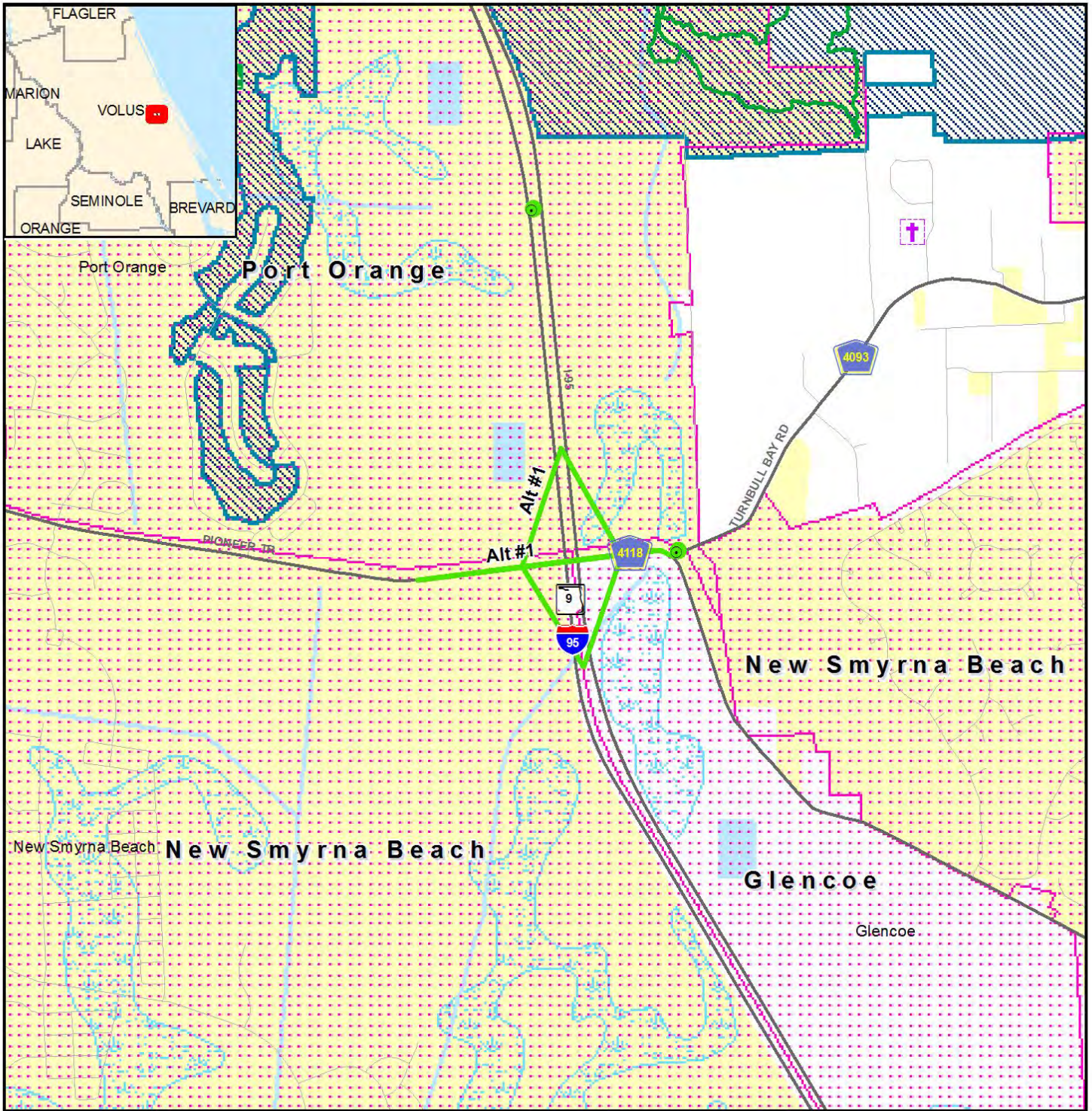
Data Sources: NAVTEQ; US Geological Survey; Florida Marine Research Institute; Florida Department of Transportation; Florida Department of Environmental Protection; National Oceanic and Atmospheric Association; Florida Water Management Districts



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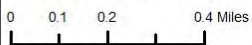
14193 I-95 Interchange at Pioneer Trail Williamson Blvd. to Turnbull Bay Road



Community Services Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- Government
- Civic Center
- Cemetery
- Social Service
- Community Center
- Law Enforcement
- Place of Worship
- Cultural Center
- Fire Station
- Health Care
- School
- Park
- Recreational Trail
- Community Boundary
- Conservation or Recreation Area

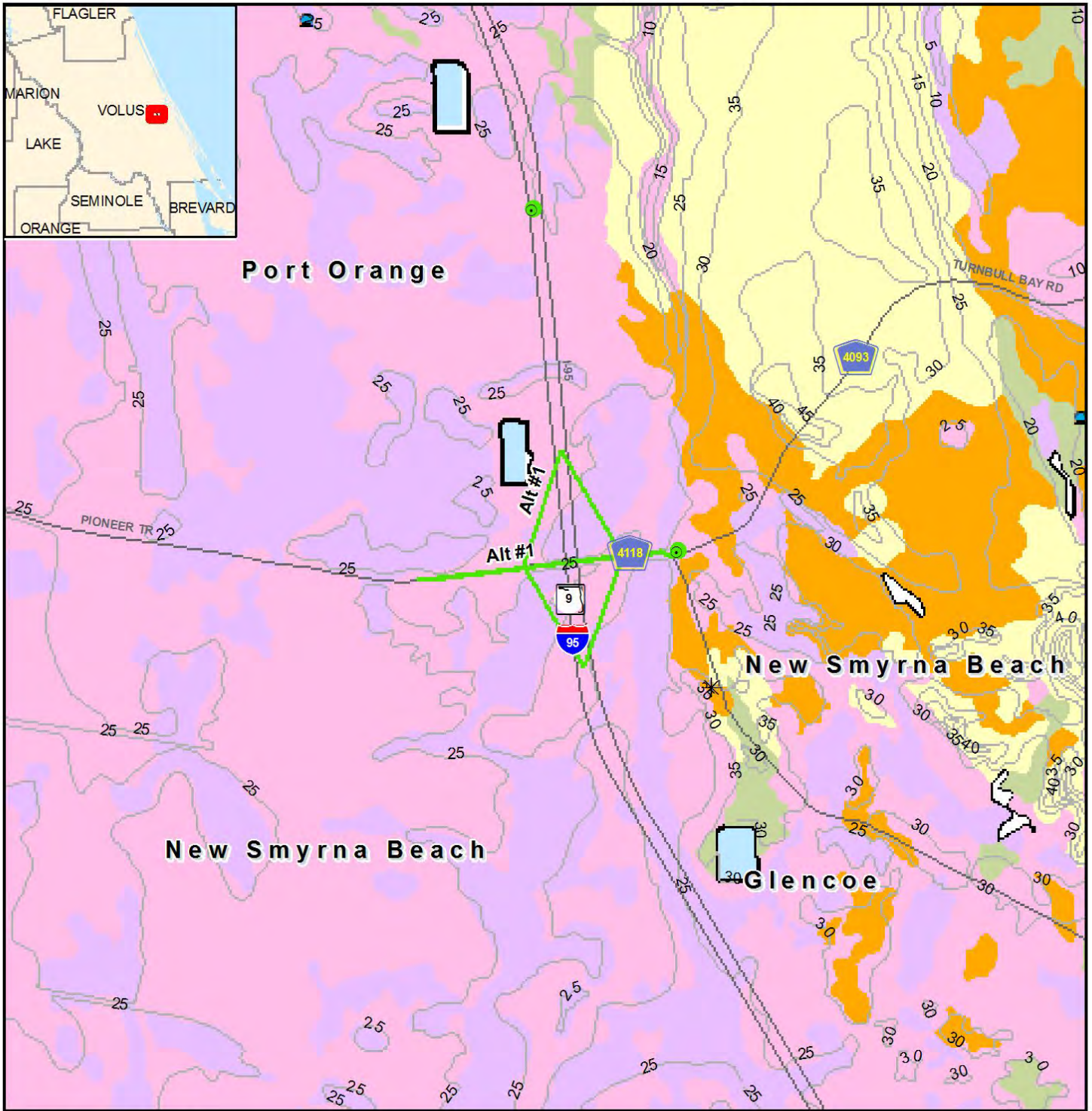
Data Sources:
US Geological Survey; FL Department of Transportation; NAVTEQ; FL Property Appraisers; FL Natural Areas Inventory



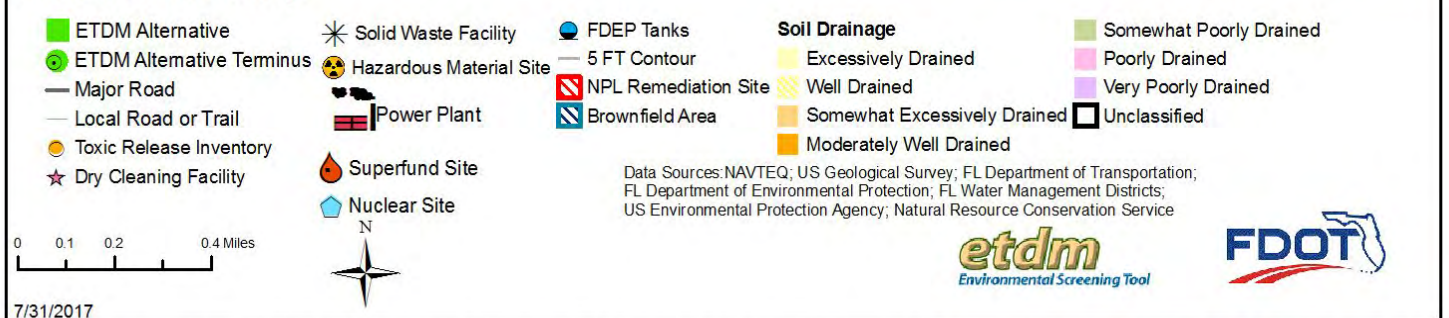
7/31/2017

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14193 I-95 Interchange at Pioneer Trail Williamson Blvd. to Turnbull Bay Road





