2050 PATH FORWARD
Leading the Way for Transportation Innovation

September 2024

Prepared by: AtkinsRéalis

Technical Memorandum: Environmental Mitigation

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Acronyms

CE	Categorical Exclusions
COA	Class of Action
DEP	Department of Environmental Protection
EA	Environmental Assessment
EIS	Environmental Impact Assessment
EPA	Environmental Protection Agency
EST	Environmental Screening Tool
ETAT	Environmental Technical Advisory Team
ETDM	Efficient Transportation Decision Making
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FS	Florida Statute
GIS	Geographic Information System
LRTP	Long Range Transportation Plan
PD&E	Project Development & Environmental
ROW	Right-of-Way
SHCA	Strategic Habitat Conservation Areas
SJRWMD	St. Johns River Water Management District
SWIM	Surface Water Improvement and Management
TIP	Transportation Improvement Plan
TPO	Transportation Planning Organization
WMD	Water Management District

Introduction

Transportation projects can have substantial effects on various environmental aspects, including wildlife and their habitats, wetlands, and groundwater resources. When these impacts cannot be entirely avoided, mitigation or conservation efforts become necessary. Environmental mitigation involves addressing the impacts caused by transportation projects or programs. This process is most effectively carried out through enhancement, restoration, creation, and preservation projects that help mitigate unavoidable environmental impacts.

The North Florida Transportation Planning Organization (TPO) is dedicated to minimizing and mitigating the negative impacts of transportation projects on both the natural and built environments to preserve and enhance the quality of life for the region. In Florida, environmental mitigation for transportation projects is carried out through a collaborative partnership between the North Florida TPO, the Florida Department of Transportation (FDOT), and state and federal environmental resource and regulatory agencies, such as the Water Management Districts (WMDs) and the Florida Department of Environmental Protection (DEP). These efforts are guided by Section 373 of the Florida Statutes (F.S.), which outlines the requirements for mitigation planning, permitting, mitigation banking, and habitat impact mitigation.

Throughout the Long Range Transportation Plan (LRTP) update process, the North Florida TPO consulted with environmental agencies and professionals, informing them about meetings and opportunities to provide input. This collaboration was facilitated through the LRTP Steering Committee, which includes the following agencies:

- US Environmental Protection Agency (EPA)
- Florida Fish and Wildlife Conservation Commission
- US Army Corps of Engineers
- Florida Department of Environmental Protection
- The Northeast Florida Water Management District
- National Marine Fisheries Service
- St. Johns River Water Management District
- Florida Forest Service (Florida Department of Agriculture and Consumer Services)
- Florida Department of State
- Local government environmental departments

In addressing mitigation, the primary approach is to avoid environmental impacts where possible, minimize them when avoidance is not feasible, and mitigate unavoidable impacts. The hierarchy represents a generalized approach to avoid, minimize, and/or mitigate impacts as follows.

1. Avoidance: Especially critical during long range planning, avoidance seeks to minimize the need for mitigation by considering site location or limiting the area of impact for a project.

2. Minimization: Minimization seeks to use technology or methods to reduce the intensity of impact.

3. Restoration: Restoration should be undertaken if environmental impacts are unavoidable. Restoration can return the site environment to a pre-project state or facilitate natural processes to return habitats to their natural state.

4. Offsets: As a last resort, project impacts may be offset by actions to restore similar lands in other locations or at the site. Offsets should be considered at the outset of the project to maximize efficacy.

Additionally, thoughtful planning is required to consider regional land use and natural features to establish an interconnected transportation network.

The North Florida TPO region is home to numerous ecological assets and waterbodies. Recognizing these assets and expanding upon federal planning factors, the TPO articulated its own environment and conservation goals in the LRTP. Environment and conservation are important considerations when managing expansion and redevelopment activities as the region continues to develop through 2050 and beyond.

Impacts on water resources and habitat need to be considered as the region develops. Roadway capacity improvement projects (roadway widening, new construction, etc.) and new land development increase negative environmental impacts such as net losses of floodplain storage, alteration to existing hydrological patterns, and increased concentrations of pollutants that run off into rivers, streams, and the Atlantic Ocean.

The following aspects were considered and will continue to be important as transportation projects are developed:

Wildlife and Habitat: The Northeast Florida region is recognized as a “biological hotspot” due to the presence of numerous rare species found only in small areas of the panhandle. The Florida Fish and Wildlife Conservation Commission has identified Strategic Habitat Conservation Areas

(SHCAs) in Florida based on the habitat requirements of listed species for their survival. The highest-priority SHCAs are primarily located within public lands, making them crucial considerations in project planning.

Wetlands and Floodplains: Wetlands and floodplains are protected resources. Transportation projects should be designed to avoid these areas wherever possible, and mitigation is required when impacts are unavoidable. As such, wetlands and floodplains significantly influence the location of new transportation corridors, the design of improvements, and the construction costs due to environmental mitigation and design requirements.

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 WMDs and the DEP. As noted, transportation projects can significantly impact aspects of the environment including wildlife and their habitats, air quality, wetlands, and groundwater resources. Federal regulations require the LRTP to identify environmental assets and concerns and indicate potential locations for mitigation strategies to address the environmental impacts of transportation projects. Table 1 provides potential mitigation strategies by environment/resource type.

