



# **TECHNICAL APPENDIX F**

## **ENVIRONMENTAL MITIGATION/ CONSULTATION SUMMARY**



# Environmental Mitigation/Consultation Summary

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# Environmental Mitigation/Consultation Summary

## Introduction and Background

This Environmental Mitigation/Consultation Summary consists of information and data that supported development of Connect 2045. Applicable federal and state requirements and guidance that shaped the environmental consultation process and contents of this summary include:

- 23 C.F.R. 450.316(a)(1), (d), (e)
- 23 C.F.R. 450.324(g)
- s. 339.175(6)(b), F.S.
- s. 39.175(7)(d), F.S.

Comprehensive documentation of the environmental consultation process, including the approach to interactions with agencies and the public, is collectively found in this summary document, Chapter 4, Chapter 5, the Connect 2045 Public Involvement Plan (Technical Appendix D), and the [River to Sea TPO Public Participation Plan](#).

It is critical to consider and incorporate environmental and cultural resources in long range transportation planning. The development of Connect 2045 included the: evaluation of conservation plans, maps, and data, including inventories of natural or historical resources; consultative input from appropriate federal and state environmental and resource management agencies; and utilization of environmental criteria to inform project prioritization.

## Environmental Mitigation

Transportation projects can significantly impact many aspects of the environment including wildlife and their habitats, wetlands, and groundwater resources. In situations where impacts cannot be completely avoided, mitigation or conservation efforts are required. Environmental mitigation is the process of addressing damage to the environment caused by transportation projects or programs. The process of mitigation is best accomplished through enhancement, restoration, creation and/or preservation projects that serve to offset unavoidable environmental impacts.

In the State of Florida, environmental mitigation for transportation projects is completed through a partnership between MPOs, FDOT, and state and federal environmental resource and regulatory agencies, such as the Water Management Districts (WMDs) and the Florida Department of Environmental Protection (FDEP). These activities are directed through Chapter 373, F.S., which establishes the requirements for mitigation planning as well as the requirements for permitting, mitigation banking, and mitigation requirements for habitat impacts. Under this statute, FDOT must identify projects requiring mitigation, determine a cost associated with the mitigation, and place funds into an escrow account within the Florida Transportation Trust Fund. State transportation trust funds are programmed in the FDOT work program for use by the WMDs to provide mitigation for the impact identified in the annual inventory.

Section 373.4137, F.S., establishes the FDOT mitigation program that is administered by the state's WMDs, which are responsible for developing an annual mitigation plan with input from Federal and State regulatory and resource agencies, including representatives from public and private mitigation banks. Each mitigation plan must focus on land acquisition and restoration or enhancement activities that offer the best mitigation opportunity for that specific region. The mitigation plans are required to be updated annually to reflect the most current FDOT work program and project list of a transportation authority.

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The FDOT Mitigation Program is a great benefit to MPOs because it offers them an additional method to mitigate for impacts produced by transportation projects and it promotes coordination between federal and state regulatory agencies, MPOs, and local agencies.

When addressing mitigation, there is a general rule to avoid all impacts, minimize impacts and mitigate impacts when impacts are unavoidable. This rule can be applied at the planning level, when MPOs are identifying areas of potential environmental concern due to the development of a transportation project. A typical approach to mitigation that MPOs can follow is to:

- Avoid impacts altogether
- Minimize a proposed activity/project size or its involvement
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment
- Reduce or eliminate the impact over time by preservation and maintenance operation during the life of the action
- Compensate for environmental impacts by providing appropriate or alternate environmental resources of equivalent or greater value, on or off-site

Sections 373.47137 and 373.4139, F.S. require that impacts to habitat be mitigated through a variety of mitigation options, which include mitigation banks and mitigation through the Water Management District(s) and the DEP. Potential environmental mitigation opportunities that could be considered when addressing environmental impacts from future projects proposed by MPOs may include, but are not limited to, the items presented in **Table 1**.

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**Table 1: Potential Environmental Mitigation Opportunities**

Resources/Impacts	Potential Mitigation Strategy
<b>Wetlands and Water Resources</b>	<ul style="list-style-type: none"> <li>• Restore degraded wetlands</li> <li>• Create new wetland habitats</li> <li>• Enhance or preserve existing wetlands</li> <li>• Improve storm water management</li> <li>• Purchase credits from a mitigation bank</li> </ul>
<b>Forested and other natural areas</b>	<ul style="list-style-type: none"> <li>• Use selective cutting and clearing</li> <li>• Replace or restore forested areas</li> <li>• Preserve existing vegetation</li> </ul>
<b>Habitats</b>	<ul style="list-style-type: none"> <li>• Construct underpasses, such as culverts</li> <li>• Other design measures to minimize potential habitat fragmentation</li> </ul>
<b>Streams</b>	<ul style="list-style-type: none"> <li>• Stream restoration</li> <li>• Vegetative buffer zones</li> <li>• Strict erosion and sedimentation control measures</li> </ul>
<b>Threatened or Endangered Species</b>	<ul style="list-style-type: none"> <li>• Preservation</li> <li>• Enhancement or restoration of degraded habitat</li> <li>• Creation of new habitats</li> <li>• Establish buff areas around existing habitat</li> </ul>

Planning for specific environmental mitigation strategies over the life of the long range transportation plan can be challenging. Potential mitigation challenges include lack of funding for mitigation projects and programs, lack of available wetland mitigation bank credits, improperly assessing cumulative impacts of projects, and permitting issues with the county, local, state and federal regulatory agencies. These challenges can be lessened when TPOs engage their stakeholders, including regulatory agencies, the public and other interested parties, through the public involvement process. The public involvement process provides TPOs with an efficient method to gain input and address concerns about potential mitigation strategies and individual projects.

## Environmental Stakeholder Coordination and Consultation

# Environmental Mitigation/Consultation Summary

As part of the development of Connect 2045, and in order to understand the environmental mitigation opportunities and issues within the metropolitan planning area, the TPO conducted direct outreach to appropriate federal, state and local land management, resource, environmental, and historic preservation agencies to obtain comments and consultation on the following:

- Environmental factors to consider as part of the plan
- Considerations from applicable conservation plans
- Potential environmental mitigation activities, and areas to carry out these activities, including those with the greatest potential to restore and maintain environmental functions
- Potential environmental impacts from the draft plan of projects

## Environmental Consultation

The TPO consulted with the following agencies. While consultation with Tribal governments is also prescribed, there are no designated Tribal lands within the boundaries of the TPO planning area.

