I-75 Relief Task Force

Identification of Avoidance Areas, Land Suitability Mapping and Areas of Opportunity Technical Memorandum

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Introduction

The I-75 Relief Task Force was established by FDOT Secretary Jim Boxold in October 2015. The purpose of the Task Force was to provide consensus recommendations on maximizing existing and developing new high capacity transportation corridors to serve the Tampa Bay to Northeast Florida area, with initial emphasis on the area along and to the west of I-75.

The Task Force's work supports the Florida Department of Transportation (FDOT) Future Corridor planning process, a long-term, large-scale approach for planning major transportation corridors in the context of environmental stewardship, community development, and economic development decisions. FDOT has developed a three-stage process for planning the future of statewide, multimodal transportation corridors over the next 50 years:

1. Prepare a high-level **Concept Study** to identify anticipated statewide connectivity and mobility needs in the study area; identify key community and environmental issues to be considered in future stages; and identify a framework for moving forward in this study area (completed for the full Tampa Bay-Northeast Florida study area in 2013).
2. Conduct one or more **Evaluation Studies** to identify and assess potential alternative modes and solutions to the anticipated mobility and connectivity needs; work with agencies and the public to build consensus around purpose and need statements and potential solutions; and develop an action plan for future work on viable corridors.
3. Use FDOT's established **Project Development** processes to conduct more detailed analyses of specific alternative corridor improvements compared to no-build alternatives, continue coordination with partners, and advance specific projects into implementation.

The Task Force process represented the transition from the Concept to the Evaluation stage in the Tampa Bay to Northeast Florida area. FDOT staff and technical consultants collected, mapped, and analyzed data to assist the Task Force in identifying issues, concerns, and constraints and developing recommendations for potential enhanced or new transportation corridors for future evaluation.

This document summarizes the preliminary analyses conducted to identify potential areas that should be avoided by enhanced or new transportation corridors, identify lands that may be suitable for enhanced or new corridors, and identify potential areas of opportunity for Task Force review. This memorandum documents the methodology and analyses presented at Task Force meetings for further review in any future evaluation studies.

This planning product may be adopted into the environmental review process, pursuant to Title 23 USC 168(4)(d) "*Integration of Planning and Environmental Review*" or the state project development process, outlined in FDOT's *Project Development and Environment (PD&E) Manual*.

1.0 Methodology

Overview

Consistent with its charge, the Task Force in early meetings adapted previously developed guiding principles for planning the future of Florida's transportation corridors as needed to ensure that they are relevant to the study area. The Task Force also identified opportunities and constraints related to environmental resources including natural lands and surface and groundwater resources, agriculture, land use and development, economic development, quality of life, and other statewide and regional issues that should be considered in planning for future transportation corridors in the study area.

The Task Force, with input from state, regional, and local agencies and support from FDOT staff, identified a preliminary map of Avoidance Areas where direct impacts from enhanced or new corridors should be avoided to the maximum extent possible. These include existing national, state and county parks and forests, areas with conservation easements, and other managed lands; mitigation banks; military lands; Native American lands; and State Historic Preservation Officer National Register of Historic Places eligible or potentially eligible sites and resource groups.

In addition, FDOT worked with the Task Force and input from partner agencies to develop a Land Suitability Map (LSM) to identify areas that may be suitable for enhanced or new corridors and identify potential areas of opportunity. The development of Land Suitability Mapping (explained in more detail in Section 3 of this memorandum) considers concentrations of conservation, countryside, and center/community resources including multiple functions served by some resources. In addition to the Avoidance Areas, this map includes other resources such as springs, flood hazard zones, prime and unique farmland, and existing communities. The land areas were categorized into lower, moderate, and higher sensitivity areas based on the concentration and sensitivity of resources. This approach helped identify potential constraints and areas of opportunity for further study of enhanced and new corridors.

As part of the identification of potential areas of opportunity, the Task Force considered multiple options for accomplishing the purpose and need, drawing upon the results of prior and ongoing studies; available data and technical analyses provided by FDOT; input from local governments, MPOs/TPOs, regional planning councils, and other agencies; and public input. This included review of existing transportation corridors as well as consideration of potential areas of opportunity for enhanced or new corridors. These potential areas of opportunity were mapped in relationship to existing environmental and community resources and shared for review with state, regional, and local agencies and members of the public.

Technical Tools

FDOT utilized two tools to assist the Task Force in identifying sensitive land uses in the study area: the Planning Corridor Assessment Tool (PCAT) and resulting Land Suitability Mapping (LSM) which is an output of the PCAT tool that was further refined based on technical input received during the Task Force process.