Table 1 - Mitigation Strategies

Resource/Impacts	Potential Mitigation Strategy
Wetlands and Water Resources	• Restore degraded wetlands • Create new wetland habitats • Enhance or preserve existing wetlands • Improve stormwater management • Purchase credits from a mitigation bank
Forested and other natural areas	• Use selective cutting and clearing • Replace or restore forested areas • Preserve existing vegetation
Habitats	• Construct underpasses, such as culverts • Other design measures to minimize the potential fragmenting of animal habitats
Streams	• Stream restoration • Vegetative buffer zones • Strict erosion and sedimentation control measures
Threatened or Endangered Species	• Preservation • Enhancement or restoration of degraded habitat • Creation of new habitats • Establish buff areas around existing habitat

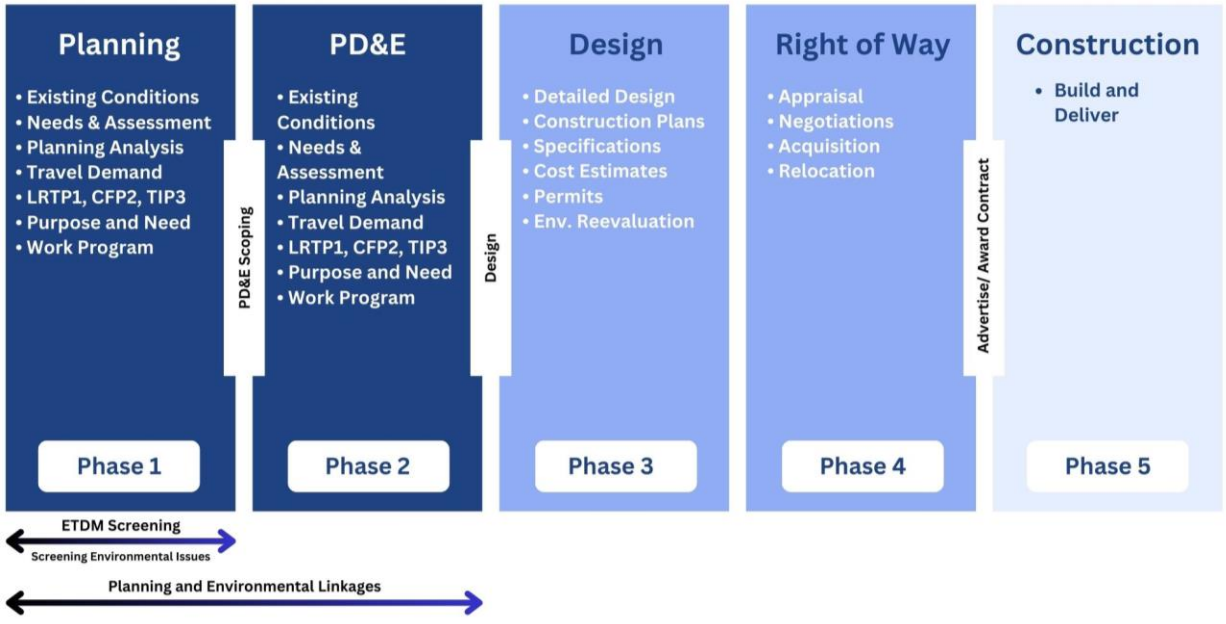
Planning effective environmental mitigation strategies throughout the lifespan of a long range transportation plan can be challenging. Common obstacles include insufficient funding for mitigation projects and programs, limited availability of wetland mitigation bank credits, improper assessment of cumulative project impacts, and permitting issues with county, local, state, and federal regulatory agencies. These challenges can be mitigated when TPOs actively engage their stakeholders—such as regulatory agencies, the public, and other interested parties—through the public involvement process. This process offers TPOs an effective way to gather input and address concerns regarding potential mitigation strategies and individual projects.

In addition to the process outlined in the Florida Statutes and implemented by the North Florida TPO and its partner agencies, the Efficient Transportation Decision Making (ETDM) process 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. Through these approaches, the North Florida TPO and its partners ensure that mitigation will occur to offset the adverse effects of proposed transportation projects. ETDM is incorporated into the Planning Phase (Phase 1) of the FDOT project development process.

FDOT Project Development Process

The FDOT project development process begins with planning studies and ends with a constructed project. This comprehensive process consists of five phases—Planning, Project Development and Environment (PD&E) Study, Design, Right of Way Acquisition, and Construction.

Figure 1 - FDOT Project Development Process Phasing



Planning

The Planning Phase identifies the project's purpose and need. A project begins by identifying transportation needs or deficiencies through a planning process that prioritizes short and long-range transportation improvements. The planning phase includes:

- Efficient Transportation Decision Making (ETDM)
- Corridor Studies

Project Development and Environment Study

The Project Development and Environment (PD&E) study phase is an important step in the transportation project development process. It is the bridge between the planning and design phases and helps guide decision-making by evaluating the potential impacts that a transportation project may have. During the PD&E phase, FDOT collects data, develops and evaluates alternatives, conducts studies, prepares reports and gathers input from the general public, applicable agencies, and interested parties. The goal of the PD&E process is to develop the best solution to the transportation needs that offer the greatest benefit with the least impact.

Design

The Design phase is when the plans and calculations are developed to prepare a set of documents that are used to build a project. Permits are obtained during this phase as well as determination and plan for any mitigation that compensates for project impacts. This phase ensures that the roadway project is designed to meet safety, environmental, and regulatory requirements while staying within budget and schedule constraints.

Right of Way Acquisition

The Right of Way (ROW) acquisition process is a systematic approach used to acquire the land needed for transportation projects, ensuring compliance with federal and state laws while minimizing the impact on property owners. The Right of Way acquisition process is designed to be fair, transparent, and respectful of property owners' rights while ensuring that transportation projects proceed in a timely and cost-effective manner.

Construction

The roadway construction phase of a project involves transforming the engineered design plans into a completed roadway. This phase ensures that the roadway is constructed safely, efficiently, and in accordance with design plans, ready for use by the public.