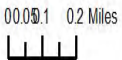
Contamination Map



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Cultural Resources Data Map

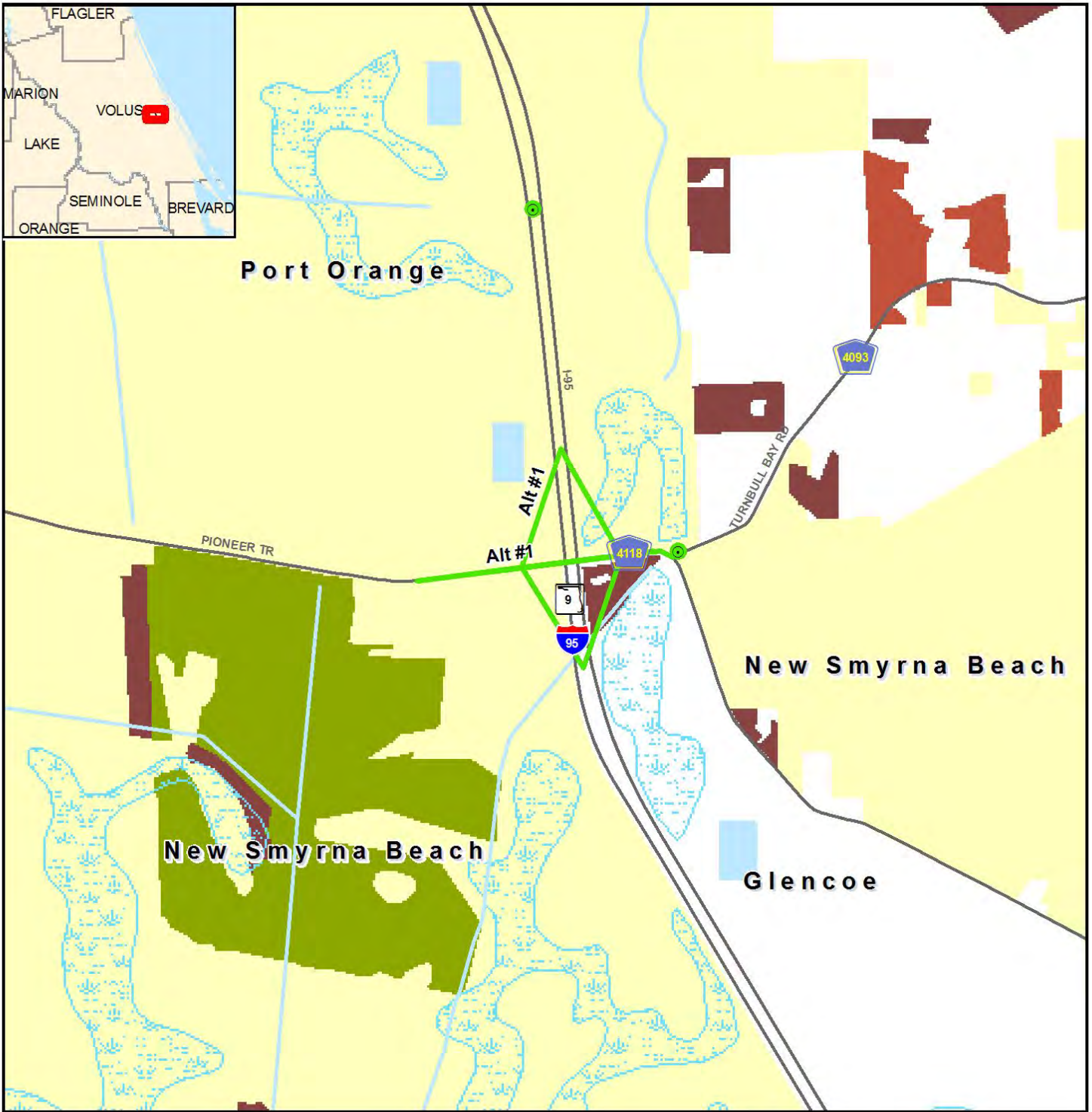
-  ETDM Alternative
 -  Major Road
 -  Local Road or Trail
 -  Historic Structure
 -  Historic Bridge
 -  State Historic Highway
 -  Historic Cemetery
 -  Historic Resource Group
 -  Cultural Resource Field Survey Area
 -  ETDM Alternative
- Year Built**
-  Pre 1970
 -  Post 1980
 -  1970 - 1979
 -  Parcels w/ no values



Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Department of State,
 Bureau of Archaeological Research

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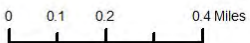
14193 I-95 Interchange at Pioneer Trail



Farmlands Map

- ETDM Alternative
- Cropland/Pastureland
- Prime Farmland Soils
- Nurseries/Vineyards
- Specialty Farms
- Tree Crops
- Rural Open Lands
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits

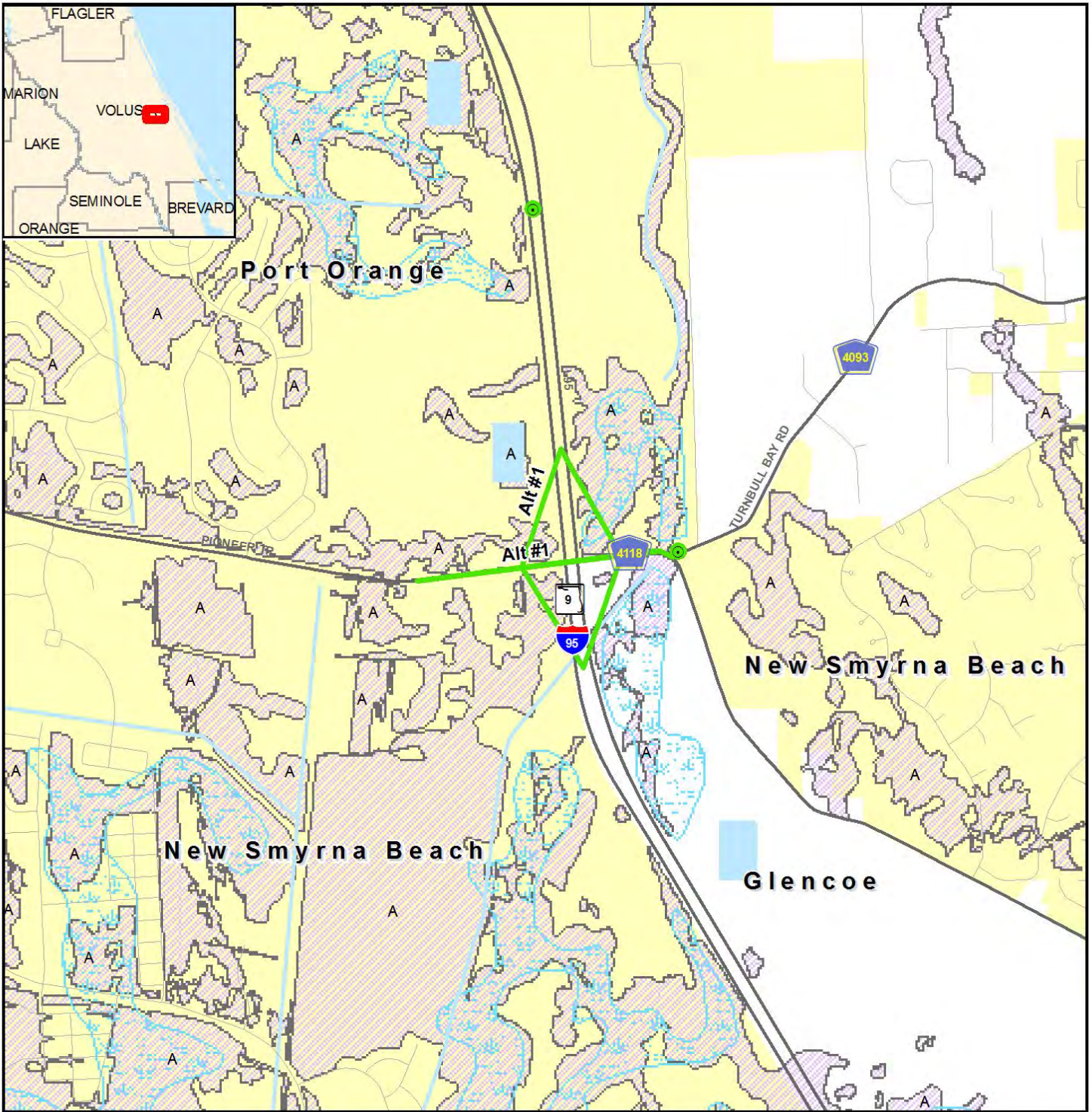
Data Sources:
 NAVTEQ
 Florida Water Management Districts
 US Geological Survey
 Natural Resources Conservation Services



6/16/2017

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14193 I-95 Interchange at Pioneer Trail



Floodplains Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- Special Flood Hazard Area