The PCAT uses spatial data modeling in a geographic information system (GIS) to compile and objectively consider many geographic features and elements when gauging the potential environmental impacts of multiple corridors or corridor alternatives. The tool allows users to:

- Utilize the most recent statewide and regional data available;
- Assign rankings to data layers that may be more sensitive/critical in the evaluation process;
- Generate a corridor(s) that links multiple points while minimizing environmental impacts generally or specifically for critical features if ranking is used;
- Assist in Land Suitability Mapping (LSM) to develop potential areas of opportunity.

The PCAT analysis used for the I-75 Task Force employed the following steps:

1. ***Identification of Environmental Layers*** – Environmental layers represent those resources that have legislative, regulatory, and permitting protection as well as processes that may have influence over a proposed project's feasibility. Input from Task Force members and local agencies provided the opportunity to add layers of local concern such as various managed lands.

   As part of the identification of constraints, an ***Avoidance Areas*** map was developed to assist the Task Force in reviewing critical resources within the Initial Focus Area. The preliminary map of Avoidance Areas showed the areas where direct impacts from enhanced or new corridors should be avoided to the maximum extent possible based on the review of resources with legislative, regulatory, and/or permitting protection. Based on Task Force and agency input, these avoidance areas included parks, conservation areas and easements, other managed lands, mitigation banks, military lands, Native American lands; and potential historic or archaeological resources.

2. ***Assignments of Relative Rankings to Layers*** – Rankings were assigned to layers to assist in the analysis. These assignments allowed the analysis to be customized based on importance, uniqueness and sensitivity of resources with input from the Task Force, Environmental Technical Advisory Team (ETAT), and other project stakeholders.

3. ***Aggregation of Layers/Land Suitability Mapping (LSM)*** – The ranked data layers were then aggregated in an analytical grid to create the composite LSM, a mosaic of evaluated layers that graphically depict intensity and/or concentration of resources.

4. ***Identification of Environmental Impacts (Potential Areas of Opportunity)*** – Considering the concentration of resources in the analytical grid within the LSM, the PCAT was then used to identify paths of least resistance based on the numerical values calculated from the presence of resources in each grid. The resulting mapping represented "Areas of Opportunity" for further analysis and evaluation of potentially feasible corridors. Conversely, this mapping also illustrated those areas that should be avoided. Both the LSM map and the Avoidance Areas map were compared to each other to show how the avoidance areas generally are reflected in the LSM map as higher sensitivity areas.

The selected GIS data layers and rankings were distributed to the FDOT Efficient Transportation Decision Making (ETDM) ETAT for their review and comment. A webinar was held on January 29, 2016 to provide the ETAT with an overview of the I-75 Relief study and the methodologies to be used in the development of LSM. A similar overview presentation was given during the February 26, 2016 Task Force Meeting #2. On March 3, 2016 at the I-75 Relief Agency Coordination Meeting #2, the same presentation was made to local, state and federal agencies. Comments on data layers and rankings were received and incorporated into the final analysis.

The PCAT and LSM are examples of the technical tools FDOT uses during a planning study as part of the environmental review process, and the output and results can be incorporated into future study phases.

2.0 GIS Layers

The I-75 Relief Task Force examined opportunities and constraints in the study area using a framework organized around four themes, known as the 4Cs:

1. Conservation — including lands, wildlife and habitat, waters, air, and other natural resources;
2. Countryside — including small towns, villages, and other rural settlements as well as farms, forests, mines, and other economically valuable rural lands;
3. Centers and Communities — including population centers ranging from small towns to large cities, as well as economic activity centers; and
4. Corridors — including roads, rail, trails, pipelines, utilities, and other ways of connecting centers and communities.

The Task Force emphasized the importance of building consensus across these four themes. A total of 62 GIS data layers were selected with these themes in mind, see **Table 1**.

Once the GIS layers were selected, rankings were applied to them to assist in better identifying unique resources, locally critical resources and resources identified specifically by stakeholders and agencies. The individual GIS data layers were assigned a ranking, based on agency and Task Force input, to create a land suitability map. The LSM assists the I-75 Relief Task Force in identifying consensus recommendations on maximizing existing and/or developing new high-capacity transportation corridors to serve the Tampa Bay to Northeast Florida study area. Higher rankings indicate resources with higher sensitivities.

The following is a summary of each of the rankings:

- Areas of mitigatable impacts = 10
  - This represents resources that have existing permitting and mitigative processes in place which allow impacts but require mitigative measures.
- Areas of mitigatable impacts where direct impacts should be minimized = 20
  - This represents resources that have existing permitting and mitigative processes in place but direct and indirect impacts should be minimized to the extent possible.
- Areas of mitigatable impacts that should be avoided = 30
  - This represents resources that should be avoided to the greatest extent possible. Direct and indirect impact may be allowed but it has to be proven that no other less impactive alternative is feasible. Florida Forever Board of Trustees Projects were included in this category based on input received at Task Force meeting #3 on February 26, 2016.
- Areas of Critical Importance = 100
  - This represents resources that should be avoided due to the difficulty in providing mitigation for direct and indirect impacts.
- Florida Managed Areas, State Parks and Water Management District Lands = 200
  - This represents avoidance areas as defined by the Task Force at Task Force Meeting #3 on February 26, 2016.