Efficient Transportation Decision Making (ETDM)

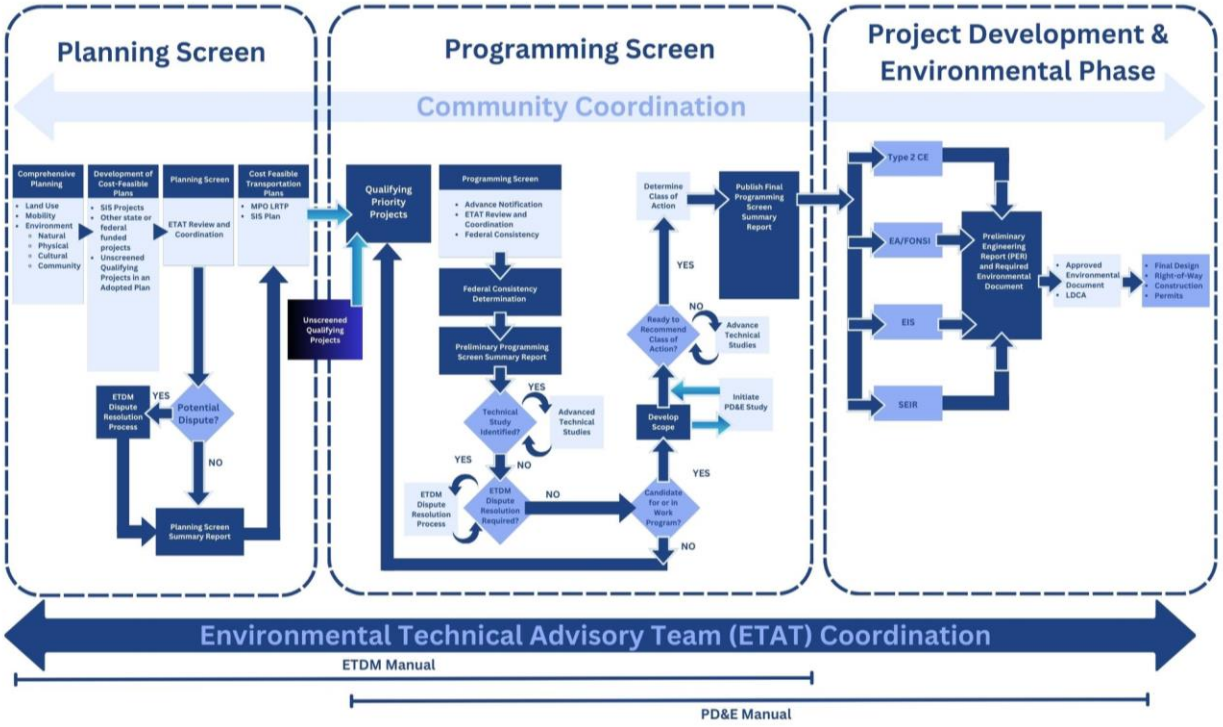
ETDM is a process developed and maintained by FDOT that evaluates projects based on environmental impacts. The ETDM process was implemented by the State of Florida as a way to screen transportation projects for possible environmental effects in the Planning phase of the project development process. It was designed to improve the efficiency of transportation decision-making by incorporating environmental considerations in the short-term, and PD&E phases. The ETDM process acts as an interagency review process facilitating ongoing communication between stakeholders regarding environmental considerations. The ETDM process is consistent with the objective of Moving Ahead for Progress in the 21st Century Act and supports the FDOT's environmental policy.

The ETDM process aims to:

- Identify potential issues early in project scope development,
- Ensure timely decision-making that incorporates environmental quality,
- Encourage full and early participation from the public and Environmental Technical Advisory Team (ETAT) members,
- Connect planning with the Project Development and Environment (PD&E) phases, and
- Include effective dispute resolution mechanisms in the planning phase.

The ETDM process is comprised of two project-screening events: Planning and Programming (See Figure 2). The Planning Screen begins during the development of the Cost Feasible Plan for the LRTP, while the Programming Screen is initiated when projects move from the 20-year LRTP into FDOT's 5-year Work Program and the TPO's Transportation Improvement Program (TIP). During the Planning Screen, potential LRTP projects are identified through comments received from the ETAT and the public. During the Programming Screen, eligible projects are evaluated for funding in the FDOT Five Year Work Program or the Transportation Improvement Program (TIP). If projects are already funded, they are reviewed in the Programming Screen before continuing to the PD&E phase.

Figure 2 - Environmental Screening Tool Process and Data Flow Diagram



Candidate Projects

Candidate projects to be screened through the ETDM process are based on project type, transportation system, potential funding source, and the responsible agency.

The following types of projects qualify for the ETDM process:

Roadway Projects

- Additional through lanes which add capacity to an existing road
- A new roadway, freeway or expressway
- A highway that provides new access to an area
- A new or reconstructed arterial highway (e.g., realignment)
- A new circumferential or belt highway that bypasses a community
- Addition of interchanges or major interchange modifications to a completed freeway or expressway (based on coordination with FHWA)
- A new bridge that provides new access to an area or bridge replacements (e.g., non-Programmatic Categorical Exclusions)

Public Transportation

- Major capital improvements, including Intermodal Centers, Rail, and Transit Centers
- New commuter rail, passenger rail, or new freight rail extending beyond the current footprint
- New transit facility or terminal
- New Start/Small Start/Very Small Start project extending beyond the current footprint
- A new seaport, airport, or non-passenger rail project on the SIS

Environmental Technical Advisory Team (ETAT)

Each FDOT District has an ETAT responsible for reviewing projects located in their area. Each ETAT is made up of Stakeholders and includes MPOs/TPOs, federal and state agencies, and participating Native American Tribes.

Environmental Screening Tool

The environmental screening tool (EST) is a web-based Geographic Information System (GIS) database and mapping application. The EST combines environmental, sociocultural and project data from multiple sources into a consistent format and then provides standardized GIS analyses. This process identifies potential natural, physical, cultural and community resources present in the project area and allows ETAT members to provide input on proposed projects. The EST is the core of the ETDM process and is used extensively throughout the process by supporting agency and community participation.

The EST provides the analytical and visualization tools necessary to synthesize information for a proposed project. It enables agencies to input/update project information, perform analyses, and keep the affected communities aware of pertinent information.