Data Sources:
 NAVTEQ
 US Geological Survey
 Federal Emergency Management Agency

0 0.125 0.25 0.5 Miles



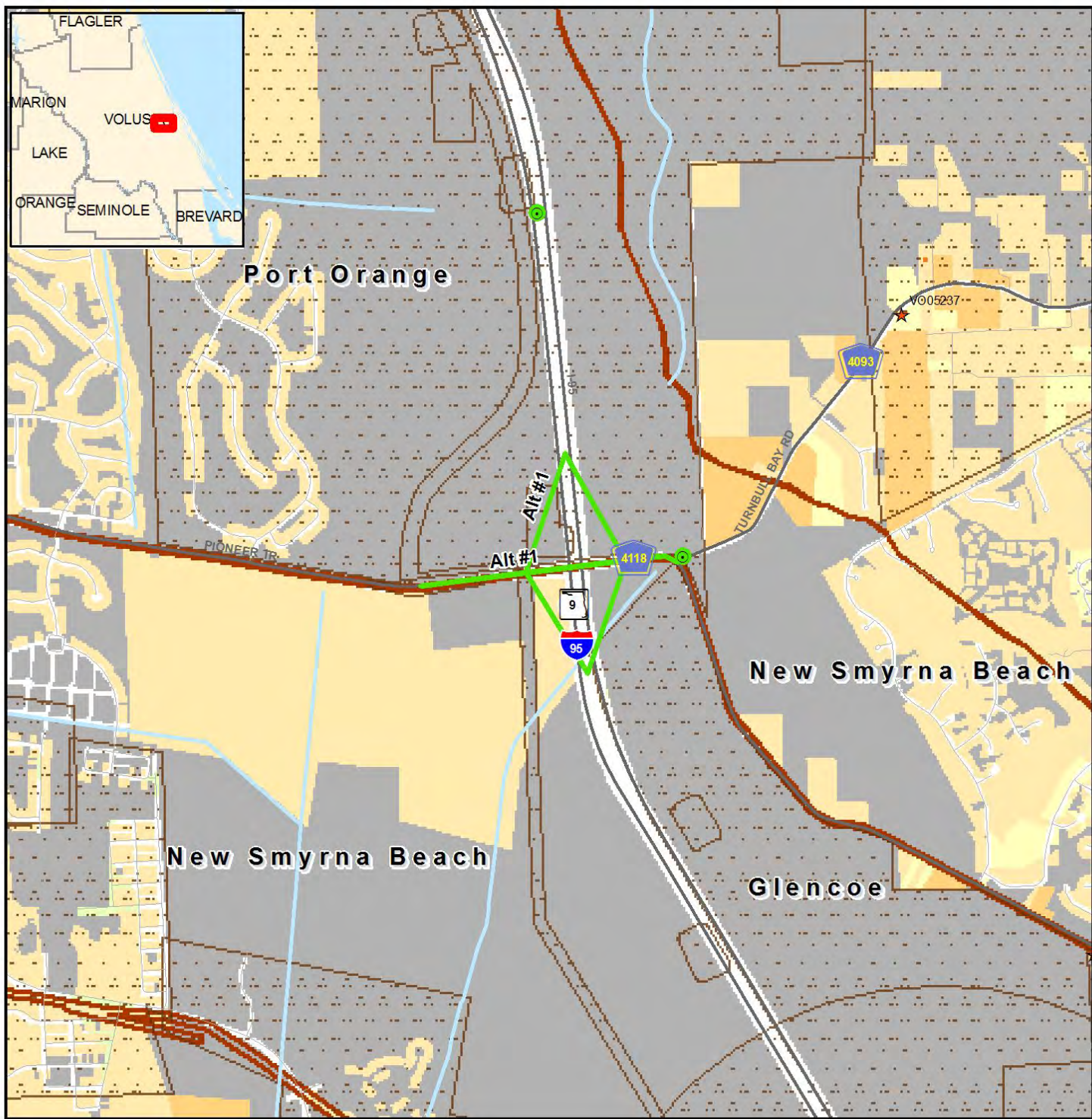
etdm
 Environmental Screening Tool



6/16/2017

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14193 I-95 Interchange at Pioneer Trail



Historic Resource Map

- | | | |
|---------------------------|----------------------|-------------------------------------|
| ETDM Alternative | Year Built | Historic Structure |
| ETDM Alternative Terminus | Pre 1970 | Historic Bridge |
| Major Road | Post 1980 | State Historic Highway |
| Local Road or Trail | 1970 - 1979 | Historic Cemetery |
| | Parcels w/ no values | Historic Resource Group |
| | | Cultural Resource Field Survey Area |

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Department of State,
 Bureau of Archaeological Research

Note: Historic properties depicted on this map represent resources listed in the Florida Master Site File excluding archeological site locations, which, pursuant to Chapter 267.135, Florida Statutes, may be exempt from public record (Chapter 119.07, Florida Statutes). Absence of features on the map does not necessarily indicate an absence of resources in the project vicinity.

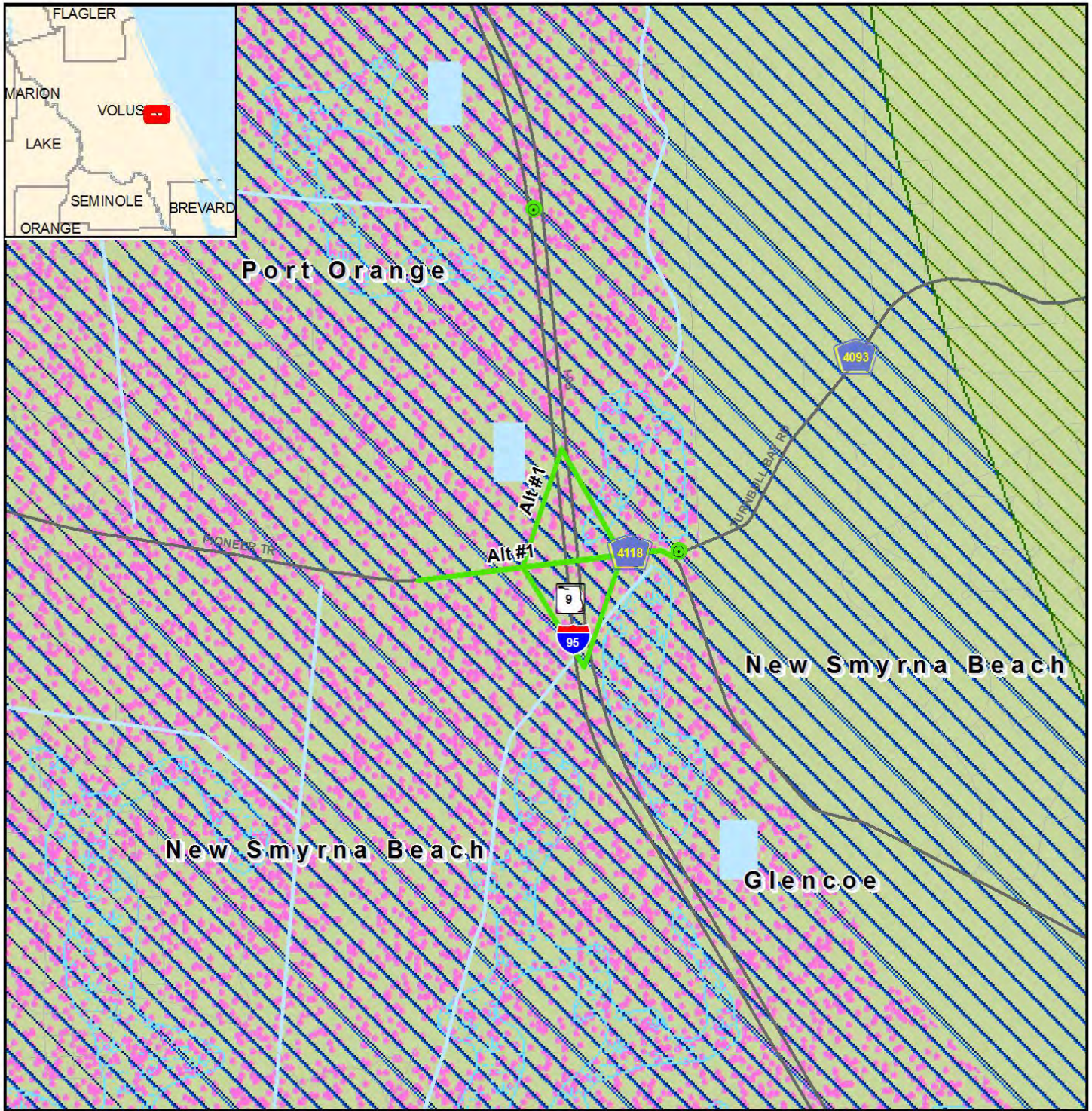
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6/16/2017



14193 I-95 Interchange at Pioneer Trail



Hydrogeology Map

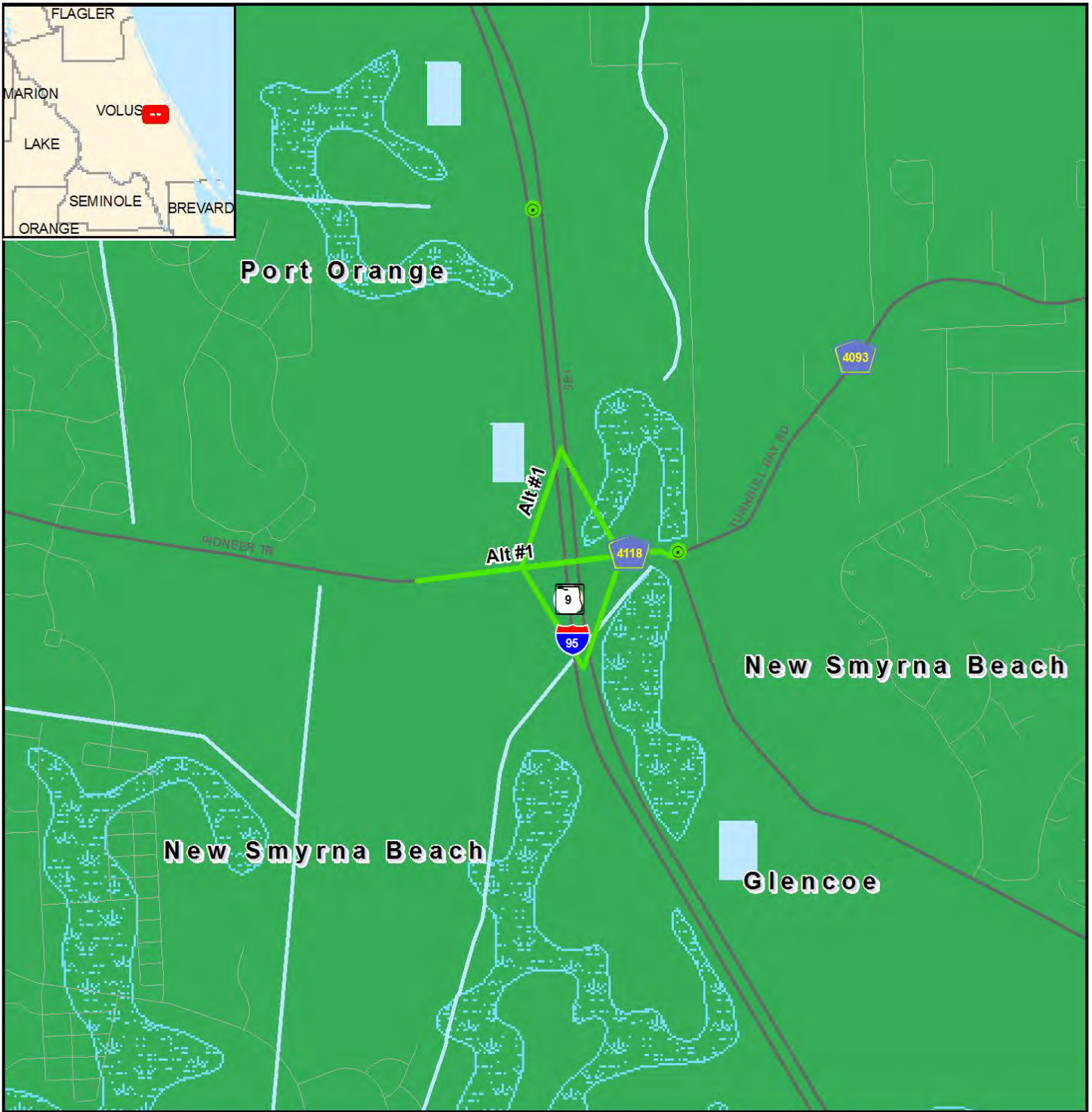
<ul style="list-style-type: none"> ■ ETDM Alternative ● ETDM Alternative Terminus — Major Road — Local Road or Trail ■ City Limits 	<p>Recharge Areas of the Floridan Aquifer</p> <ul style="list-style-type: none"> Discharge 1 to 5 Discharge > 5 Discharge < 1 Recharge 1 to 10 Recharge > 10 Recharge < 1 	<p>Surface Geology</p> <ul style="list-style-type: none"> ■ Eocene ■ Miocene ■ Miocene/Pliocene ■ Oligocene ■ Oligocene/Miocene ■ Pleistocene ■ Holocene ■ Pleistocene/Holocene ■ Pliocene ■ Pliocene/Pleistocene
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Data Sources: NAVTEQ; US Geological Survey
 Florida Department of Transportation
 South West Florida Water Management District
 Florida Geological Survey