- US Fish and Wildlife Service (US Department of the Interior) including the Lake Woodruff National Wildlife Refuge and Merritt Island National Wildlife Refuge
- National Park Service (US Department of the Interior) including Canaveral National Seashore
- Florida Department of Environmental Protection
- St. Johns River Water Management District
- Florida Fish and Wildlife Conservation Commission
- Florida Forest Service (Florida Department of Agriculture and Consumer Services)
- Volusia County
- Flagler County

## Communication

The TPO reached out directly to these agencies through e-mail communication that included the following background and request:

The River to Sea Transportation Planning Organization (TPO) is in the process of developing the Connect 2045 (<https://r2ctpoconnect2045.com/>) Long Range Transportation Plan (LRTP). The LRTP establishes policy-direction and transportation project priorities that best reflect the future needs of the community and region, which includes Volusia County and eastern Flagler County. As part of the process for developing the plan, it is critical to evaluate potential environmental resource impacts of planning decisions and mitigation activities [[CFR 450.324\(f\)](#) and [\(g\)](#)].

We are reaching out to your agency for consultation regarding this plan. The River to Sea TPO is at a strategic point in developing the plan and your input will provide valuable feedback to help shape the plan.

The development of this plan includes:

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- Analysis of a 2040 Resiliency Scenario to evaluate the potential impacts of sea level rise and storm surge on the proposed plan of projects. This scenario utilizes National Oceanic and Atmospheric Association (NOAA) and Army Corps of Engineers (ACOE) sea level rise data.
- Evaluation of proposed projects through assignment of an environmental impact criteria score to inform project ranking. This evaluation utilizes various datasets including public conservation lands, Volusia ECHO environmental/cultural/historic sites, and Critical Lands and Waters Identification Project (CLIP) biodiversity resource and wetland priorities.
- Evaluation of environmental mitigation opportunities.

Any comments from your agency's perspective regarding the following are appreciated:

- Potential environmental impacts from the draft plan of projects
- Environmental factors to consider as part of this plan
- Considerations from applicable conservation plans
- Potential [environmental mitigation activities](#), and areas to carry out these activities, including those with greatest potential to restore and maintain environmental functions

Additionally, the TPO reached out to the Division of Historical Resources at the Florida Department of State through a direct call to discuss and receive feedback on the draft LRTP.

## Consultative Comments

The responses from this outreach were considered in the development of this plan. The following is a summary of the comments from responding agencies.

### Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission (FWC) provided no specific comments but suggested that prioritization of projects should consider avoidance and minimization of potential impacts to listed species and their habitats and consider opportunities for potential mitigation and enhancement during the project planning process.

FWC offered to provide technical assistance to assist with future project planning in accordance with FWC's authorities under Chapter 379, F.S. They also offered for the TPO to reach out to FWC staff for assistance during the Efficient Transportation Decision Making (ETDM) and permitting processes as projects move toward implementation.

### Florida Forest Service

The Florida Forest Service (FFS) commented that some projects within Connect 2045 may have potential impacts to Tiger Bay State Forest (TBSF) and Lake George State Forest (LGSF), along with additional conservation lands (including Heart Island Conservation Area, Port Orange City Forest, and Longleaf Pine Preserve). FFS provided the following specific comments for these conservation areas.

Locations of potential impacts for state forest lands:

- Along northeast border of LGSF - widening of US 17 to four lanes
- Along northern boundaries of LGSF and TBSF - widening of SR 40 to four lanes

# Environmental Mitigation/Consultation Summary

- Along southern border of TBSF - widening of I-4 to eight lanes
- Along SE corner of TBSF – widening of LPGA Blvd. to four lanes

These impacts include:

- Some habitat loss and connectivity to other conservation lands associated with road widening
- Increased traffic-related mortality (particularly reptiles, amphibians, mammals, and lepidoptera) and long-term disturbance to wildlife
- Increased potential for colonization of non-native plant species due to soil disturbance
- Potential impacts to water quality and wetlands. Multiple Priority Wetlands are located on and in close proximity to TBSF

Potential impacts to sensitive species documented on TBSF include:

- Bald eagle, Gopher tortoise, Florida cernotinan caddisfly, Tavares white miller caddisfly, Porter's long-horn caddisfly, Large-flowered rosemary, Celestial lily, Rugel's pawpaw
- Additional FNAI-tracked species documented on TBSF: Northern bobwhite, Swallow-tailed kite, Limpkin, Snowy egret, Little blue heron, Tricolored heron, Hairy woodpecker, and Bachman's sparrow
- TBSF is located adjacent to a Strategic Habitat Conservation Area for bald eagle (*Haliaeetus leucocephalus*), Florida scrub-jay (*Aphelocoma coerulescens*), and Eastern indigo snake (*Drymarchon corais couperi*). A Florida scrub-jay was observed on the forest in 2016, likely from the adjacent SHCA

Potential impacts to sensitive species documented on LGSF:

- Bald eagle, Florida sandhill crane, Florida black bear, Sherman's fox squirrel, Gopher tortoise, Celestial lily, Hooded pitcherplant
- Additional FNAI-tracked species documented on LGSF: Northern bobwhite, Swallow-tailed kite, Limpkin, Snowy egret, Little blue heron, and Tricolored heron

LGSF's position in the surrounding landscape contributes to water resource protection of the Lake George watershed and aquifer recharge. LGSF's proximity to a number of publicly owned lands also contributes to wildlife corridors for several listed species, including Florida black bear.

The St. John's River and its associated floodplain communities that exist on the west and south boundaries of LGSF (including Bluffton Mound) provide significant ecological, recreational, and archaeological value.

Smoke mitigation during prescribed fires would become more problematic for the agency, given the increased volume of traffic present.



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Recreation impacts include increased noise at the following locations:

- Rima Ridge Rd. equestrian trailhead – located approx. 600 feet from SR 40
- Rattlesnake Pond hiking trail and fishing area – located approx. 400 feet from I-4 (a sound barrier may be needed if one is not already present)

## Florida Division of Historical Resources

The Florida Division of Historical Resources (DHR) recommended including a statement of need for cultural resources coordination early in the planning process for projects, which is hereby included. DHR also recommend including a brief description of Section 106 of the National Historic Preservation Act of 1966 (for federal funds and permitting) and Chapter 267, F.S., (for state funds and permitting) to provide background on the consultation process. This information is documented by reference in this summary.