The EST is used throughout the ETDM process to accomplish the following:

- Integrate data from multiple sources into an easy-to-use, standard format,
- Analyze the effects of proposed projects on the human and natural environment,
- Communicate information effectively among ETAT representatives and to the public,
- Store and report results of the ETAT review effectively, and
- Efficiently maintain project records, including commitments and responses, throughout the project life cycle.

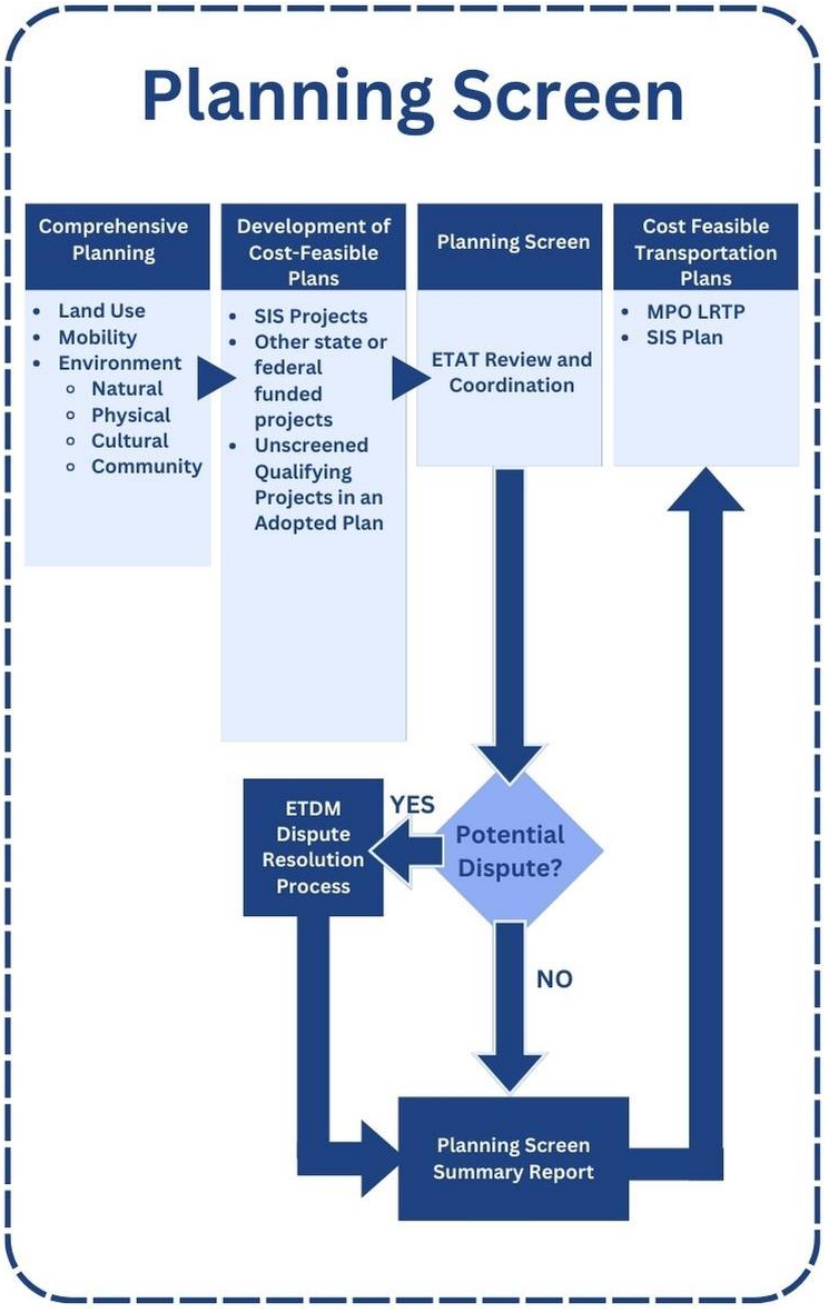
The ETDM public access site for project information is https://etdmpub.fla-etat.org/est/.

Planning Screen

The Planning Screen process (See Figure 3) includes preparing project information for screening, responding to comments, and developing the Planning Screen Summary Report. During the

planning phase, ETAT members and the public provide early input on a project's potential effects on the natural, physical, cultural, and community resources through the EST. The Planning Screen provides input on the feasibility of projects and identifies issues to be addressed during the Programming Screen.