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14193 I-95 Interchange at Pioneer Trail



Income Map

- | | |
|---|---|
| ■ ETDM Alternative | Median Household Income |
| ● ETDM Alternative Terminus | ■ 0 - 10,000 |
| — Major Road | ■ 10,001 - 29,999 |
| — Local Road or Trail | ■ 30,000 - 49,999 |
| > 20% Below Poverty | ■ 50,000 - 79,999 |
| | ■ 80,000 - 125,000 |
| | ■ > 125,000 |

Data Sources:
 US Geological Survey
 FL Department of Transportation
 NAVTEQ
 US Census Bureau (2010)

0 0.125 0.25 0.5 Miles



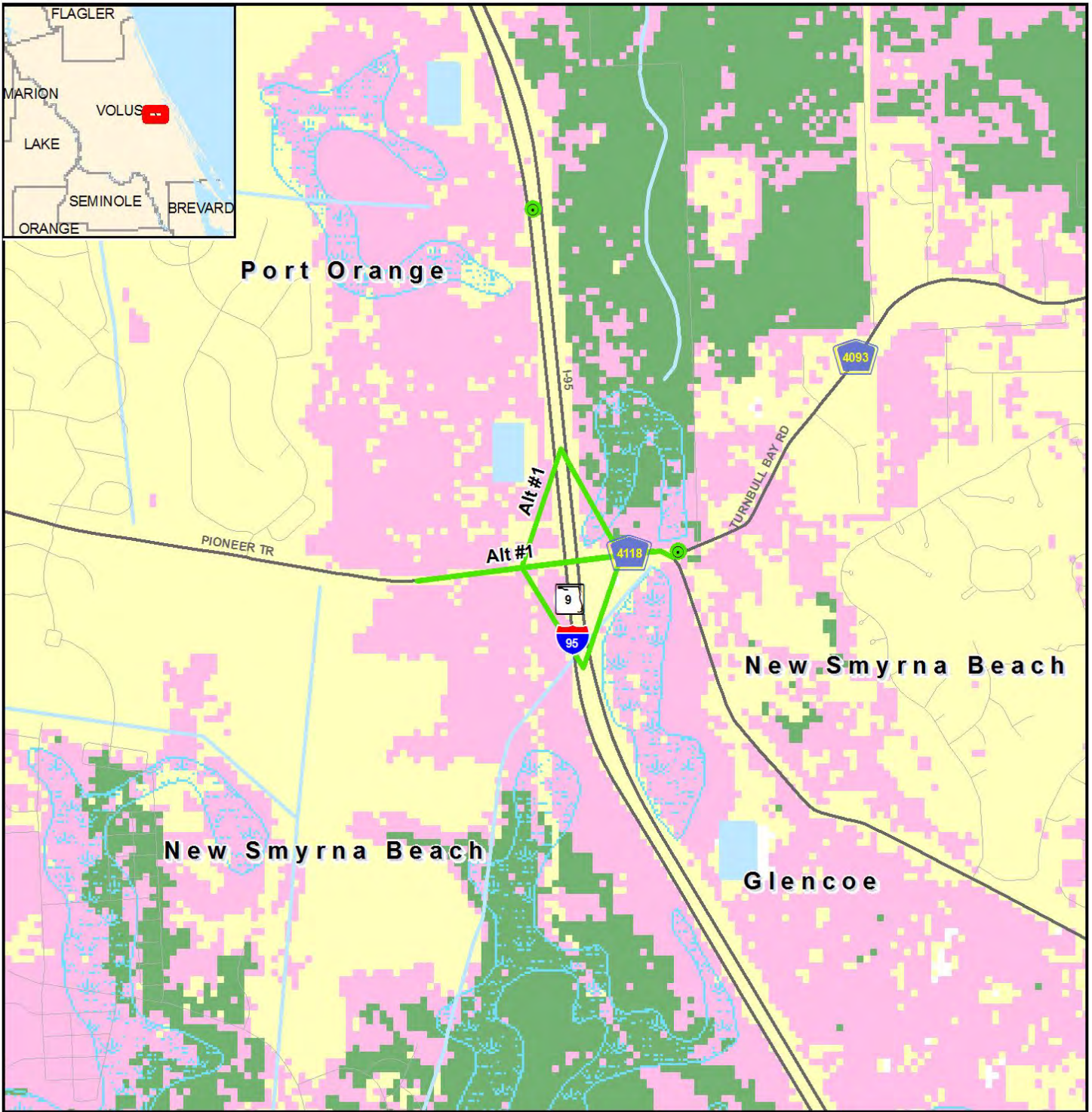
etdm
 Environmental Screening Tool



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14193 I-95 Interchange at Pioneer Trail



Integrated Wildlife Model Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- Low Habitat Quality
- Medium Habitat Quality
- High Habitat Quality

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Fish & Wildlife Conservation Commission

0 0.125 0.25 0.5 Miles



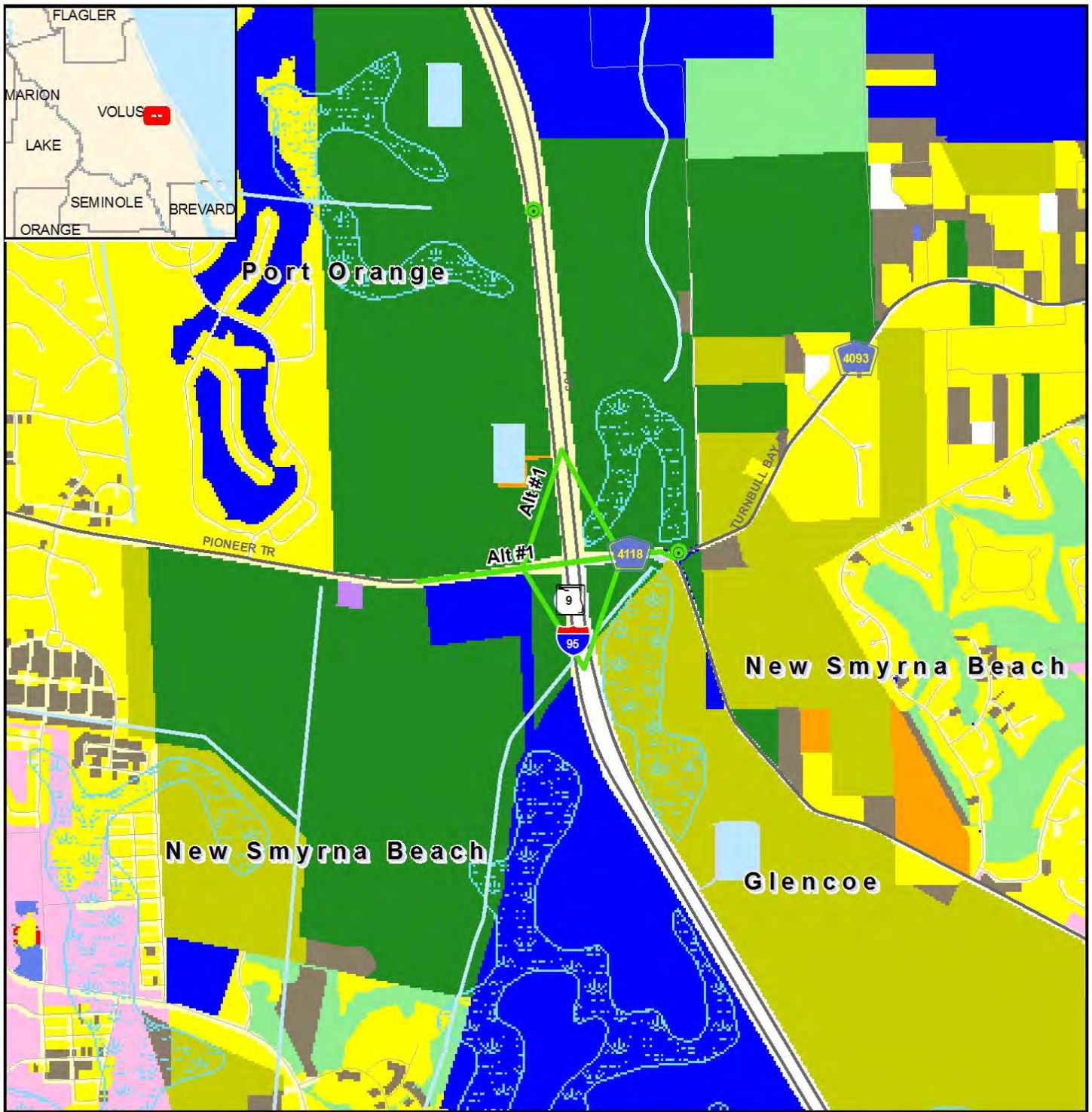
etdm
 Environmental Screening Tool



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14193 I-95 Interchange at Pioneer Trail



Land Use Map

- | | | | |
|--|--|--|--|
| ■ ETDM Alternative | ■ Agricultural | ■ Other | ■ Retail/Office |
| ● ETDM Alternative Terminus | ■ Industrial | ■ Public | ■ Vacant (Residential) |
| — Major Road | ■ Institutional | ■ Right-of-Way | ■ Vacant (Nonresidential) |
| — Local Road or Trail | ■ Mining | ■ Recreational | ■ Water |
| | ■ Open (Not Agricultural) | ■ Residential | No Data |

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Revenue
 Florida Department of Transportation
 Florida County Property Appraiser Offices