Florida Forever Projects, Areas of Critical Importance and Florida Managed Areas were assigned specific rankings based on input received at Task Force Meeting #3 on February 26, 2016. The I-75 Relief technical team ranked the most critical areas 100 to 200 to ensure that the LSM identified these areas as of the highest sensitivity.

Section 3.0 summarizes the methodology of how these rankings were used to assist the I-75 Relief Task Force.

Table 1 – Selected GIS Layers (1 of 2)

Description	Rank	Source	Type
2010 Census Block Groups in Florida with Data from 2010-2014 American Community Survey (ACS)	10	United States Census Bureau (USCB)	Polygon
Administrative Boundaries of National Park System Units in Florida - 2012	100	National Parks Service (NPS)	Polygon
Alachua County Strategic Ecosystems	10	Alachua County	Polygon
Alachua County Wetlands (duplicate PCAT wetland areas removed from data set)	30	Alachua County	Polygon
Aquatic Preserve Boundaries in Florida - 2011	30	Florida Department of Environmental Protection (FDEP)	Polygon
Archaeological Sites in Florida - October 2015	30	Bureau of Archaeological Research (BAR)	Polygon
Aviation Transportation Facilities Boundaries in Florida - 2016	10	Geo-Facilities Planning and Information Research Center (GEOPLAN)	Polygon
Bald Eagle Nesting Locations in Florida 1998 - 2014	20	Fish and Wildlife Research Institute (FWRI)	Point
Cemetery Facilities Boundaries in Florida - 2015	10	GEOPLAN	Polygon
CLIP Version 3 Aggregated CLIP Priorities - Priority 1 and 2	10	Florida Natural Areas Inventory (FNAI)	Raster
CLIP Version 3 Florida Ecological Greenways Network - Priority 1 and 2	10	FNAI	Raster
Correctional Facilities in Florida - 2013	10	GEOPLAN	Point
Developments of Regional Impact in the State of Florida - 2015 Quarter 1	10	GEOPLAN	Polygon
Final Critical Habitat for 7 Mussels	20	United States Fish and Wildlife Service (USFWS)	Polygon
Flood Hazard Zones of the Digital Flood Insurance Rate Map (DFIRM) in the State of Florida (2/2015)	10	Federal Emergency Management Administration (FEMA)	Polygon
Florida Forever Board of Trustees Projects - September 2015	30	FNAI	Polygon
Florida Managed Areas - January 2016	200	FNAI	Polygon
Florida Sand Skink and Blue-tailed (Bluetail) Mole Skink Suitability	10	GEOPLAN	Polygon
Florida State Parks - December 2015	200	FDEP	Polygon
Florida Wood Stork Nesting Colonies - 2014	20	USFWS	Point
General Water Features in Florida	10	NAVTEQ - (*private corporation*)	Polygon
Golf Course Facilities Boundaries in Florida - 2015	10	GEOPLAN	Polygon
Gopher Tortoise Relocation Permit Recipient Sites in Florida - August 2008	20	Florida Fish and Wildlife Conservation Commission (FFWCC)	Point
Hazardous Waste Facilities - October 2015	10	FDEP	Point
Historic Bridges in Florida - January 2016	30	BAR	Line
Historic Cemeteries in Florida - January 2016	30	BAR	Polygon
Hospital Facilities in Florida - 2013	20	GEOPLAN	Point
Large Quantity Generators of Hazardous Waste - January 2016	10	FDEP	Point
Mitigation Banks in Florida	30	FDEP	Polygon
National Forests within Florida	100	United States Forest Service (USFS)	Polygon
National Register of Historic Places in Florida - October 2015	30	BAR	Polygon

Table 1 – Selected GIS Layers (2 of 2)