DHR also noted that a review of the potential to affect cultural resources will need to be done for each project individually, including coordination with the State Historic Preservation Office. Cultural resource surveys will be necessary for a number of these projects so it will be helpful to work with a Cultural Resources Manager (CRM) as these projects advance into implementation.

# Environmental Mitigation/Consultation Summary

## Efficient Transportation Decision Making Process (ETDM)

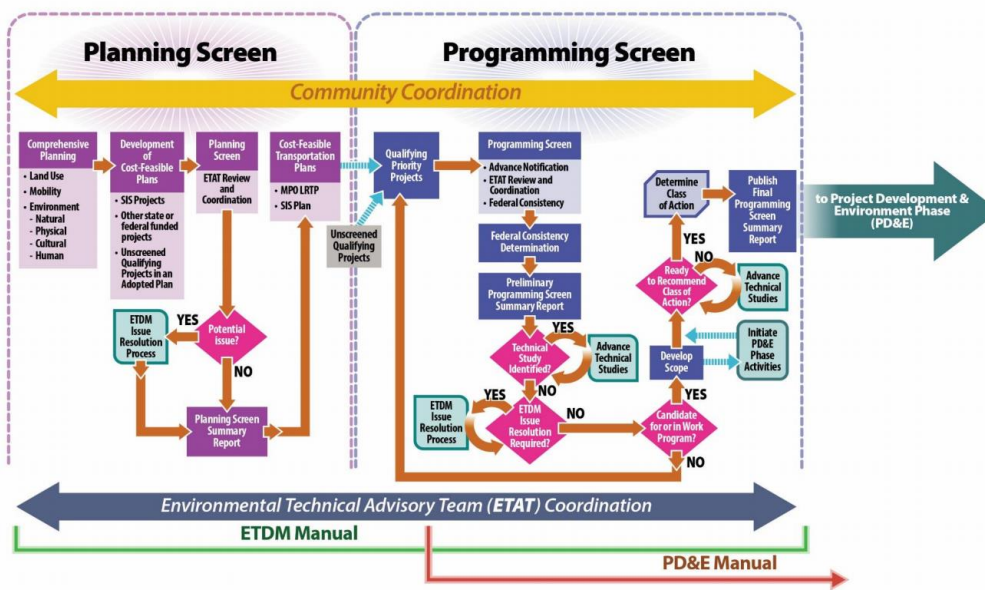
In addition to the process outlined in Florida Statutes and implemented by the TPO and its partner agencies, the Efficient Transportation Decision Making (ETDM) process (**Figure 1**) is used for seeking input on individual qualifying long range transportation projects allowing for more specific commentary. This provides assurance that mitigation opportunities are identified, considered and available as the plan is developed and projects are advanced. The ETDM process allows resource and regulatory agencies, as well as the public, an opportunity to review and comment on potential impacts of proposed transportation projects. The intent is to provide a method for early consideration of ecosystem, land use, social, and cultural issues, prior to a project moving into the Work Program and into the Project Development and Environmental (PD&E) study phase.

To facilitate the ETDM process and the required coordination between agencies, each FDOT District has an Environmental Technical Advisory Team (ETAT), which is comprised of representatives from MPOs/TPOs, state and federal agencies, and participating Native American Tribes. The public and members of the ETAT have the opportunity to provide input regarding the potential effects of a project on natural, physical, cultural, and community resources throughout the Planning phase of project delivery.

Coordination with the ETAT members is facilitated through the Environmental Screening Tool (EST), an Internet-accessible interactive database and mapping application that combines resource and project data from multiple sources to provides efficient Geographic Information System (GIS) analyses. The EST also provides the ability for ETAT members to provide input on proposed projects.

The ETDM process is composed of the Planning and Programming project-screenings. The Planning Screen assists FDOT and MPOs/TPOs in assessing projects for inclusion or advancement in LRTPs and further into the Cost Feasible Plan. The Programming Screen includes the review of qualifying projects when being considered for funding in the FDOT Five Year Work Program or MPO Transportation Improvement Program (TIP). If projects are already funded, they are reviewed during the Programming Screen before advancing to the PD&E phase. **Table 2** depicts the status of ETDM screening for the nine new qualifying projects in Connect 2045.

**Figure 1: ETDM Process Diagram**



Source: Florida Department of Transportation

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**Table 2: ETDM Screening Status for Connect 2045 Projects**

Facility	Improvement	ETDM Status
<b>Tomoka River Bridge (LPGA Boulevard)</b> from West of Champions Drive to East of Tomoka Farms Road	Bridge Replacement	Complete Project ID14332
<b>I-95/SR 44 Interchange</b>	Interchange Improvement	Awaiting Screening
<b>SR 44</b> from Grand Ave to SR 15A	Widen to 4 lanes	Awaiting Screening
<b>SR 44</b> from I-4 to Prevatt Avenue	Widen to 6 lanes	Awaiting Screening
<b>US-1</b> from Nova Road (N) to I-95	Widen to 6 lanes	Awaiting Screening
<b>SR 415 (Tomoka Farms Road)</b> from Acorn Lake Road to Lake Ashby Road	Widen to 4 lanes	Awaiting Screening
<b>SR 415 (Tomoka Farms Road)</b> from Lake Ashby Road to SR 44	Widen to 4 lanes	Awaiting Screening
<b>SR 44</b> from SR 415 to Glencoe Road	Widen to 6 lanes	Awaiting Screening
<b>SR 44</b> from Lake County line to Grand Avenue	Widen to 4 lanes	Awaiting Screening

## Environmental Assets within the TPO Planning Area

In addition to the outreach and coordination with regulatory agencies previously discussed, an analysis of applicable data sources and conservation plans was conducted to broaden the scope of environmental consultation.

### Mitigation Banking

According to the St. Johns River Water Management District (SJRWMD), mitigation banking is a process in which large areas of existing wetlands and/or uplands are restored and/or enhanced to mitigate, or offset, the loss of other wetlands or surface waters that are destroyed to make room for new homes, businesses, roads, utilities or other activities. In rare instances, wetlands may also be created as part of a mitigation bank.