Figure 3 – ETDM Planning Screen Process Flow



Programming Screen

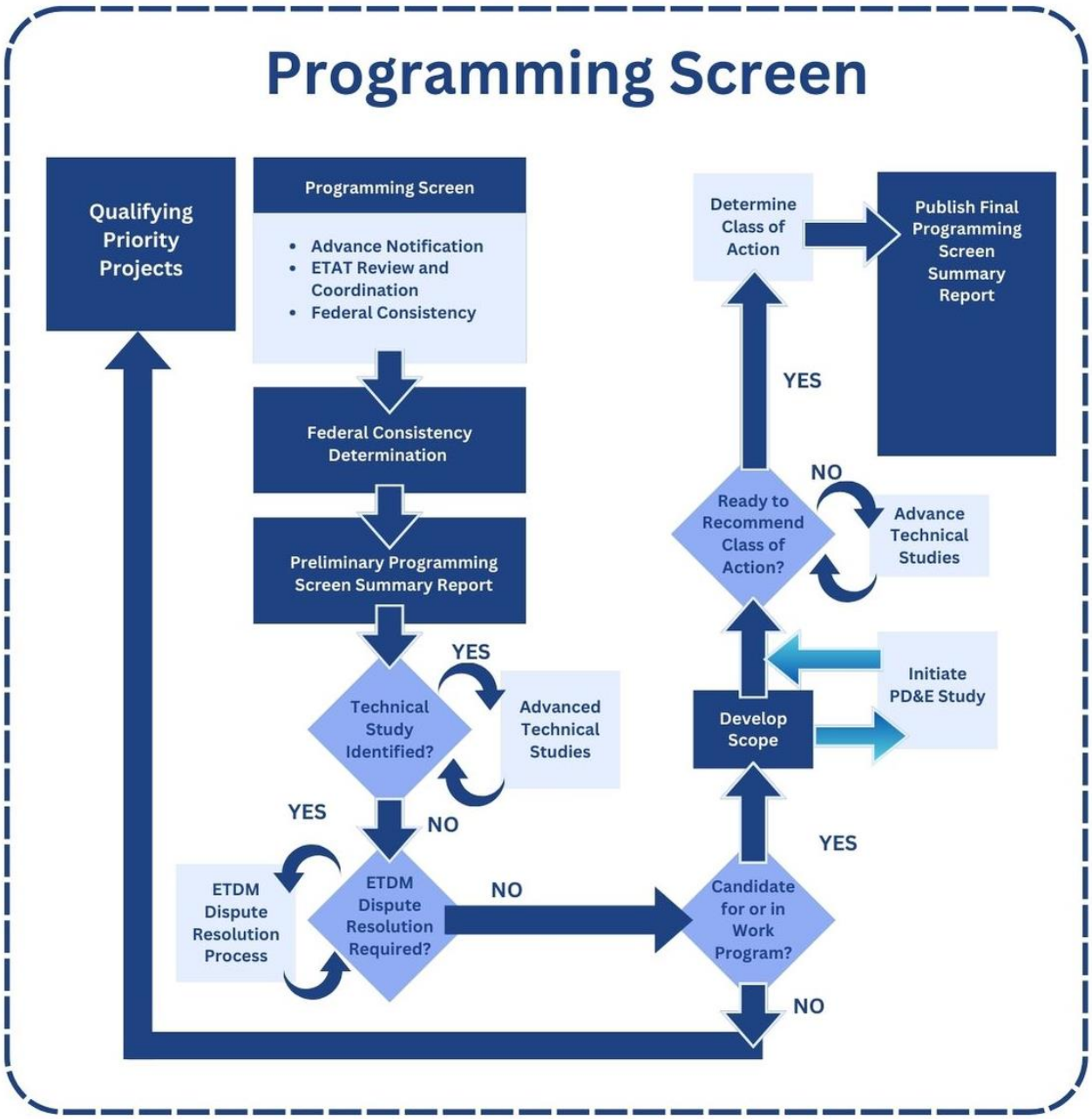
The Programming Screen process (See Figure 4) includes preparing project information for further screening, publishing the Preliminary Programming Screen Summary Report, resolving disputes through the Resolution Process, developing the scope for the PD&E phase, determining the Class of Action, and publishing the Final Programming Screen Summary Report. A Class of Action (COA) determination is required for transportation projects requiring federal action. This COA determination establishes the level of environmental documentation required throughout the PD&E phase.

The three COA determinations are:

- Categorical Exclusions (CEs),
- Environmental Assessment (EA), and
- Environmental Impact Assessment (EIS).

The Programming Screen helps to identify fatal flaws and provides opportunities for the ETAT and the public to comment on priority projects being considered for inclusion in the Five-Year Work Program or prior to being advanced to the PD&E phase.

Figure 4 – Programming Screen Process Flow



ETDM and LRTP Development

Projects included in the 2050 Needs Plan were entered into the ETDM system and the area of interest pre-planning screening was completed for each project. Due to the large size of the summary reports, a compendium is utilized to publish these summaries. Please refer to the ETDM Compendium to review the summary reports.

Other Mitigation Strategies

There are several mitigation strategies available in the North Florida TPO planning area to mitigate environmental impacts related to transportation projects. These include private mitigation banks, public Surface Water Improvement and Management (SWIM) Programs, as well as FDOT's mitigation statute 373.4137.

FDOT Mitigation Program

When project impacts cannot be entirely avoided or minimized, a range of mitigation programs and strategies can be implemented to restore or offset these effects. The FDOT Mitigation Program, established under Florida Statute, is managed by the WMDs and coordinated with State and Federal resource and regulatory agencies to address the impacts of infrastructure development. This program requires the creation of a Mitigation Plan, which includes an inventory of construction projects with at least a three-year outlook. By considering potential environmental impacts early in the project development process, this approach ensures that appropriate mitigation measures can be developed in a timely manner.

The FDOT Mitigation Plan is updated annually to reflect changes in projects as they progress through their lifecycle. Mitigation projects within the program are designed to address water resource needs, with a primary focus on those identified by the FDEP and the WMDs. These projects may encompass Surface Water Improvement and Management (SWIM) initiatives, land acquisition, restoration or enhancement efforts, and the control of invasive and exotic plants. Table 2 outlines the various mitigation strategies included in the FDOT Mitigation Plan.

Table 2 - FDOT Mitigation Plan

Project Type	Project Type Description
SWIM (Surface Water Improvementand Management)	The SWIM Program focuses on projects to improve water quality or restore natural systems along highly threatened surface water bodies. Projects may focus on reducing the pollution in stormwater, restoring degraded or destroyed natural systems, enhance existing habitats,or promoting the preservation of natural habitats.
Lands for acquisition	Acquisition involves the procurement of lands and further mitigation actions carried out on the procured lands.
Lands for restoration	Restoration manipulates site characteristics to return or repair natural or historic functions of a historic or degraded resource. The EPA policy is to generally consider restoration before enhancement or preservation, as the likelihood of success is greater, impacts to other resources is lower, and potential benefits are higher. Examples of restoration actions include the construction of stormwater ponds to filter pollutants and the restoration of estuarine habitats.
Lands for enhancement	Lands for enhancement
Species control	Excessive populations of invasive plants impact navigation and recreation, flood control, damage fish and wildlife habitats and reduce dissolved oxygen levels in water bodies. Removal of invasive vegetation and installation of native plants are examples of species control mitigation actions.