Description	Rank	Source	Type
Native American Lands in Florida	100	GEOPLAN	Polygon
Northwest Florida Water Management District Agricultural & Silviculture Land Use and Cover (LU_NWFWMD_2013)	10	Florida Department of Environmental Protection - Bureau of Watershed Restortation (FDEP-BWR)	Polygon
Northwest Florida Water Management District Residential Land Use and Cover (LU_NWFWMD_2013)	10	FDEP-BWR	Polygon
Northwest Florida Water Management District Wetlands Land Use and Cover 2012-2013	30	FDEP-BWR	Polygon
Outstanding Florida Waters - April 2015	30	FDEP	Polygon
Parks and Recreational Facilities Boundaries in Florida - 2015	30	GEOPLAN	Polygon
Prime Farmland in Florida with Associated Level 3 Water Management District Land Use Descriptions	20	GEOPLAN	Polygon
Resource Groups in Florida - January 2016	30	BAR	Polygon
Scrub Jay Habitat in Florida 1992-1993	10	FFWCC	Polygon
Solid Waste Facilities - December 2015	20	FDEP	Point
South Florida Water Management District Agricultural & Silviculture Land Use and Cover (LU_SFWMD_2008)	10	South Florida Water Management District (SFWMD)	Polygon
South Florida Water Management District Residential Land Use and Cover (LU_WFWMD_2008)	10	SFWMD	Polygon
South Florida Water Management District Wetlands Land Use and Cover 2008 - 2009	30	SFWMD	Polygon
Southwest Florida Water Management District Agricultural & Silviculture Land Use and Cover (LU_SWFWMD_2011)	10	Southwest Florida Water Management District (SWFWMD)	Polygon
Southwest Florida Water Management District Residential Land Use and Cover (LU_SWFWMD_2011)	10	SWFWMD	Polygon
Southwest Florida Water Management District Wetlands Land Use and Cover 2011	30	SWFWMD	Polygon
Spring Locations In Florida - 2011	30	FDEP	Point
St. John's River Water Management District Agricultural & Silvicultural Land Use and Cover (LU_SJRWMD_2009_FEB12)	10	Saint Johns River Water Management District (SJRWMD)	Polygon
St. John's River Water Management District Residential Land Use and Cover (LU_SJRWMD_2009)	10	SJRWMD	Polygon
St. John's River Water Management District Wetlands Land Use and Cover 2009	30	SJRWMD	Polygon
State Forests - March 2010	100	Florida Forest Service (FFS)	Polygon
Subsidence Incident Reports for the State of Florida - April 2015	20	FDEP-FGS	Point
Suwannee River Water Management Agricultural Silviculture Land Use (LU_SRWMD_2011)	10	FDEP-BWR	Polygon
Suwannee River Water Management Residential Land Use (LU_SRWMD_2011)	10	FDEP-BWR	Polygon
Suwannee River Water Management Wetlands 2010-2011	30	FDEP-BWR	Polygon
Treaters, Storers, and Disposers of Hazardous Waste - January 2016	10	FDEP	Point
U.S. Military Installations in Florida	30	GEOPLAN	Polygon
US EPA Regulated Superfund/National Priority List (NPL) Sites in Florida - August 2013	100	United States Environmental Protection Agency (USEPA)	Point
Wading Bird Rookery Surveys	10	FFWCC	Point
Wastewater Facilities - January 2016	30	FDEP	Point
Water Management District Lands - January 2016	200	GEOPLAN	Polygon

3.0 Development of Land Suitability Mapping (LSM)

As mentioned previously, each of the selected data layers were mapped and presented on composite maps (see **Figure 1).** This is the Land Suitability Map (LSM) used to identify potential Areas of Opportunity. The corresponding Avoidance Areas map reflects individual layers, such as national parks, that represent the layers with the highest ranking or sensitivities, is provided as **Figure 2**.

The rankings, finalized per input from the ETAT, agencies and Task Force, were assigned to each layer in 100 meter by 100 meter areas. Data layers were then aggregated into one map with rankings for each layer summed to create a cumulative score. These total scores were then plotted as the LSM.

When the data layers were aggregated it was discovered that some 100 meter by 100 meter areas contained no resources covered in the data layer, yielding a sum of zero (0) for that area. A score of one (1) was given to these areas to assist in providing consistency with the graphic representation of the results.

An example of the scoring for a 100 meter by 100 meter area could be as follows:

- Wetlands = 30
- Bald Eagle Nesting Locations = 20
- State Forests = 100

Aggregate Score = (30 + 20 + 100) = 150

The LSM developed for the study area had a range of scores from a low of 48 to a high of 893.

This range was then subdivided into areas of lower, moderate and higher sensitivity. The map reflects the lower, moderate and higher sensitivity areas.

The LSM sensitivity ranges are as follows:

- 48-100: Lower Sensitivity (Tan)
- 101-200: Moderate Sensitivity (Yellow)
- >200: Higher Sensitivity (Red)

The resulting LSM was presented during the April 6, 2016 Task Force Meeting #4.