Under Florida law, a mitigation bank is defined as a project undertaken to provide “credits” to offset adverse impacts to wetlands or other surface waters that occur as part of a permitted project.

In SJRWMD’s jurisdiction, mitigation banks are intended to be used to minimize the uncertainty associated with traditional mitigation practices and to provide greater assurance of mitigation success. Consolidating multiple mitigation projects into larger contiguous areas should provide greater assurance that the mitigation will yield long-term, sustainable, regional ecological benefits. Rather than altering the landscape to create wetlands, mitigation banks should emphasize restoration and enhancement of degraded ecosystems and the preservation of uplands and wetlands as intact ecosystems. This is best accomplished through restoration of ecological

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communities that were historically present. Mitigation banks are encouraged in or adjacent to areas of national, state, or regional ecological significance, provided that the area in which the mitigation bank is proposed is determined appropriate and the bank meets all applicable permitting criteria.

The mitigation banks within the TPO's planning area as identified in GIS data obtained from FDEP are listed in **Table 3** below and depicted in **Attachment A**. This data includes Mitigation Bank Service Areas identified in Mitigation Bank Permits issued under Ch. 373.4136, Florida Statutes by FDEP or a Water Management District.

**Table 3: Mitigation Banks within the River to Sea TPO Planning Area**

Bank Name	Description	Total Acres	Potential Credits
Barberville	The site is adjacent to the Lake Woodruff National Wildlife Refuge and the Barberville Conservation Area. Habitats present on the site include cypress swamps, mixed wetland hardwoods, hydric pine flatwoods, freshwater marshes and associated uplands, including long leaf pine, wiregrass prairies, and pastures.	358	84
Colbert Cameron	The Colbert-Cameron Mitigation Bank covers a total of 2604 acres, and is located north of State Road 46, extending from the southeast portion of Lake Harney eastward to the Brevard County line, in southern Volusia County. Habitats present on the site include freshwater marshes, cypress swamps, cypress/pine/palm wetlands, mixed wetland hardwoods, wet prairie, inland salt marsh, and upland forests.	2,604	716
Farmton	The Farmton Mitigation Bank is located at three sites (North, South, and West) in Volusia County. Habitats present on the three sites include cypress swamp, freshwater marsh, scrub/shrub wetlands, mixed forested wetlands, cypress/pine swamp, wetland coniferous forest, wetland hardwood forest, and uplands primarily comprised of pine flatwoods and slash pine plantation, and to a lesser degree, temperate upland hardwood hammock.	22,805	4,345

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Bank Name	Description	Total Acres	Potential Credits
Graham Swamp	This site is located in Pellicer Creek/Matanzas River watershed, north of the Graham Swamp Conservation Area owned by SJRWMD. The property had been dewatered through the construction of drainage ditches that flow to the Intracoastal waterway. The mitigation plan is to reduce drainage and raise groundwater levels through the construction of a series of weirs, to re-establish a freshwater forested wetland. The dominant canopy species consist of cypress, green ash, and red maple. All credits have been released.	66	33
Lake Monroe	Habitats present on the site include wet prairies, freshwater marshes, mixed hardwood and cypress dominated swamps, rangelands, and improved pastures.	997	200
Lake Swamp	The bank property includes a large portion of Lake Swamp, which flows south-southeast into Groover Branch which flows into the Little Tomoka River (OFW) that discharges to the northeast into the Tomoka basin, and ultimately flows into the Halifax River. Southwest of the bank site is Hull Cypress Swamp, a very large bottomland swamp. Nearby public conservation lands include the Relay Tract to the west; Tiger Bay State Forest to the south; and Bulow Creek and Tomoka State Parks to the east.	1,891	189
NeoVerde 21	The NeoVerde Basin 21 Mitigation Bank (NVMB) is located east of Interstate 95 and south of Maytown Road, in southern Volusia County. The project is 1301.19-bank acres and 1263.10-credit acres, located within the Northern Indian River Lagoon Hydrologic Basin (Basin 21). The site is in the western headwaters and watershed of Turnbull Hammock, which drains into the Indian River Lagoon via Turnbull Creek.	1,301	211
Port Orange	The uplands on the site consist mostly of various pine-dominated communities. The wetlands consist of cypress ponds, cypress strands, bay swamps, and marshes, which form part of the headwaters to the Tomoka River and Spruce Creek.	5,719	1,176
Tiger Bay	The applicant proposes to establish a wetland mitigation bank in the Tomoka River Hydrologic Basin (Halifax Basin, #17) by preserving, improving, and managing uplands and wetlands.	2,499	355
Webster Creek	This permit includes the implementation and perpetual management of Webster Creek Mitigation Bank, a 116.64-acre project to be maintained and operated as per plans received by the District on November 14, 2018.	117	21

# Environmental Mitigation/Consultation Summary

## Wetlands

Based on the U.S. Fish & Wildlife National Wetlands Inventory, there are identified wetlands adjacent to several of the existing corridors as shown in **Attachment B**. The TPO has and will continue to coordinate with FDOT, FDEP, FWC, and SJRWMD to mitigate transportation impacts on the environment including wetlands. As part of the Technical Criteria Scoring process described below, wetlands GIS data provided by the Florida Natural Areas Inventory (FNAI) through the Critical Lands and Waters Identification Project (CLIP) was utilized in assessing potential impacts by projects to the highest priority wetlands which, according to the *CLIP Version 4.0 User Tutorial*, are those wetlands within large intact natural landscapes (although the wetlands themselves may be small or large). For further information on CLIP, see Wildlife and Habitat section below.

## Flood Zones

Floods are one of the most common hazards in the United States. The TPO has used flood zone mapping to display high risk areas in relation to Cost Feasible Projects and Unfunded Needs (**Attachment C**). It is important to specifically understand the impacts to transportation infrastructure such as major roads and bridges and evacuation routes.

The TPO will continue to coordinate with local municipalities, Volusia County, Flagler County, and other local and regional agencies to mitigate potential impacts to the transportation system from sea level rise and climate change. The Resiliency Scenario described in Chapter 5 included a specific evaluation of potentially vulnerable roadway projects by performing an analysis comparing the inundation area(s) of United States Army Corps of Engineers sea level rise scenarios with the projects identified through the Connect 2045 Needs Assessment. This analysis builds upon several studies that the TPO conducted in order to address this important issue including the [Sea Level Rise Vulnerability Assessment - 2016](#), [Resilient Volusia – 2017](#), and [Resilient Flagler - 2018](#). Following from the scenario analysis, Connect 2045 includes an implementation action to develop a strategy for future incorporation of resiliency data into long range planning that advances the Board's resiliency policy direction. The TPO will continue to integrate consideration of these issues into planning to more effectively shape future plans.