Mitigation Banking

The St. Johns River Water Management District (SJRWMD) defines mitigation banking as a process where large areas of existing wetlands and/or uplands are restored or enhanced to compensate for the loss of other wetlands or surface waters impacted by the development of new homes, businesses, roads, utilities, or other activities. In some rare cases, wetlands may also be created as part of a mitigation bank.

Under Florida law, a mitigation bank is defined as a project designed to provide "credits" that offset adverse impacts to wetlands or other surface waters resulting from permitted projects. Within the jurisdiction of the SJRWMD, mitigation banks aim to reduce the uncertainty associated with traditional mitigation practices and offer greater assurance of successful mitigation outcomes. By consolidating multiple mitigation projects into larger, contiguous areas, mitigation banks are expected to provide long-term, sustainable, and regional ecological benefits.

Rather than altering landscapes to create new wetlands, mitigation banks focus on restoring and enhancing degraded ecosystems, as well as preserving existing uplands and wetlands as intact ecosystems. This approach is most effective when restoring ecological communities that were historically present in the area. Mitigation banks are encouraged to be established in or near areas of national, state, or regional ecological significance, as long as the proposed location is appropriate, and the bank meets all applicable permitting criteria.

This approach allows transportation agencies to purchase credits from mitigation banks, which are privately or publicly managed lands that have been restored, enhanced, or created to compensate for unavoidable impacts elsewhere. Mitigation banking ensures that there is a net gain or no net loss in environmental functions and values.

Types of Mitigation Banks in Northeast Florida

Wetland Mitigation Banks: These banks focus on the restoration or creation of wetland ecosystems to compensate for the loss of wetlands due to transportation and development projects. Wetlands are critical for flood control, water purification, and providing habitats for wildlife.

Stream Mitigation Banks: These banks restore or enhance stream habitats, including the improvement of stream channels, banks, and riparian buffers, to maintain water quality and support aquatic ecosystems.

Upland Habitat Banks: In some cases, mitigation banks focus on preserving or restoring upland habitats, which are important for certain species of wildlife, especially in the context of protecting biodiversity and threatened species in Northeast Florida.

Several mitigation banks are located in Northeast Florida, serving as sources of credits to offset environmental impacts from development and transportation projects. Here is a list of some of the prominent mitigation banks in the region:

1. Longleaf Mitigation Bank

Location: Baker County, Florida

Focus: Restoration and preservation of wetlands, including cypress swamps, marshes, and upland buffer habitats.

Significance: Provides wetland credits for projects impacting watersheds in the St. Johns River region.

2. Gopher Ridge Mitigation Bank

Location: Clay County, Florida

Focus: Restoration of upland and wetland habitats, particularly longleaf pine and gopher tortoise habitats.

Significance: Offers credits for projects impacting upland and wetland ecosystems in the region, ensuring the protection of key wildlife species.

3. Florida Mitigation Bank

Location: Duval and St. Johns Counties, Florida

Focus: Restoration and enhancement of various wetland systems, including freshwater marshes, forested wetlands, and streams.

Significance: Provides credits for wetland impacts and supports the conservation of diverse ecosystems within Northeast Florida.

4. Blackwater Creek Mitigation Bank

Location: Clay and Putnam Counties, Florida

Focus: Restoration and enhancement of wetland ecosystems, including cypress swamps, hardwood wetlands, and upland buffers.

Significance: Offers credits for projects impacting wetlands and helps maintain water quality and wildlife habitat in the region.

5. Matanzas Mitigation Bank

Location: St. Johns County, Florida

Focus: Restoration and enhancement of wetland habitats and the preservation of surrounding upland areas.

Significance: Offers wetland credits to offset impacts in coastal and inland areas, contributing to the conservation of ecosystems along the Matanzas River watershed.

These mitigation banks play a crucial role in helping transportation and development projects meet regulatory requirements for environmental conservation while supporting the long-term health and sustainability of Northeast Florida's diverse ecosystems. They provide an effective and efficient way to mitigate unavoidable impacts on wetlands and other sensitive habitats in the region.