Figure 1 – Land Suitability Map

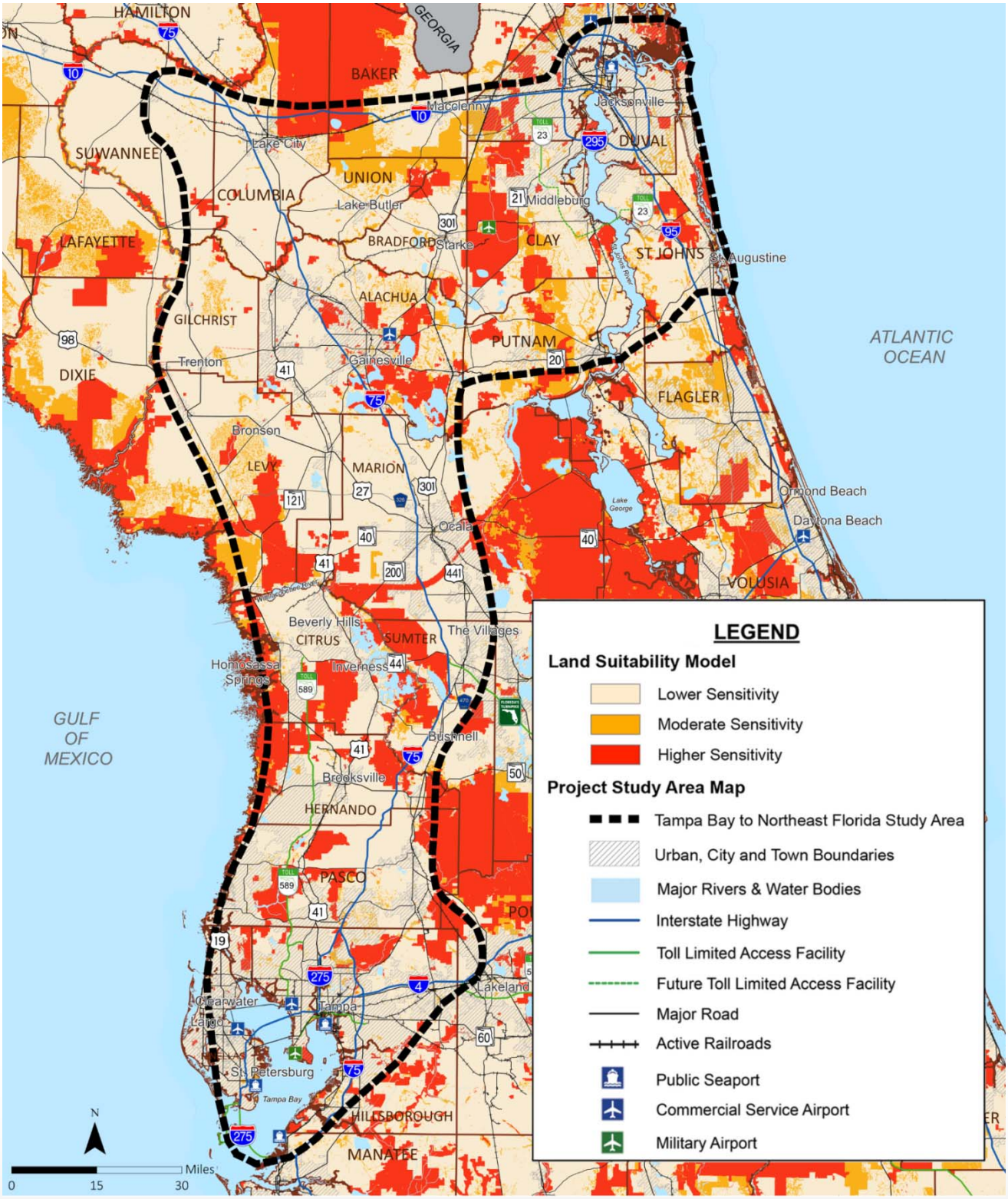