## Wildlife and Habitat

Potential wildlife and habitat impacts must be considered as part of environmental mitigation. The importance of not only preserving land but connecting wildlife corridors to create an integrated ecosystem is paramount in considering transportation impacts. There are significant public and private conservation areas within the planning area as illustrated in the map included in **Attachment D**.

### **Conservation Lands and Waters Identification Project (CLIP)**

Similar to the wetlands analysis described above, GIS data provided by the Florida Natural Areas Inventory (FNAI) through the [Critical Lands and Waters Identification Project \(CLIP\)](#) was utilized in assessing potential impacts by projects to high priority biodiversity resources. According to the CLIP Version 4.0 User Tutorial, the Biodiversity Resource Priorities layer utilized in this analysis is a combination of the four core data layers in the Biodiversity Resource Category: Strategic Habitat Conservation Areas, Vertebrate Potential Habitat Richness, Rare Species Habitat Conservation Priorities, and Priority Natural Communities.

The Florida Natural Areas Inventory, the University of Florida Center for Landscape Conservation Planning, and the Florida Fish and Wildlife Conservation Commission developed the CLIP database to assess and incorporate available GIS data for identifying statewide areas of interest for protecting biodiversity, water resources, ecosystem services, and other natural resource values. CLIP provides a broad synthesis of natural resource GIS data

# Environmental Mitigation/Consultation Summary

to support comprehensive identification of statewide conservation opportunities, and is suitable as a resource planning guide for state, regional, and local entities interested in effective natural resource protection and management. CLIP data was used in the environmental criteria screening because it is an appropriate dataset to inform long range transportation planning.

## Florida State Wildlife Action Plan

As described in the [Florida State Wildlife Action Plan \(FSWAP\)](#) developed by FWC, transportation corridors and the vehicles that use them can cause a range of potential impacts including habitat fragmentation, altered surface hydrology and fire regimes, the spread of invasive plants, and increased wildlife mortality. Roads can cause fragmentation of wetlands, streams and habits. This can lead to isolated groups of what FWC defines as the Species of Greatest Conservation Need (SGCN), fish and wildlife species that are imperiled or at risk of becoming imperiled in the future. The FSWAP includes certain actions related to transportation corridors. The following actions are included here as documentation of appropriate considerations in long range transportation planning and future project implementation:

Action T4.2: Work with FDOT and utility companies to reduce right-of-way footprints by reducing width, especially on conservation lands, and co-locating linear facilities when possible.

Action F4.1: Assess and correct or replace road crossings that fragment aquatic habitat, impact wetland hydrology, or impede the movement of freshwater species.

Action F4.2: Stabilize high priority unpaved road crossings that cause excess sedimentation and turbidity in streams.

Action S4.1: Reduce the number of roadway collisions by providing alternate crossing routes in problematic locations (e.g., wildlife overpasses or underpasses), using fencing or strategically planting trees and shrubs to shunt wildlife towards safe crossing locations, and by using technology to improve signage for motorists.

## Archaeological and Historical Resources

It is important that potential impacts to archaeological and historical resources are considered as part of transportation planning and project development. Through the Connect 2045 planning process, DHR did not provide specific input regarding projects but emphasized the need for cultural resources coordination early in the planning process for individual projects. DHR also noted the importance of Section 106 of the National Historic Preservation Act (NHPA) and Chapter 267, F.S., the Florida Historical Resources Act (FHRA) in project reviews. As broadly defined in [Part 2, Chapter 8, Archaeological and Historical Resources, FDOT PD&E Manual](#):

**Section 106 (NHPA)** requires federal agencies to consider the effects of all federal undertakings and programs on historic properties in the planning and delivery of the proposed action or program. As a part of this effort, federal agencies must provide the ACHP (Advisory Council on Historic Preservation) a reasonable opportunity to comment on the undertakings.

**Chapter 267, F.S. (FHRA)** is the principal state law regarding the protection of archaeological and historical resources. It contains requirements similar to those of the federal NHPA. FHRA declares the state policy that the historic properties in this state represent “an important legacy to be valued and conserved for present and future generations.” It requires that each state agency consider the effects of an undertaking on any historic property that is eligible for inclusion in the NRHP and to consult with FDHR to ensure that effects on historic properties are considered prior to the expenditure of state funds on the project.

# Environmental Mitigation/Consultation Summary

## Environmental Considerations in the LRTP and Technical Criteria Scoring

As also discussed in Chapter 2, Chapter 5, and in Technical Appendix I, the River to Sea TPO has integrated environmental considerations into the goals and objectives of Connect 2045, as well as the Technical Criteria Scoring.

Goal 5 of Connect 2045 is to *“Promote livability by providing, protecting and enhancing social, cultural, physical and natural environmental places”* with multiple objectives explicitly addressing environmental, historic, and cultural assets.

Objective 5.4 - Locate and design transportation facilities to avoid or minimize the impact to natural resources including environmentally sensitive areas and critical lands, waters, and habitats.

Objective 5.5 - Develop and support a multimodal transportation system that maintains or reduces vehicle greenhouse gas emissions and reduces or mitigates stormwater impacts.

Objective 5.6 - Locate and design transportation facilities to avoid or minimize impacts to historic and cultural assets.

As part of the evaluation and prioritization process, projects were assigned an environmental impact technical criteria score through GIS analyses and the evaluation of projects based on their location in relation to identified conservation lands, wetlands, biodiversity resources, and other cultural/historic sites.

**Table 4** depicts the Environmental Priority Evaluation Category portion of the project prioritization matrix. Please see Technical Appendix I for complete documentation related to the Technical Criteria Scoring process.