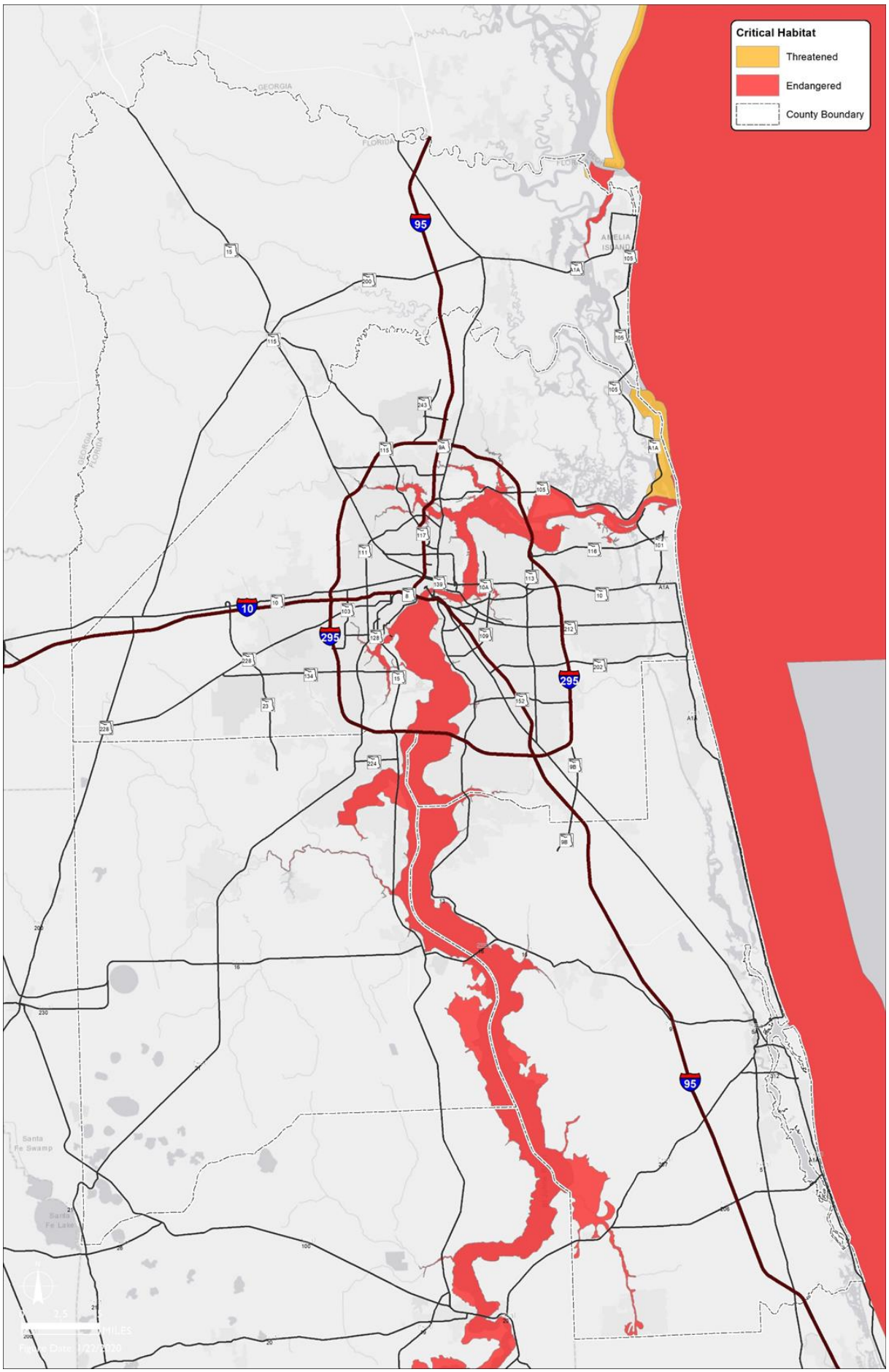
Avoidance and Minimization

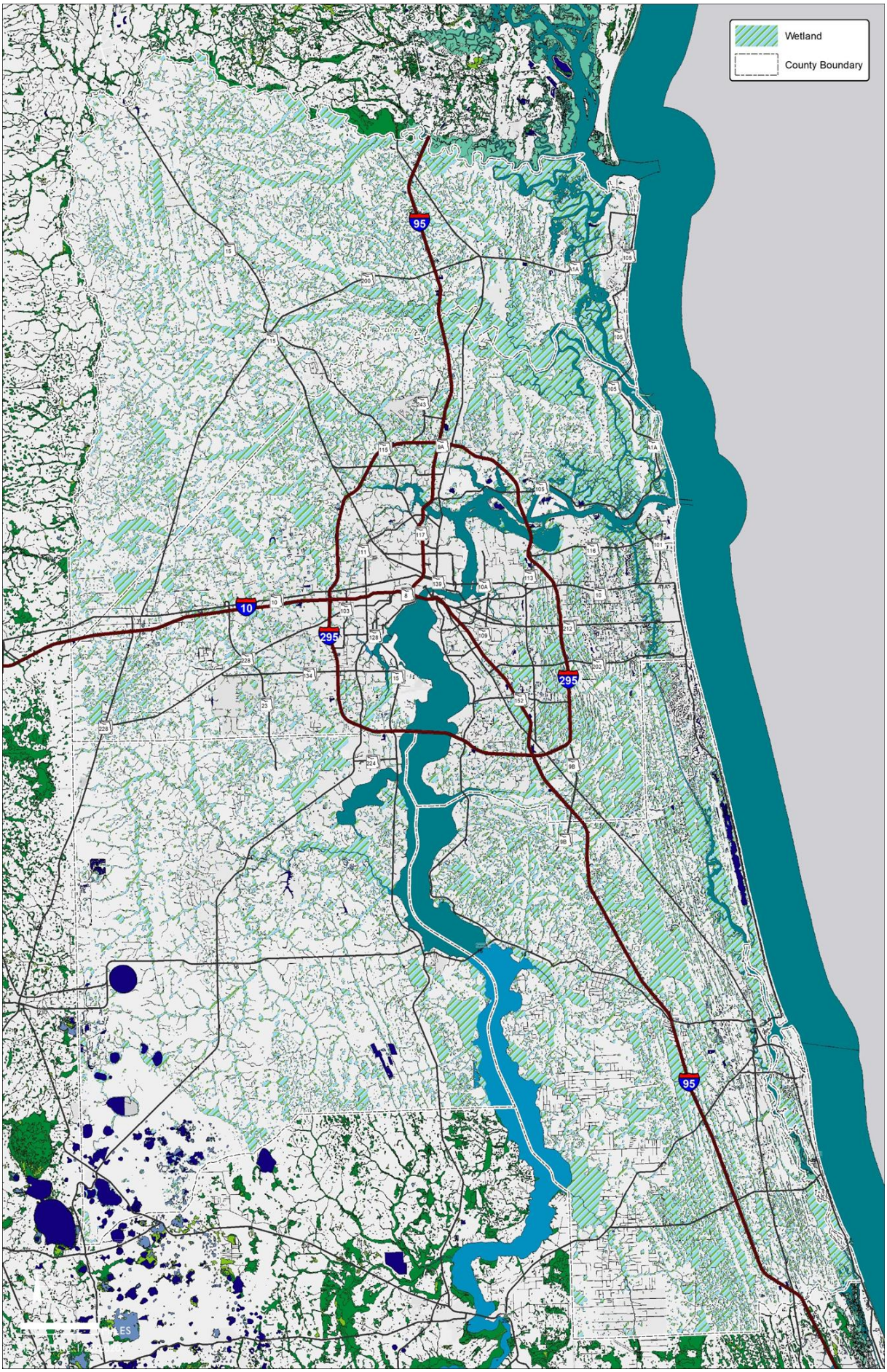
The most preferred approach is to design transportation projects in a way that completely avoids sensitive environmental areas such as wetlands, floodplains, wildlife habitats, and protected lands. This often involves careful planning and route selection to prevent negative impacts from the inception of the project.