0 0.125 0.25 0.5 Miles



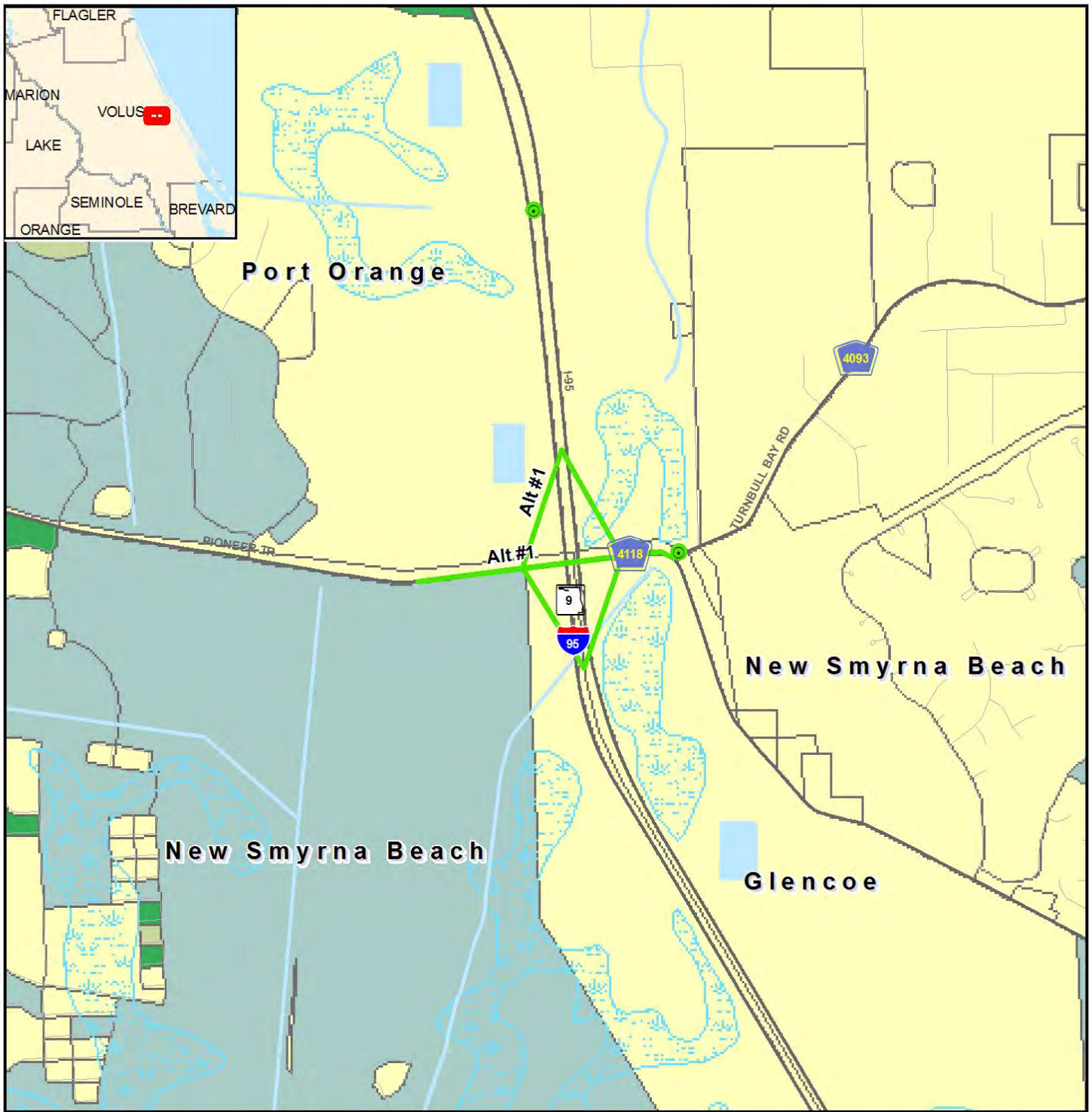
etdm
 Environmental Screening Tool



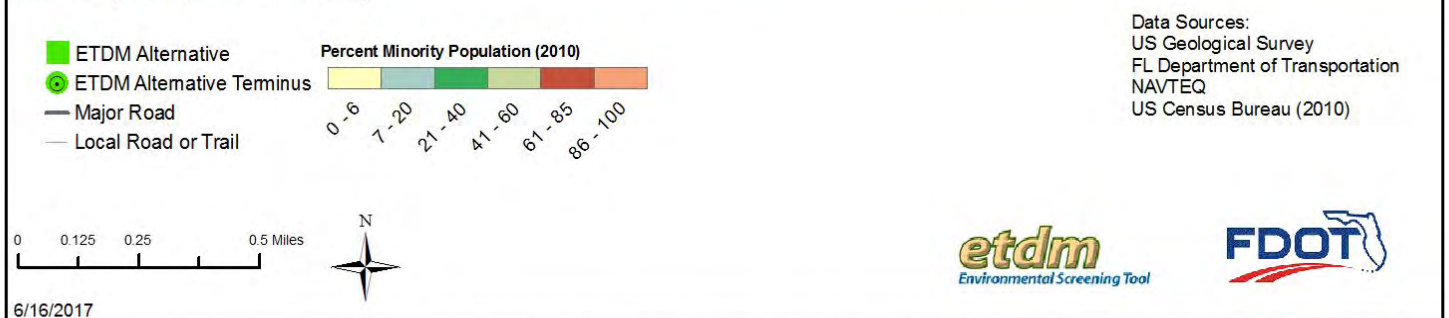
6/16/2017

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14193 I-95 Interchange at Pioneer Trail

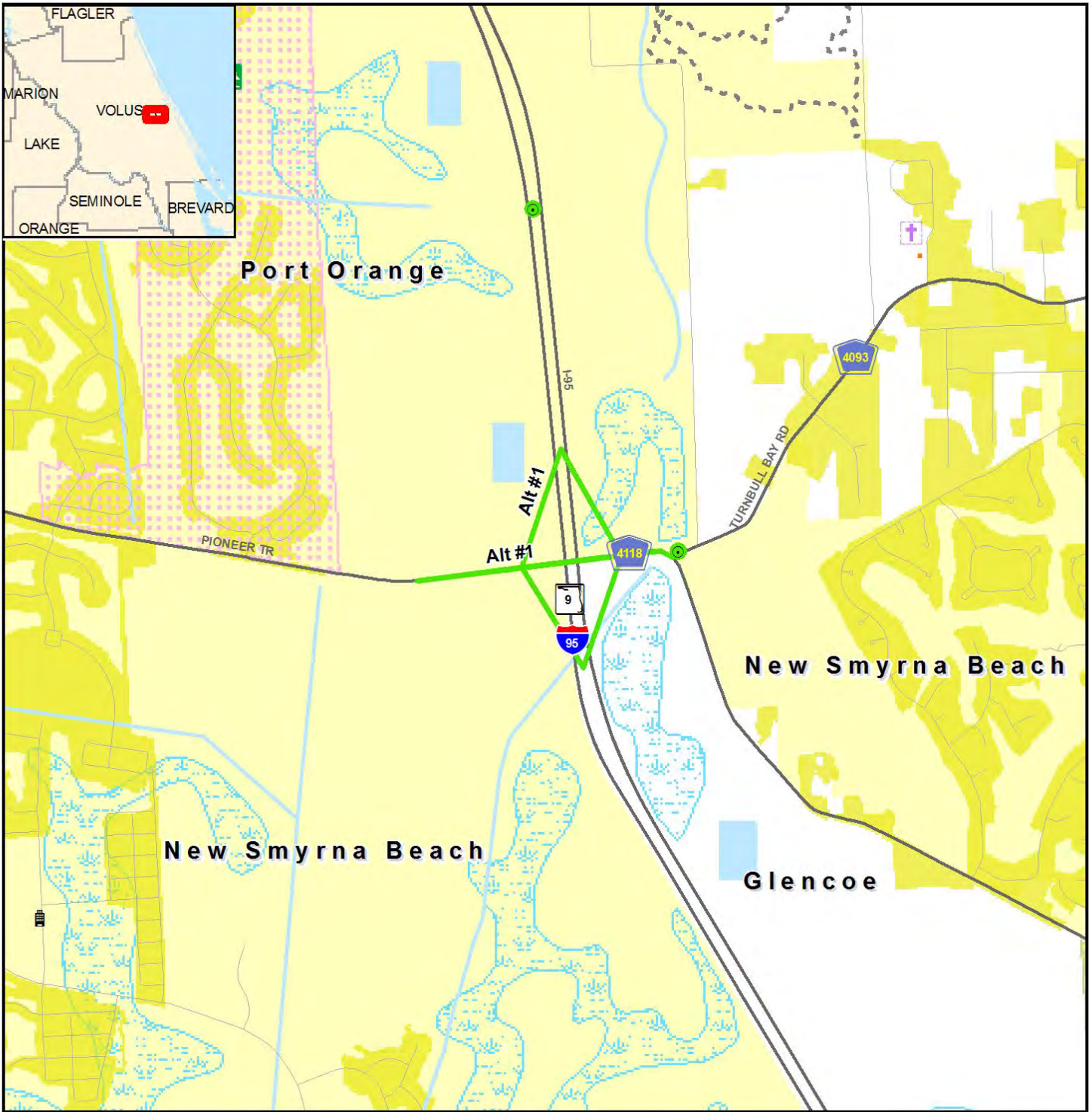


Minority Population Map



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14193 I-95 Interchange at Pioneer Trail