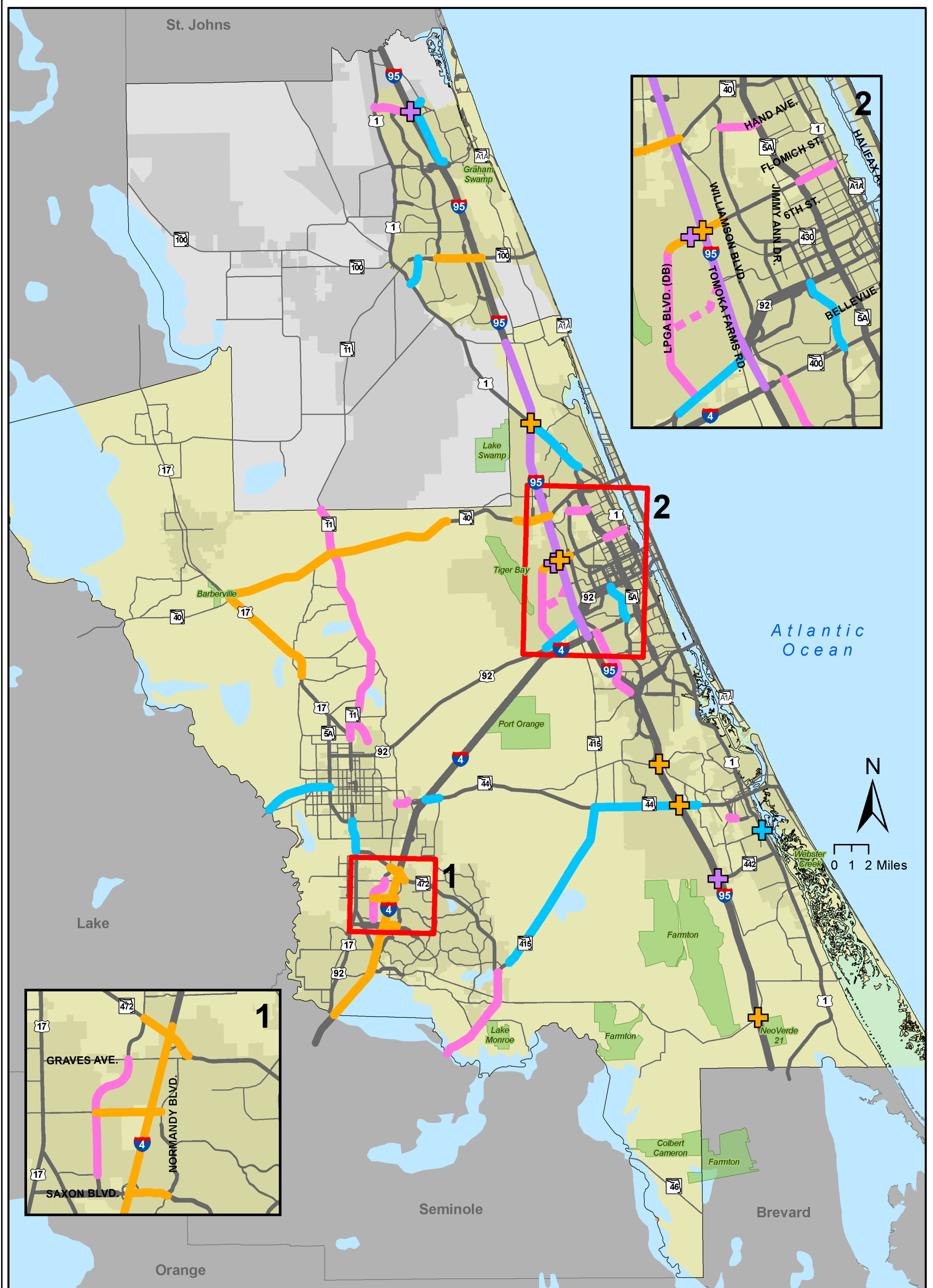
**Table 4: Environmental Priority Evaluation Criterion**

Priority Evaluation Category	Connect 2045 Goals Implemented	Criteria Description	Source/Methodology for Evaluation	Criteria Scoring	Points Available
Environment	5	Corridor Environmental Impact	Identified projects were evaluated in relation to various datasets identifying public conservation lands, Volusia ECHO environmental/cultural/historic sites, and Critical Lands and Waters Identification Project (CLIP) biodiversity resource and wetland priorities. If the project intersected or was adjacent to an identified area or site, staff analysis was performed to determine potential level of impacts based on the project's scope. The project received points accordingly.	No Anticipated Impacts	10
				Limited Impacts	5
				Potential Environmental Impacts	-3