When avoidance isn't feasible, efforts are made to minimize the environmental impact. This could involve altering the design or construction methods to reduce disturbances to wildlife habitats, wetlands, or other sensitive areas. Techniques such as using elevated roadways, bridges, or tunnels can help reduce harm to ecosystems.

Each county within the North Florida TPO region has mitigation provisions contained within its Comprehensive Plans. Specifically, the Land Development Codes provide developers guidance as to how wetland impacts can be mitigated within the county. These plans call for the natural functions of wetlands and habitats of threatened and endangered species shall be protected. If a person proposes to impact wetlands or threatened and endangered species habitat, then he or she shall deliver to the county an application that will provide written documentation to demonstrate that impacts to wetlands and threatened and endangered species habitat have been avoided to the maximum extent possible. If impacts are unavoidable, the applicant shall demonstrate that impacts to wetlands and threatened and endangered species habitat have been minimized to the maximum extent possible. If the applicant has demonstrated adequate minimization of unavoidable impacts, then, and only then, the applicant may submit a mitigation plan for review and consideration.

Appendix A


Critical Habitat
Threatened
Endangered
County Boundary
GEORGIA
FLORIDA
95
10
295
A1A
Santa Fe Swamp
Santa Fe Lake


Wetland
County Boundary
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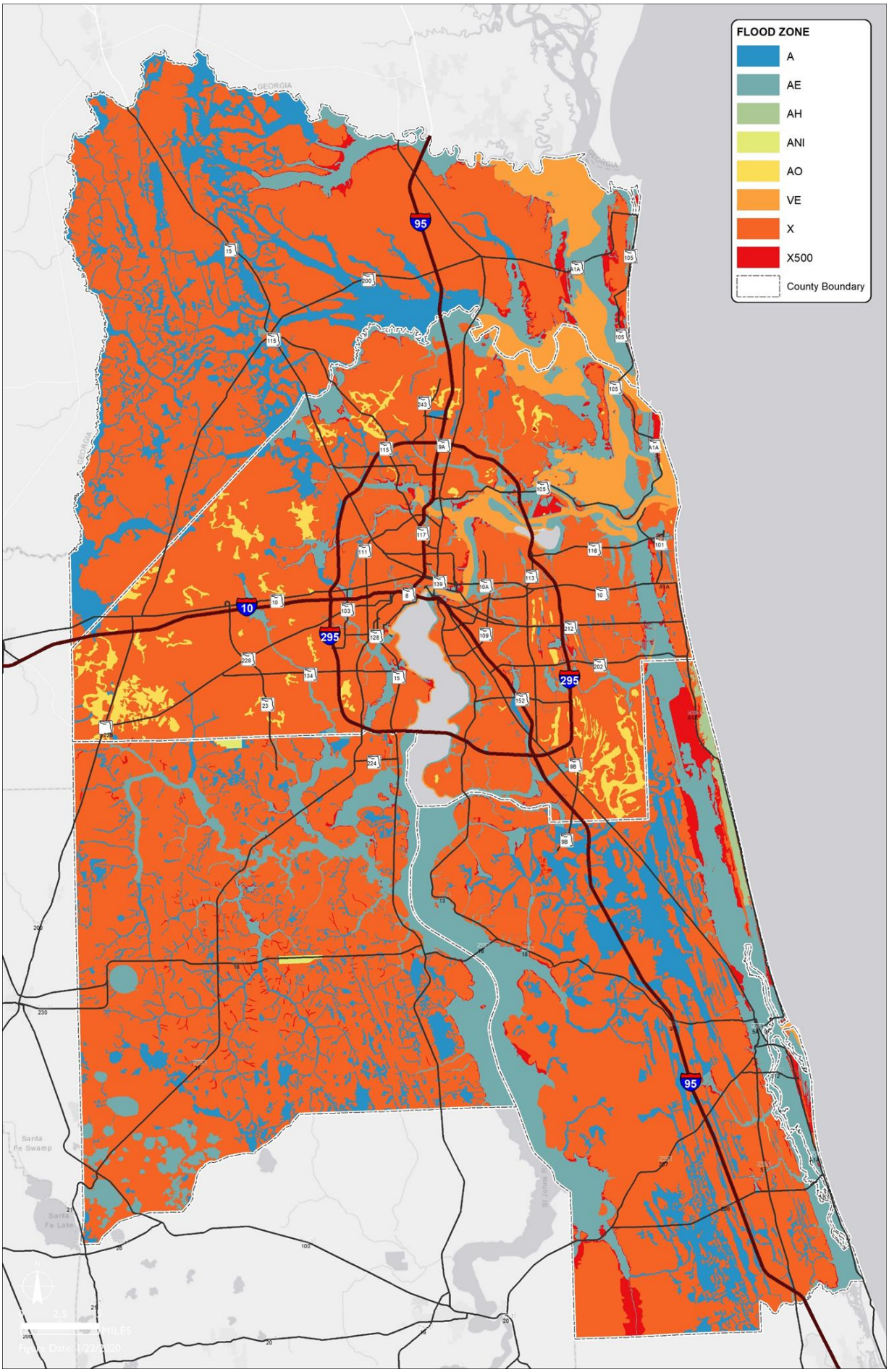
FLOOD ZONE
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ANI
AO
VE
X
X500
County Boundary
GEORGIA
95
10
295
Santa Fe Swamp
Santa Fe Lake
2.5
MILES