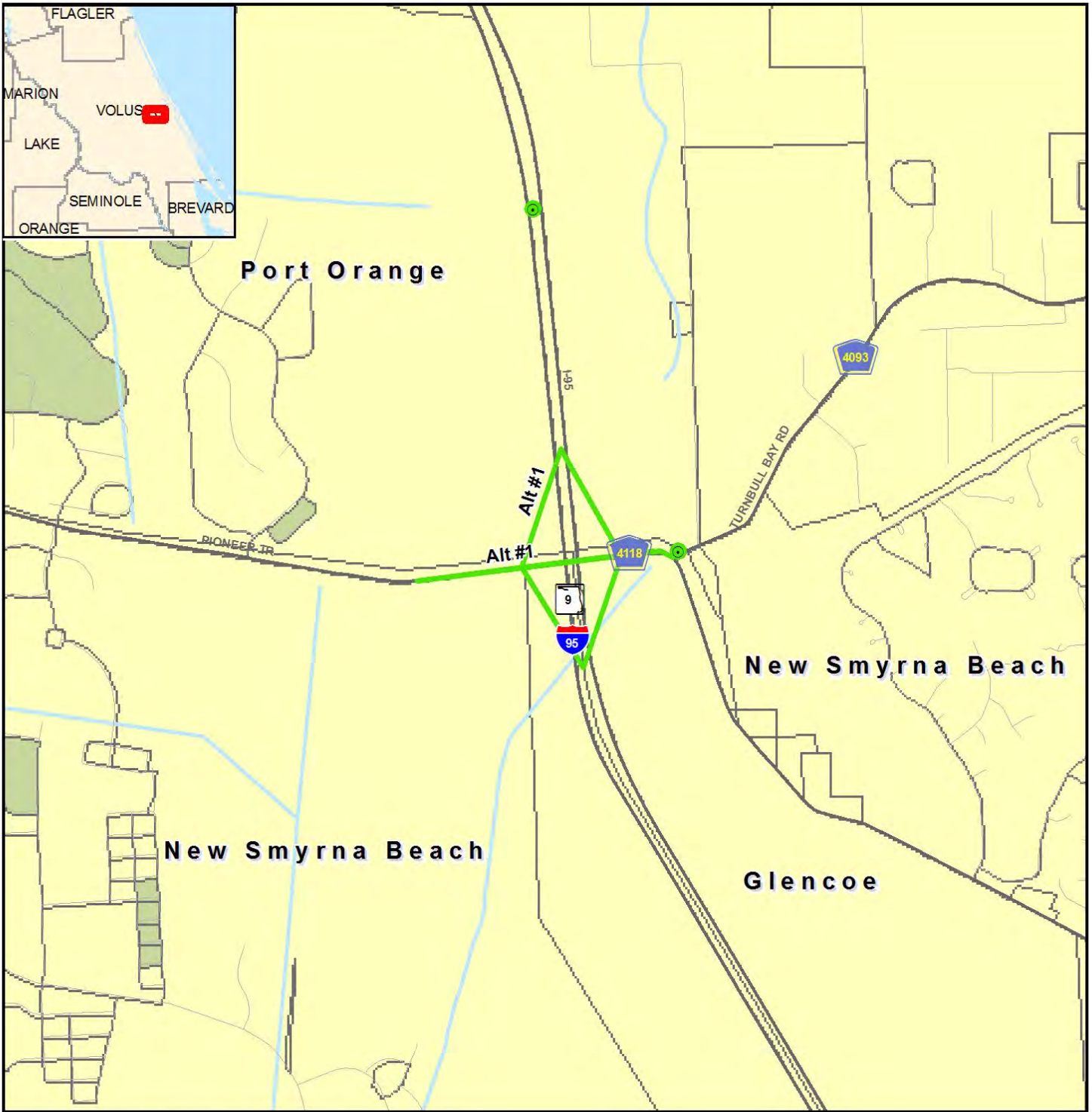
Noise Map



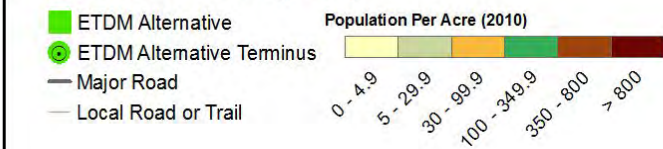
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Population Density Map



Data Sources:
 US Geological Survey
 FL Department of Transportation
 NAVTEQ
 US Census Bureau (2010)



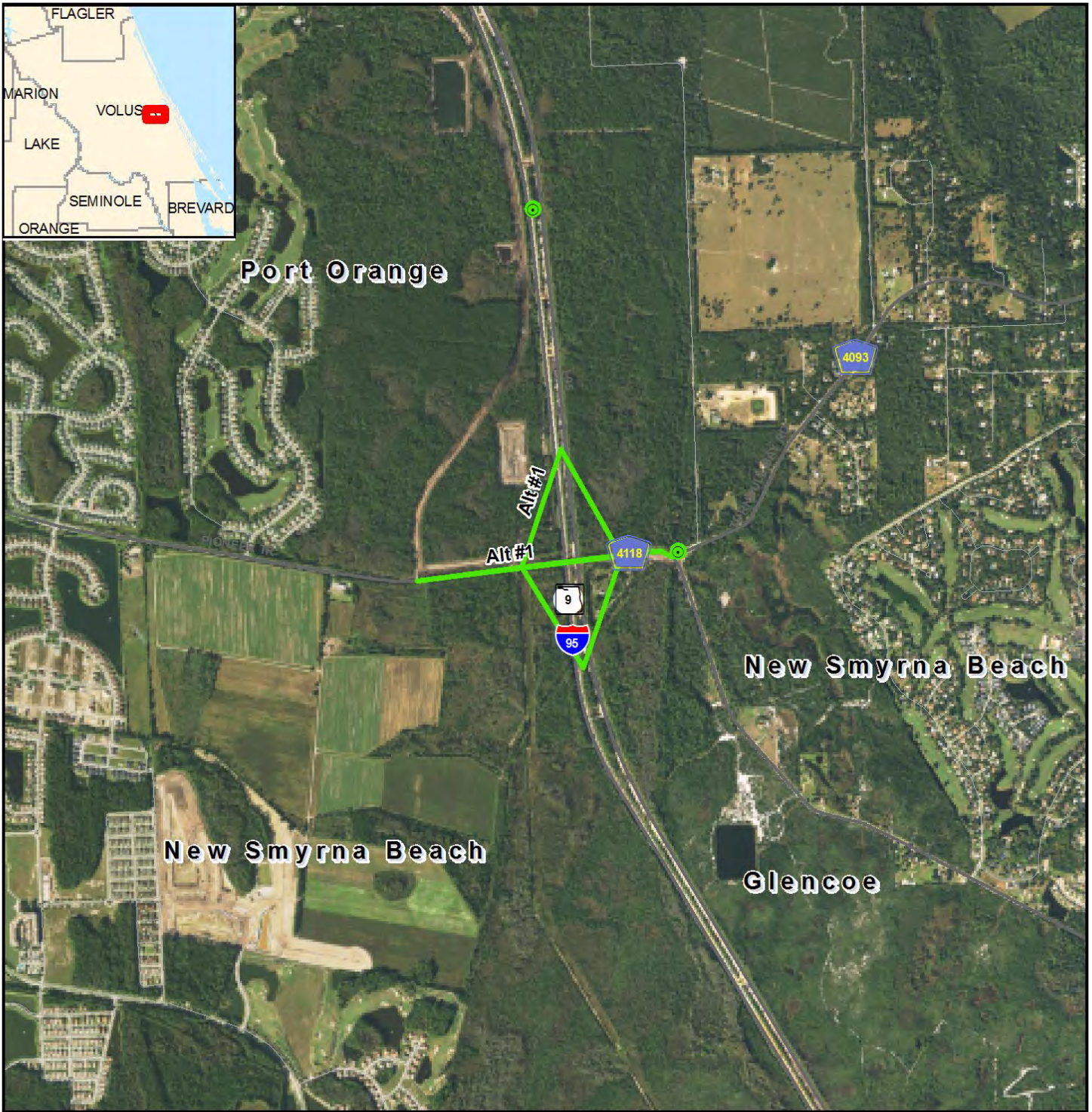
etdm
 Environmental Screening Tool



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14193 I-95 Interchange at Pioneer Trail



Project Aerial Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail

Data Sources:
 Highways - NAVTEQ
 Digital Orthophotograph - ArcGIS Online

0 0.125 0.25 0.5 Miles



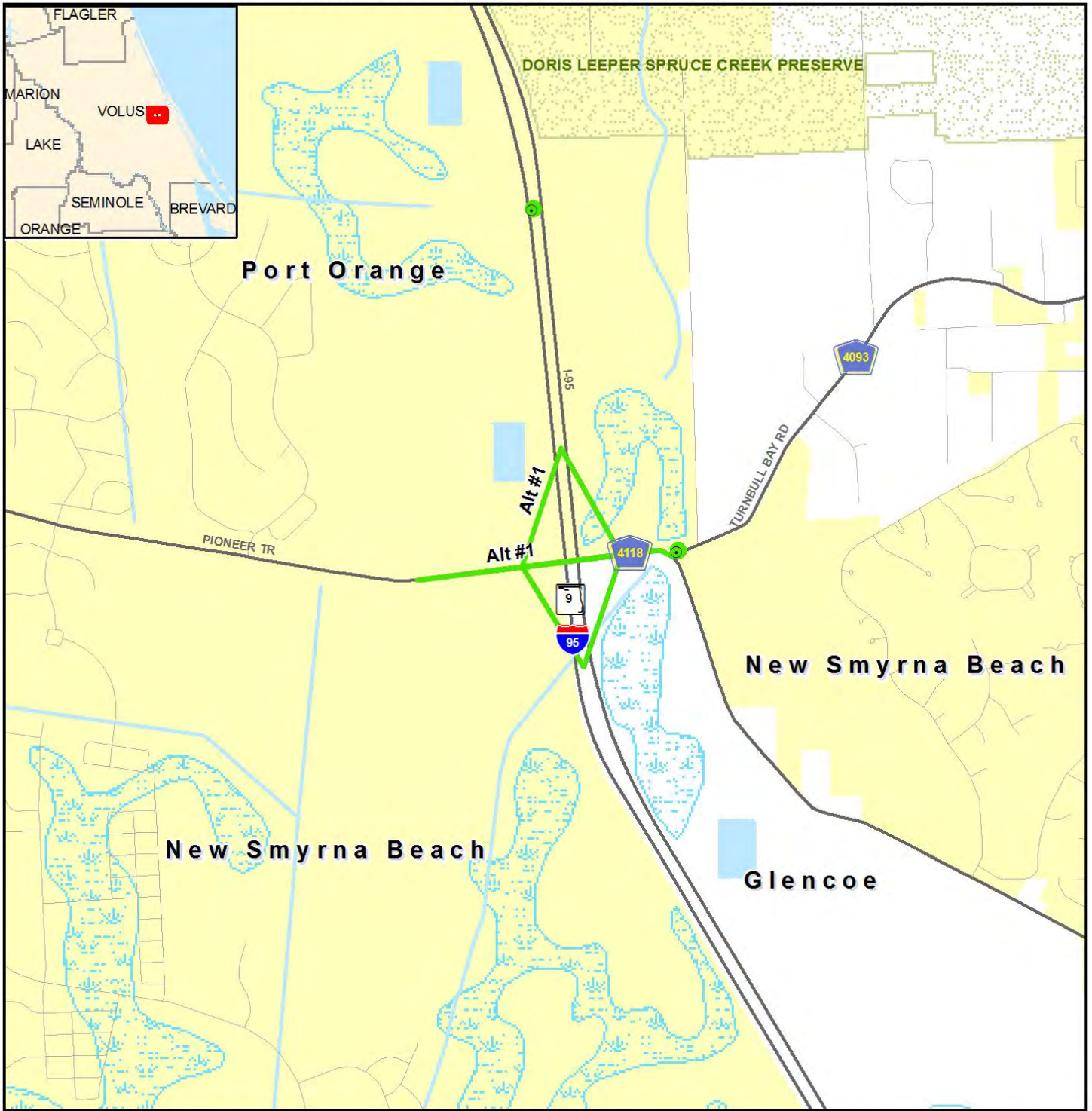
etdm
 Environmental Screening Tool



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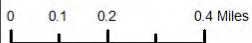
14193 I-95 Interchange at Pioneer Trail Williamson Blvd. to Turnbull Bay Road



Project Base Map

- ETDM Alternative Terminus
- Alt #1
- Local Road or Trail
- Major Road
- City Limits
- Managed Conservation Lands