# Environmental Mitigation/Consultation Summary

## Attachment A Mitigation Banks Map



# Mitigation Banks

FDEP  
Mitigation Bank



SIS Projects  
Cost Feasible Projects



Unfunded Needs Projects



Other Arterials Projects  
Cost Feasible Projects

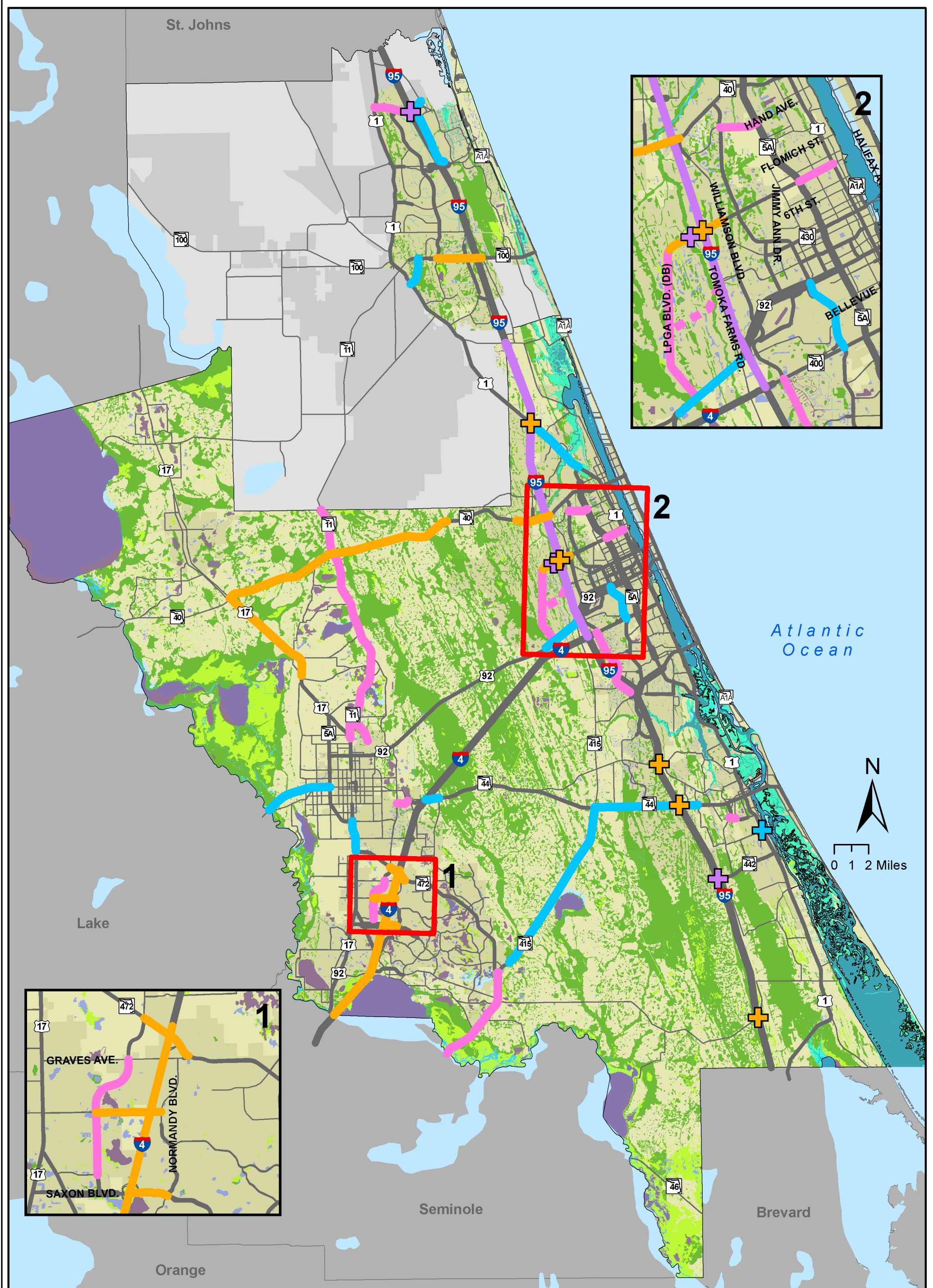


Unfunded Needs Projects



# Environmental Mitigation/Consultation Summary

## Attachment B Wetlands Map



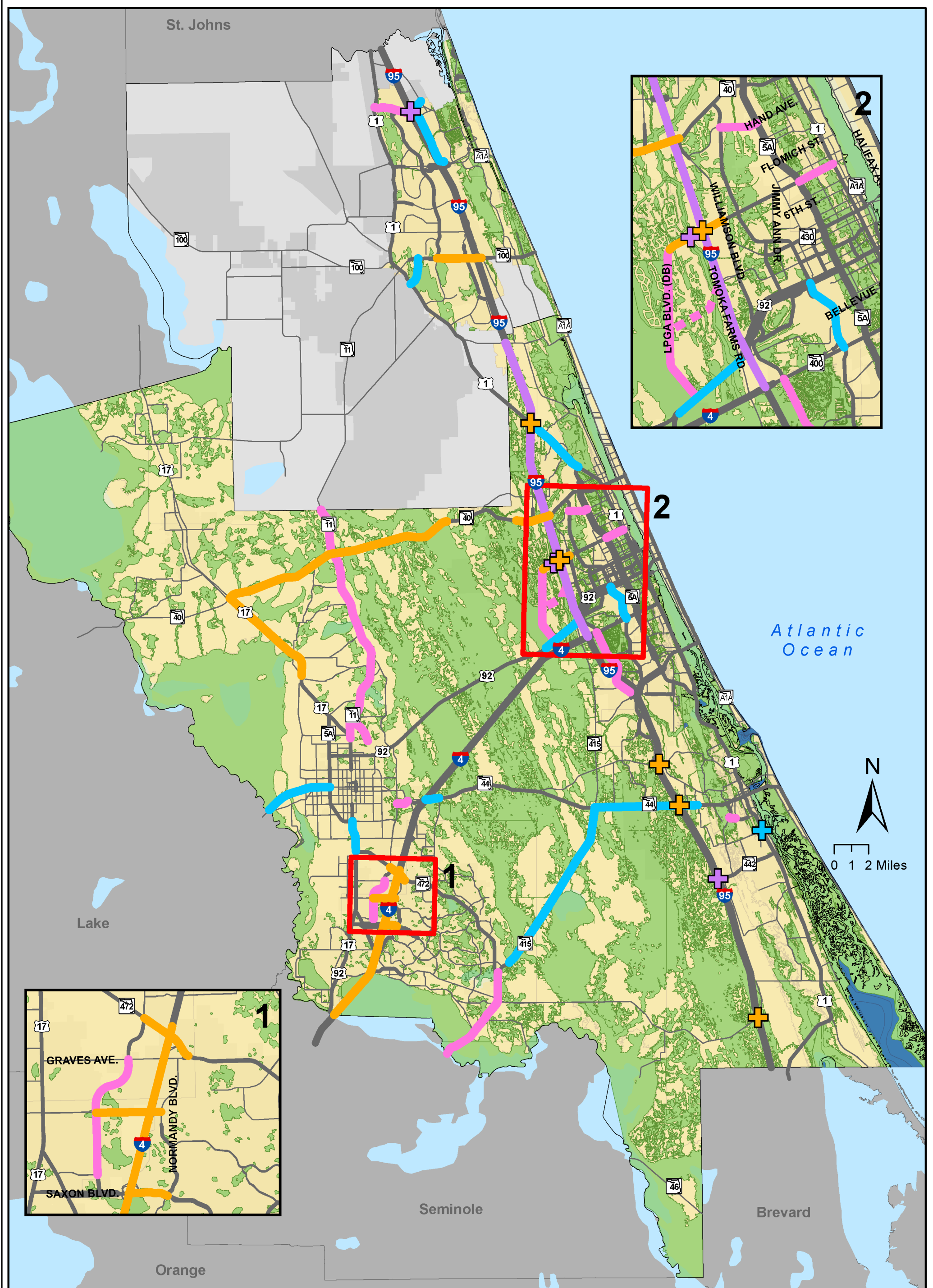
Wetlands (U.S. Fish & Wildlife Service National Wetlands Inventory)