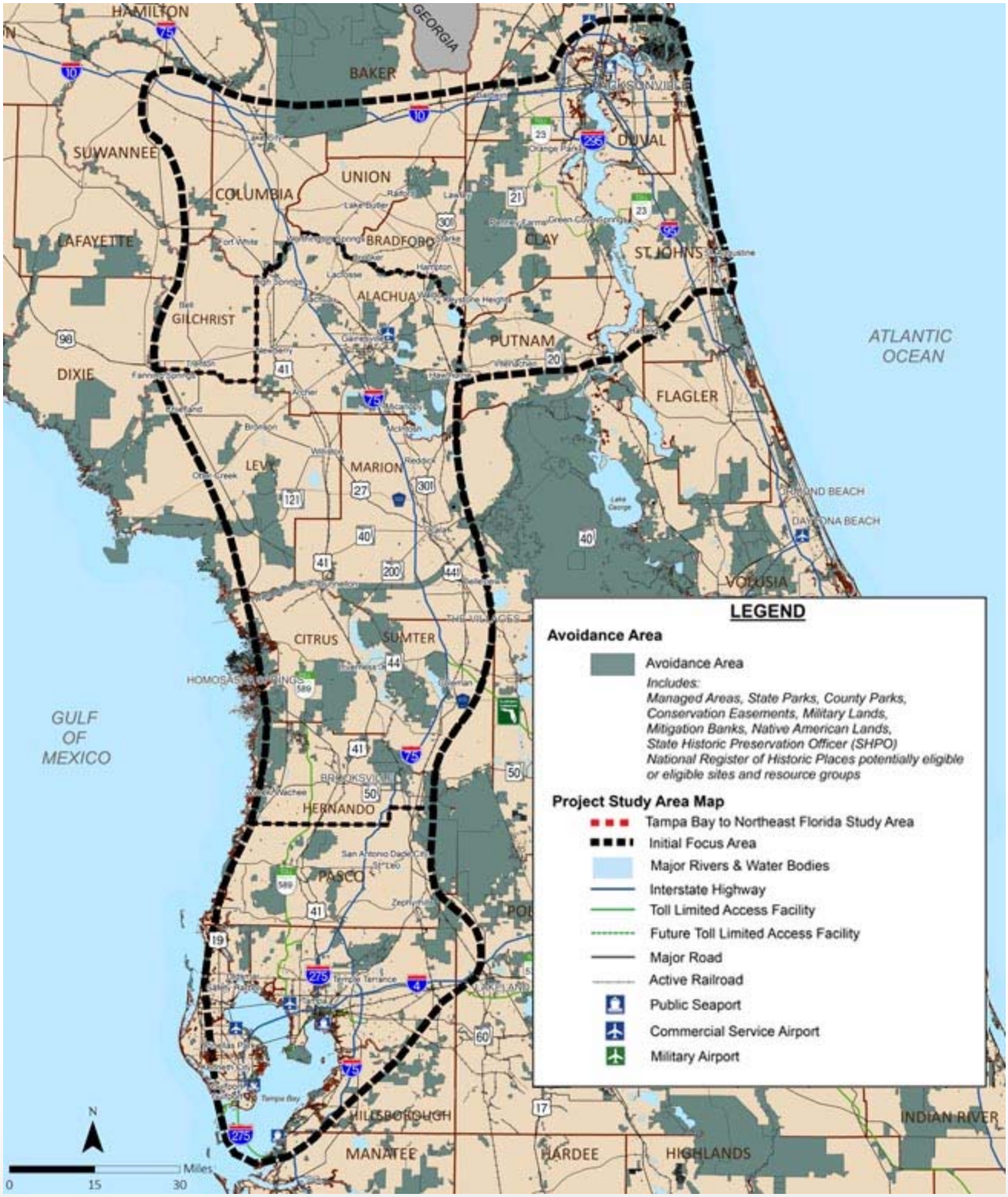