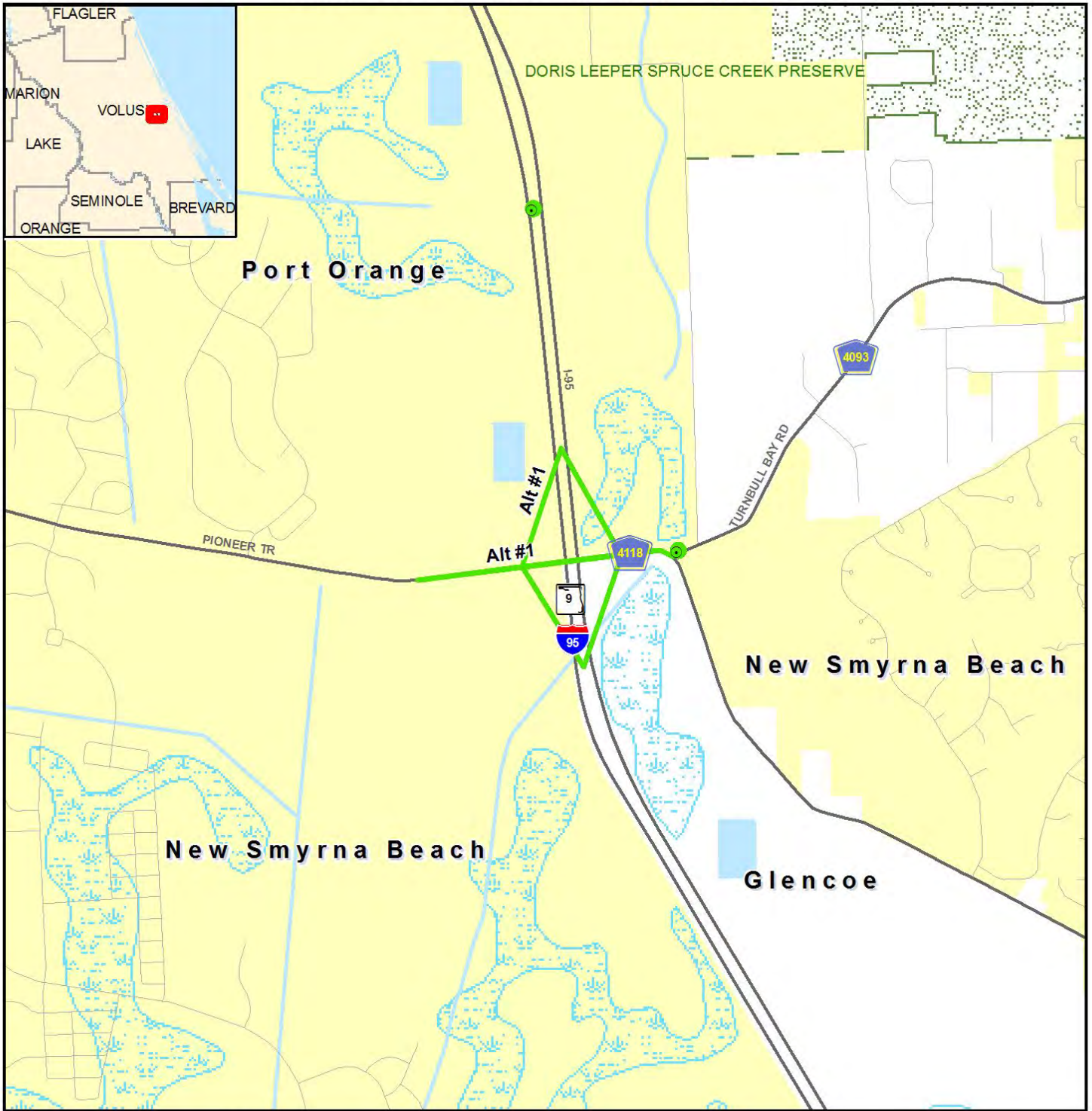
Data Sources:
 NAVTEQ
 US Geological Survey
 US Census Bureau
 County Property Appraisers
 Florida Natural Areas Inventory



7/31/2017

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14193 I-95 Interchange at Pioneer Trail Williamson Blvd. to Turnbull Bay Road



Recreational Areas Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- Conservation or Recreation Area

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Natural Areas Inventory

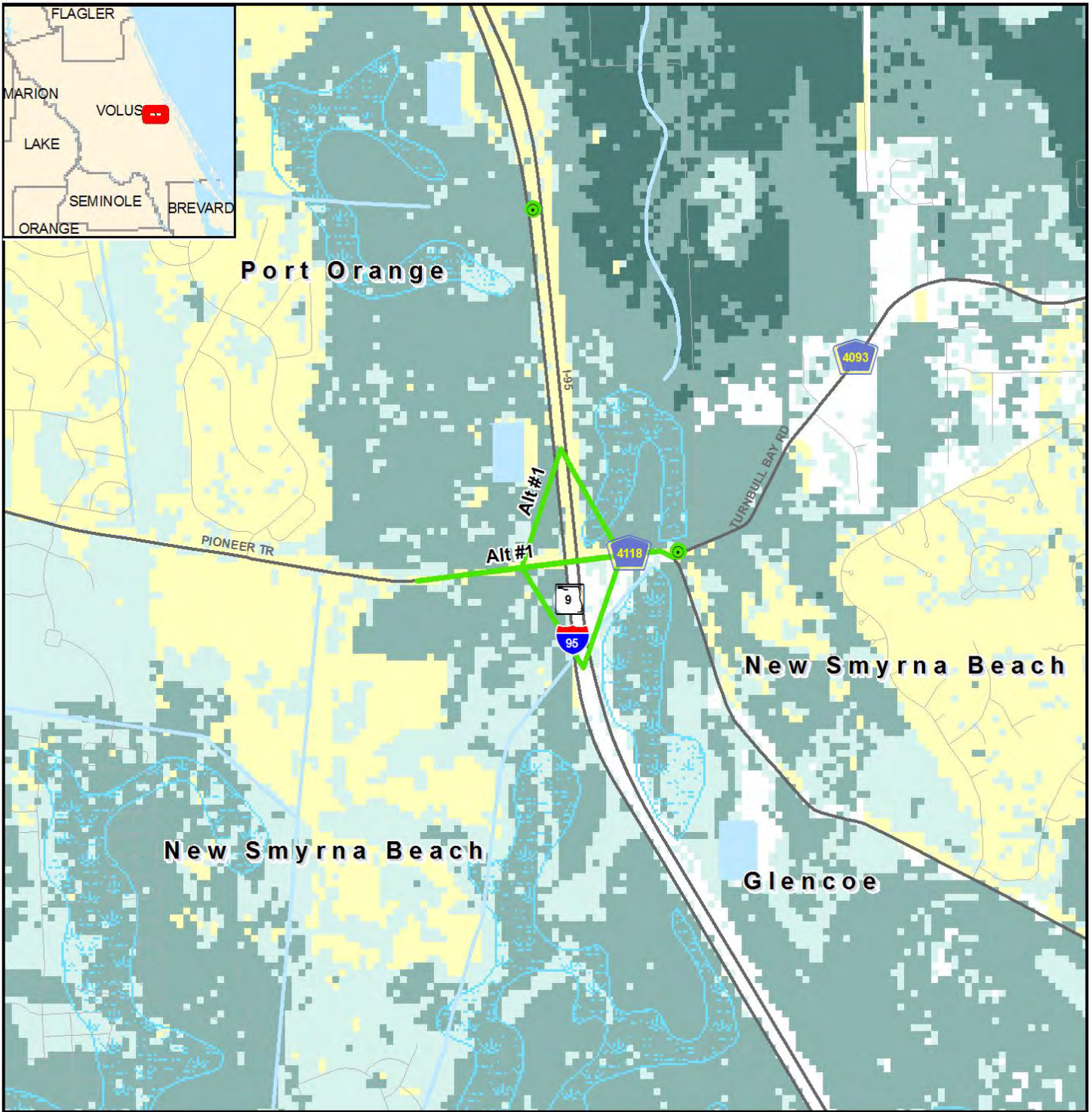
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7/31/2017

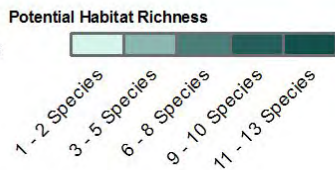
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14193 I-95 Interchange at Pioneer Trail



Species Potential Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits



Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Fish & Wildlife Conservation Commission

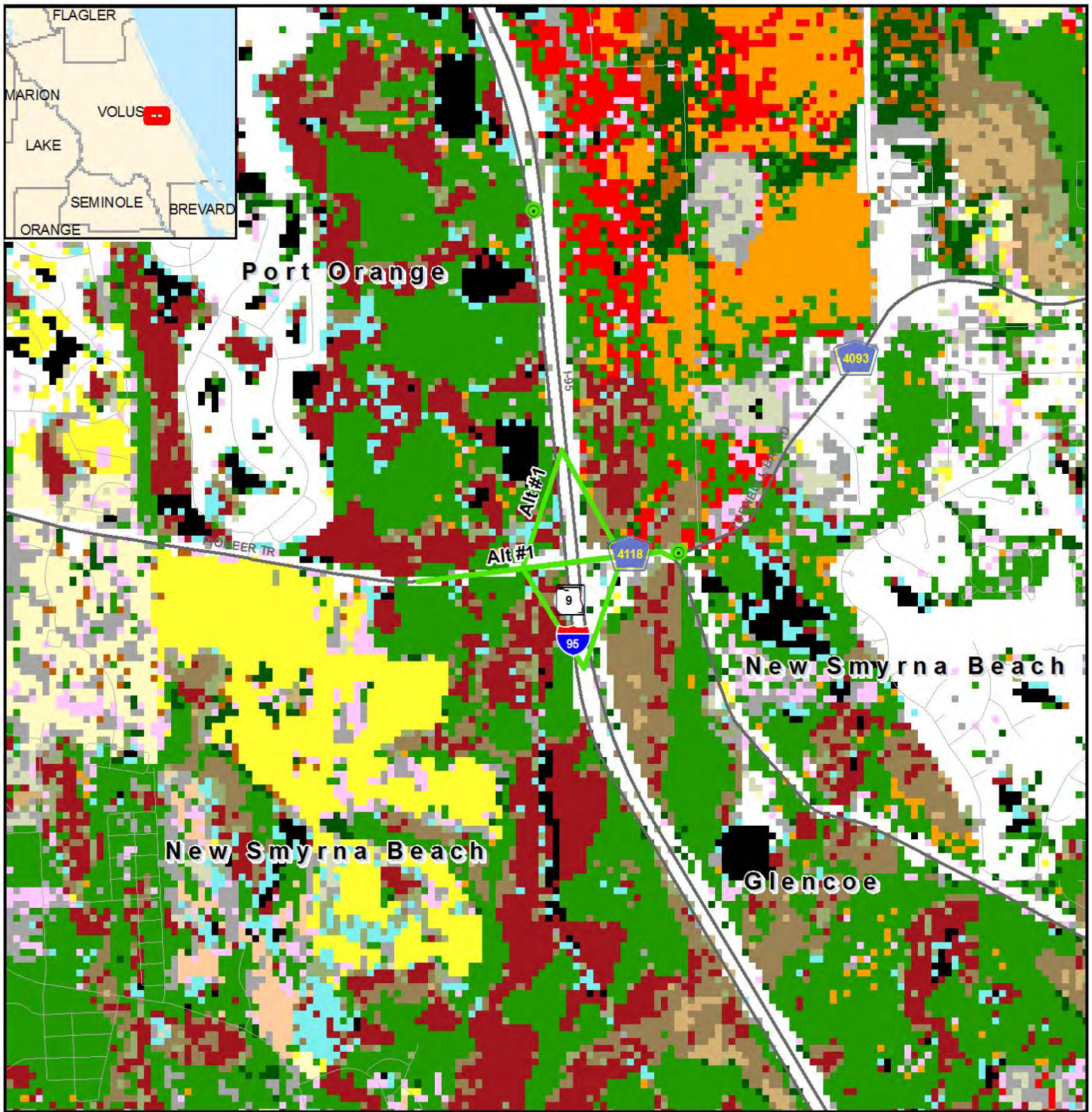
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Vegetation Map