- |                                   |                 |                                |                                 |
|-----------------------------------|-----------------|--------------------------------|---------------------------------|
| Estuarine and Marine Deepwater    | Freshwater Pond | <b>SIS Projects</b>            | <b>Other Arterials Projects</b> |
| Estuarine and Marine Wetland      | Lake            | <b>Cost Feasible Projects</b>  | <b>Cost Feasible Projects</b>   |
| Freshwater Emergent Wetland       | Riverine        | <b>Unfunded Needs Projects</b> | <b>Unfunded Needs Projects</b>  |
| Freshwater Forested/Shrub Wetland |                 | <b>Unfunded Needs Projects</b> | <b>Unfunded Needs Projects</b>  |

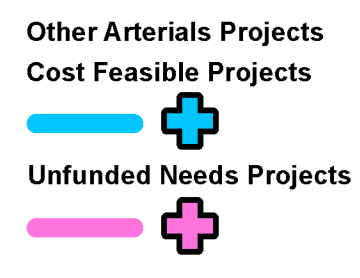
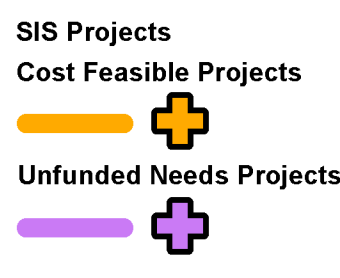
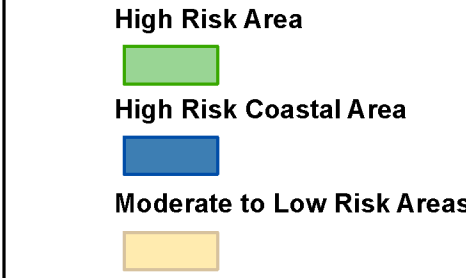


# Environmental Mitigation/Consultation Summary

## Attachment C Flood Zones Map



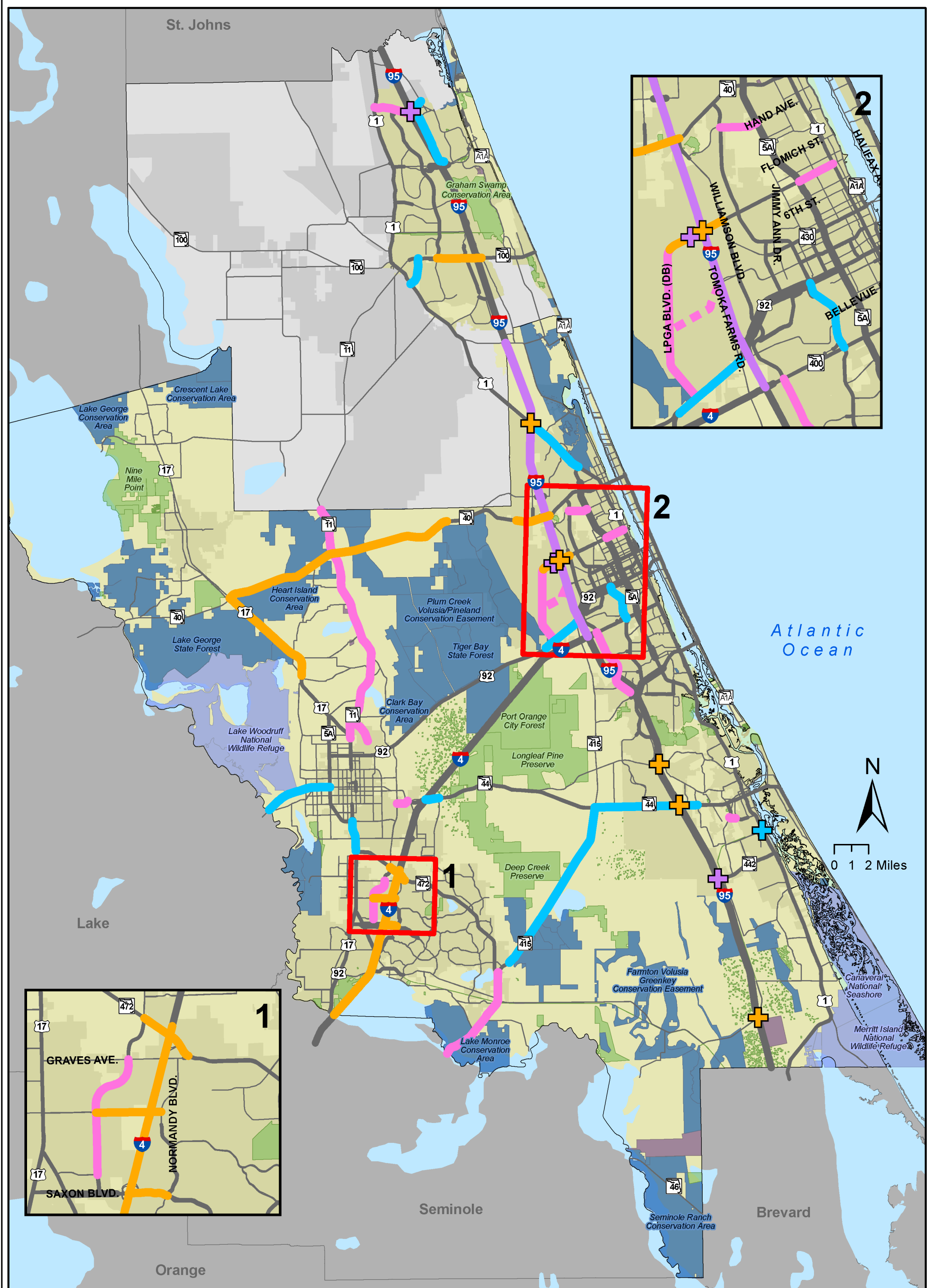
FEMA Flood Zones



# Environmental Mitigation/Consultation Summary

## Attachment D Conservation Lands Map





Conservation Lands (Florida Natural Areas Inventory)

- |   |   |  |
|---|---|--|
|  Federal Conservation Land | <b>SIS Projects</b>   | <b>Other Arterials Projects</b>  |
|  State Conservation Land   | <b>Cost Feasible Projects</b>   | <b>Cost Feasible Projects</b>  |
|  Local Conservation Land   |  |  |
|  Private Conservation Land | <b>Unfunded Needs Projects</b>  | <b>Unfunded Needs Projects</b>   |
|   |  |  |