Figure 2 – Avoidance Areas



4.0 Development of Potential Areas of Opportunity

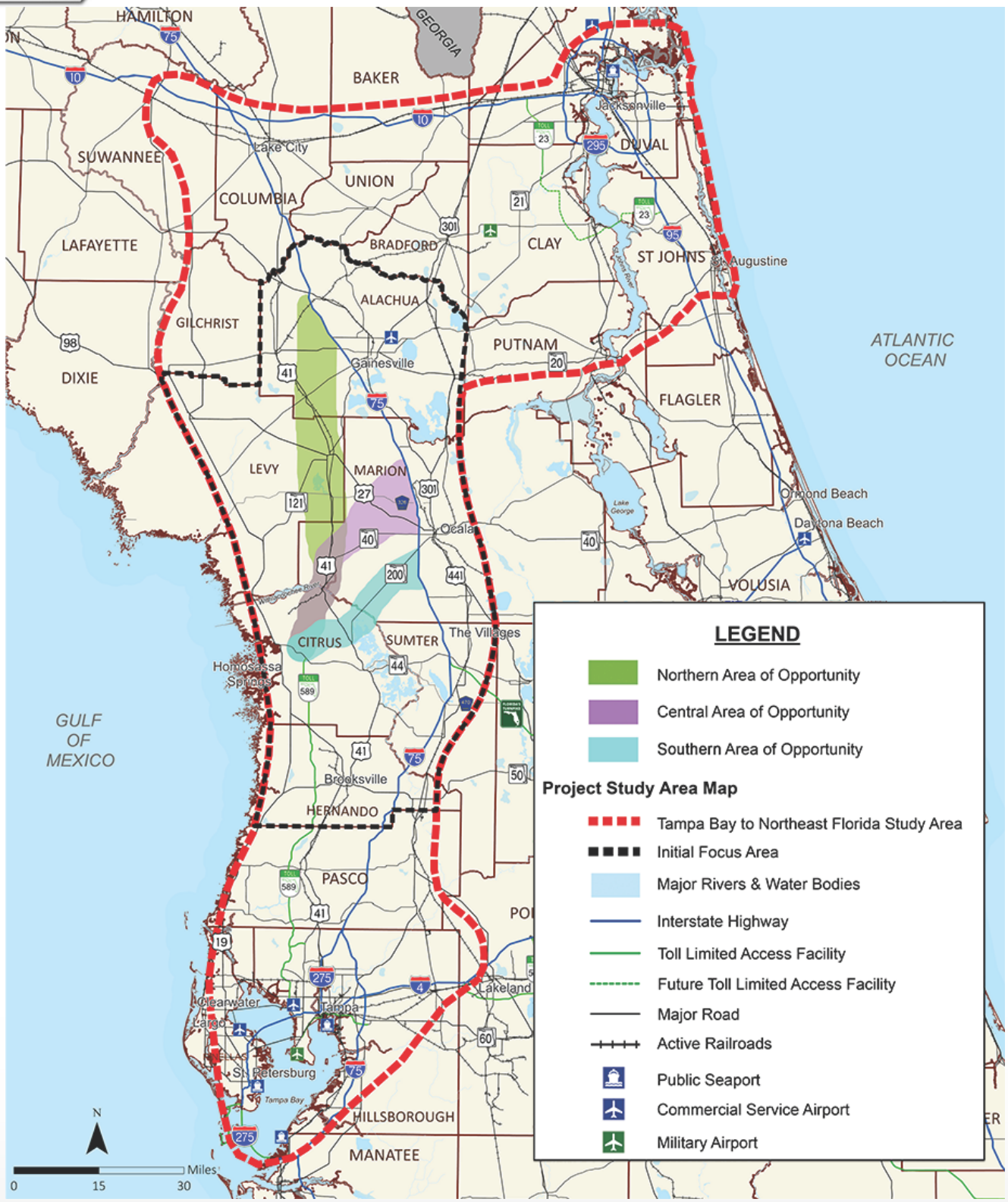
The Task Force reviewed three potential "areas of opportunity" for future study of enhanced or new transportation corridors in the Initial Focus Area. These areas of opportunity were mapped by FDOT based on the avoidance areas and LSM, and refined based on Task Force input.

Areas of opportunity can be defined as contiguous areas of lower environmental sensitivity. These areas can range from 10 to 15 miles in width but are intended to identify areas within which potential existing and future corridor refinements, ranging from multimodal enhancements and operational improvements to capacity expansions and new alignments, could be evaluated during future study phases.

Using the LSM, the future northern terminus of the Suncoast Parkway 2 (S.R. 589) at S.R. 44 was identified as a common starting place for potential areas of opportunity for an I-75 reliever corridor. Three (3) potential areas of opportunity were identified for Task Force review (see **Figure 3**):

- Southern area of opportunity – heads to the northeast across the Withlacoochee River and ends at I-75 in southern Marion County between S.R. 44 and S.R. 200.
- Central area of opportunity – heads initially to the north, then to the northeast across U.S. 27, and ends at I-75 in central Marion County between U.S. 27 and the southern edge of Paynes Prairie.
- Northern area of opportunity – heads to the north, ending at I-75 in northern Alachua County between S.R. 26 and U.S. 27.

Figure 3 – Preliminary Areas of Opportunity



5.0 Revisions to Areas of Opportunity

5.1 Elimination of the Southern Area of Opportunity

The three potential areas of opportunity were presented to the I-75 Relief Task Force at Task Force Meeting #4 on April 6, 2016. The Task Force recommended the southern area of opportunity not be advanced for future study at this time due to the potential for impacts on conservation lands and existing communities and the location of the connection south of the most congested portions of I-75 in Marion County (see **Figure 4**).

5.2 Refinement of the Northern Area of Opportunity

At Task Force Meeting #5 on May 4, 2016, the Task Force continued discussions on the potential areas of opportunity and recommended that the potential northern area of opportunity should advance to community open houses for public input with the following modifications (see **Figure 5)**:

- The boundaries of the area of opportunity north of U.S. 27/U.S. 41 should be widened to the west to include the existing U.S. 41 as potential alternative.
- The boundaries should be extended to the northern limit of the initial focus area to provide relief to I-75 from the northernmost portion of the initial focus area.
- The boundaries should be drawn to exclude the San Felasco Hammock Preserve State Park in northern Alachua County.

5.3 Refinement of the Central Area of Opportunity

At Task Force meeting #5, on May 4, 2016, it was also recommended that the potential central area of opportunity should be provided for public input with the following modifications (see **Figure 5)**:

- The eastern boundary of the area of opportunity should be widened to encompass a larger range of potential connections with I-75.
- The eastern boundary also should be extended to include potential connections to U.S. 301 in eastern Marion County, which could provide a connection to Northeast Florida.
- The southern portion of this area of opportunity was modified to avoid existing residential communities in Citrus County.