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Water Resource Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- 1st Magnitude Spring
- River, Stream or Canal
- Navigable Water Way
- SFWMD Canals
- Drainage Basin
- Outstanding Florida Water
- Surface Water Class I
- Surface Water Class II
- Water Body
- Swamp/Marsh

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Department of Environmental Protection
 Florida Geological Survey
 US Bureau of Transportation Statistics

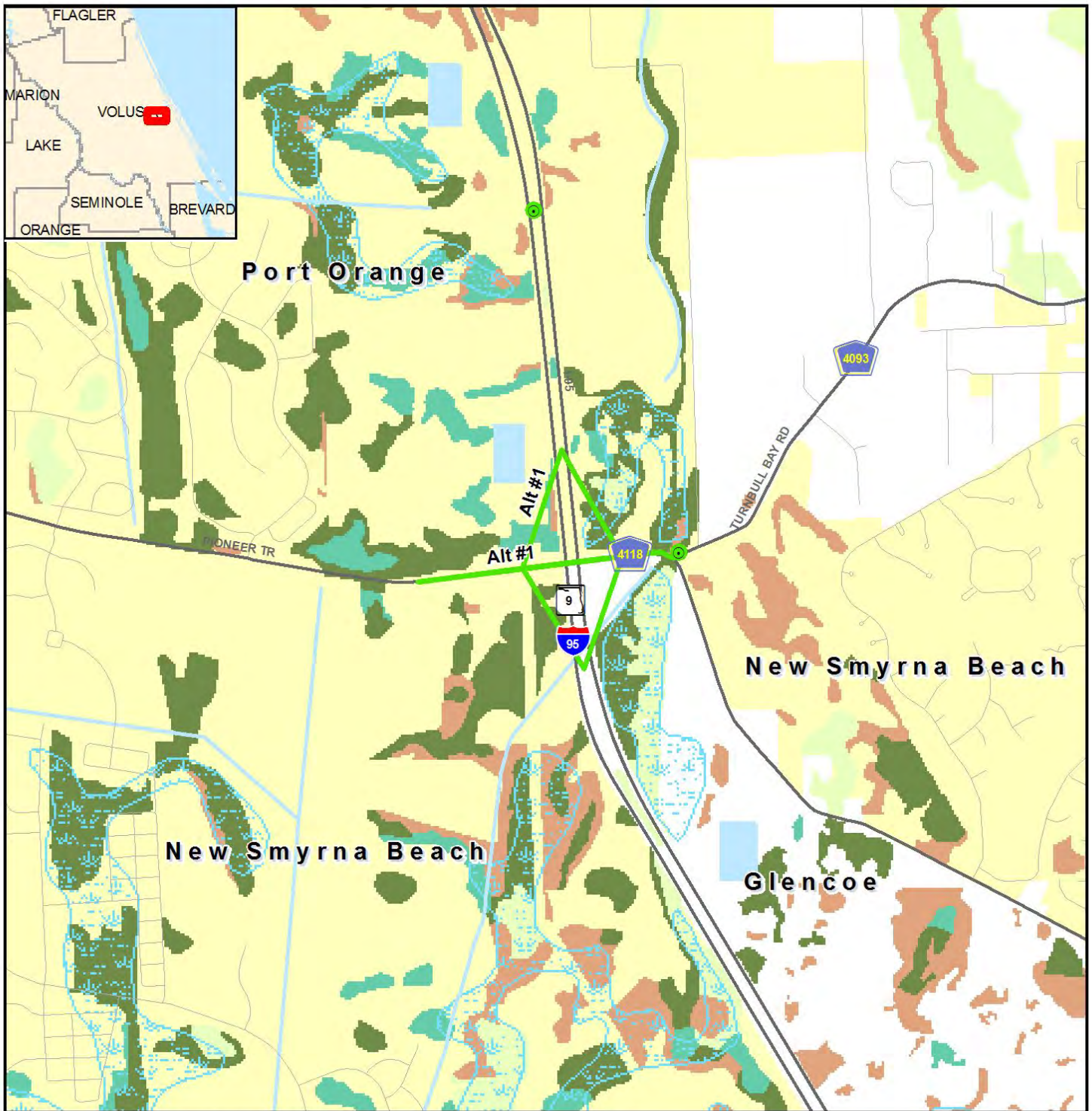
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Wetlands and Surface Waters Map

- | | | |
|--|--|--|
| ■ ETDM Alternative | — River, Stream or Canal | ■ Non-vegetated Wetland |
| ● ETDM Alternative Terminus | ■ Water Body | ■ Vegetated Non-forested Wetland |
| — Major Road | ■ Swamp/Marsh | ■ Wetland Forested Mixed |
| — Local Road or Trail | | ■ Wetland Coniferous Forest |
| ■ City Limits | | ■ Wetland Hardwood Forest |

Data Sources:
 NAVTEQ
 Florida Water Management Districts
 US Geological Survey

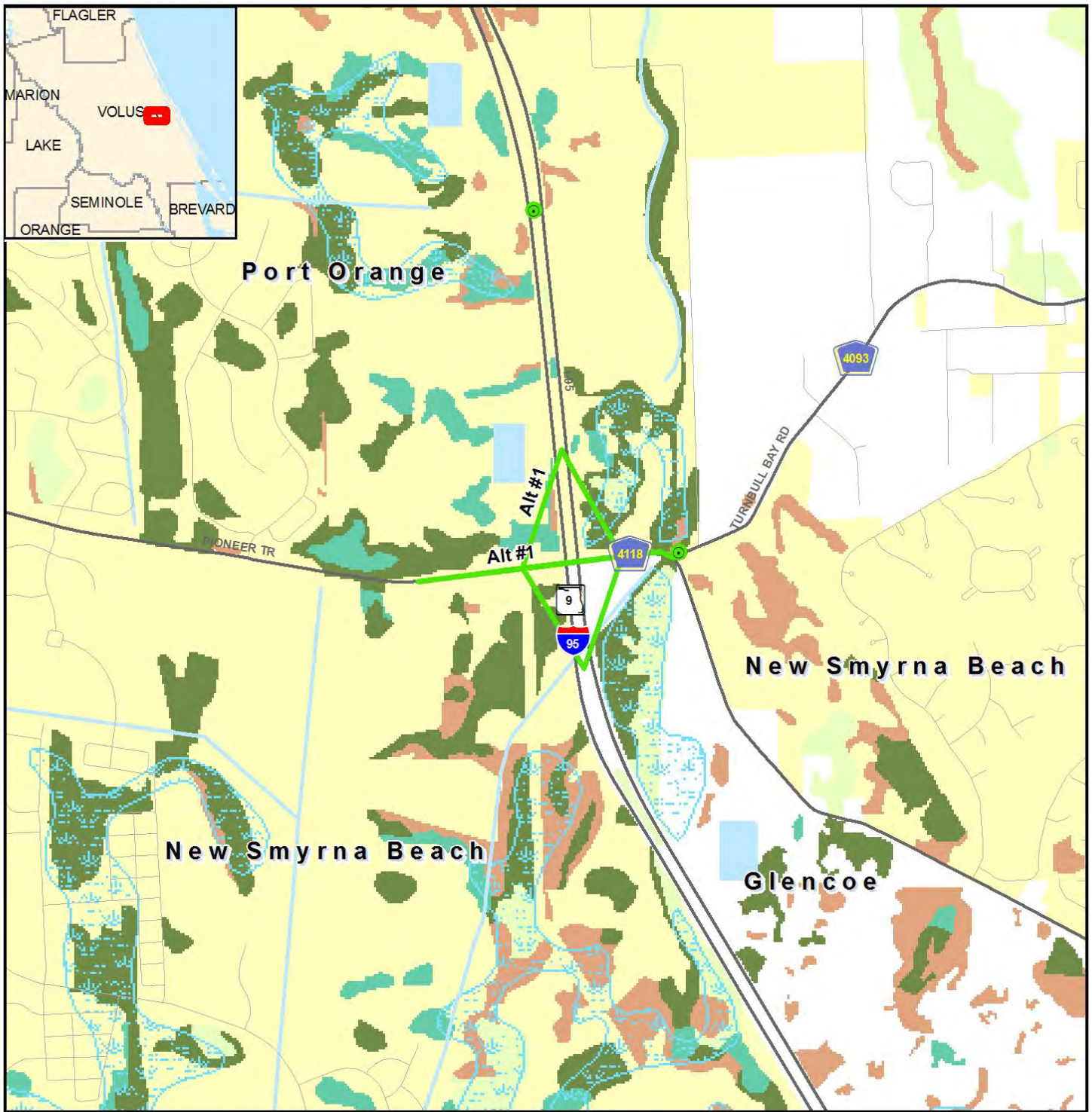
0 0.125 0.25 0.5 Miles



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14193 I-95 Interchange at Pioneer Trail



Wetlands and Surface Waters Map

- | | | |
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| — Major Road | ■ Swamp/Marsh | ■ Wetland Forested Mixed |
| — Local Road or Trail | | ■ Wetland Coniferous Forest |
| ■ City Limits | | ■ Wetland Hardwood Forest |

Data Sources:
 NAVTEQ
 Florida Water Management Districts
 US Geological Survey

0 0.125 0.25 0.5 Miles



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