The potential central and northern areas of opportunity were presented to the public at the Community Open Houses held on June 7, 8 and 9, 2016. Public and agency input on the central and northern areas of opportunity raised concerns about potential impacts on existing communities, farms and other rural lands, and environmental resources such as conservation lands, springs, and aquifer recharge areas.

Task Force discussions affirmed the need for more detailed analysis of purpose and need, traffic demand, and environmental and community issues through future comprehensive evaluation studies. Any study of a new reliever corridor will require careful consideration of the concerns and challenges raised during the Task Force process.

Figure 4 – Revised Areas of Opportunity – Southern Area of Opportunity eliminated

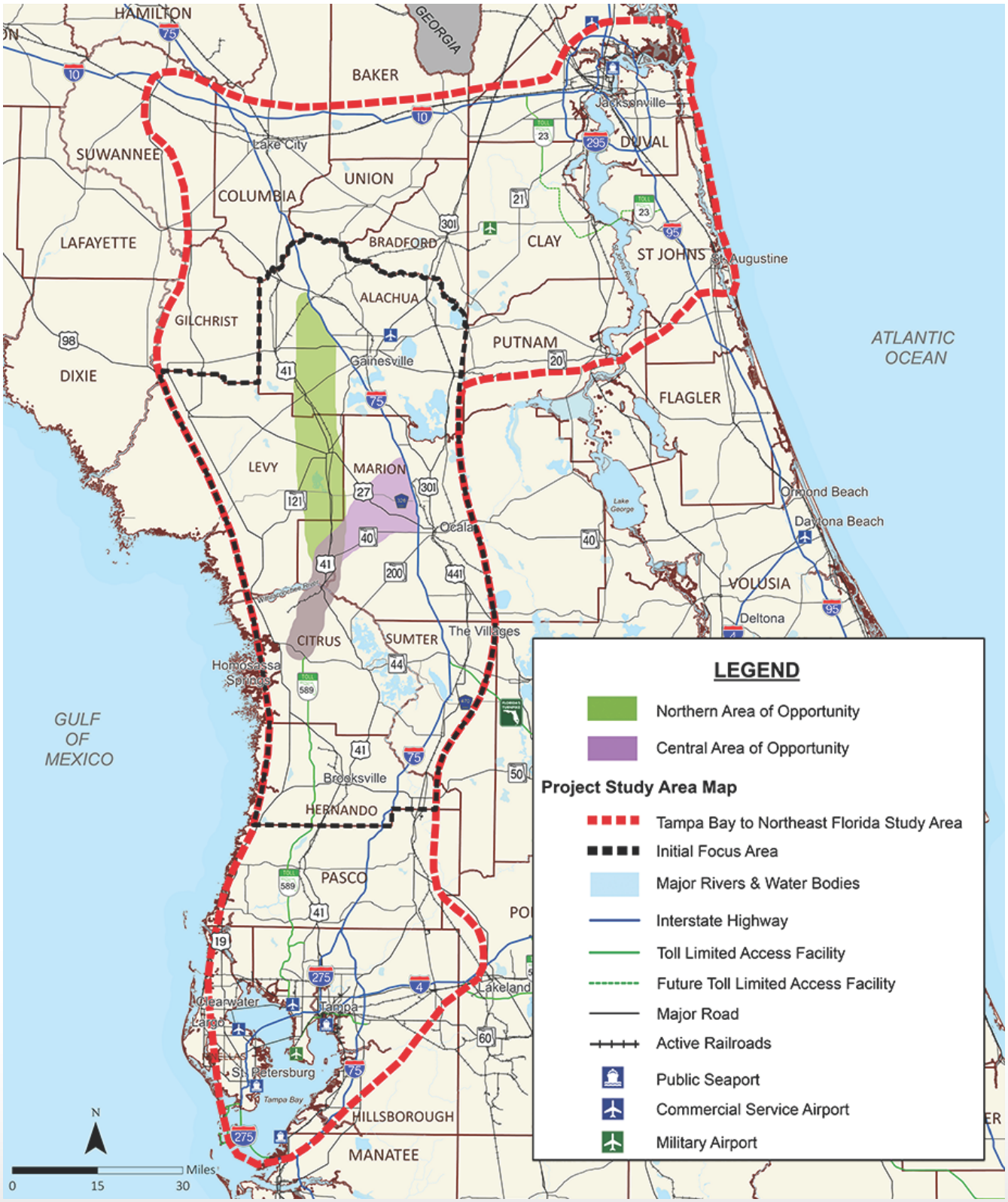
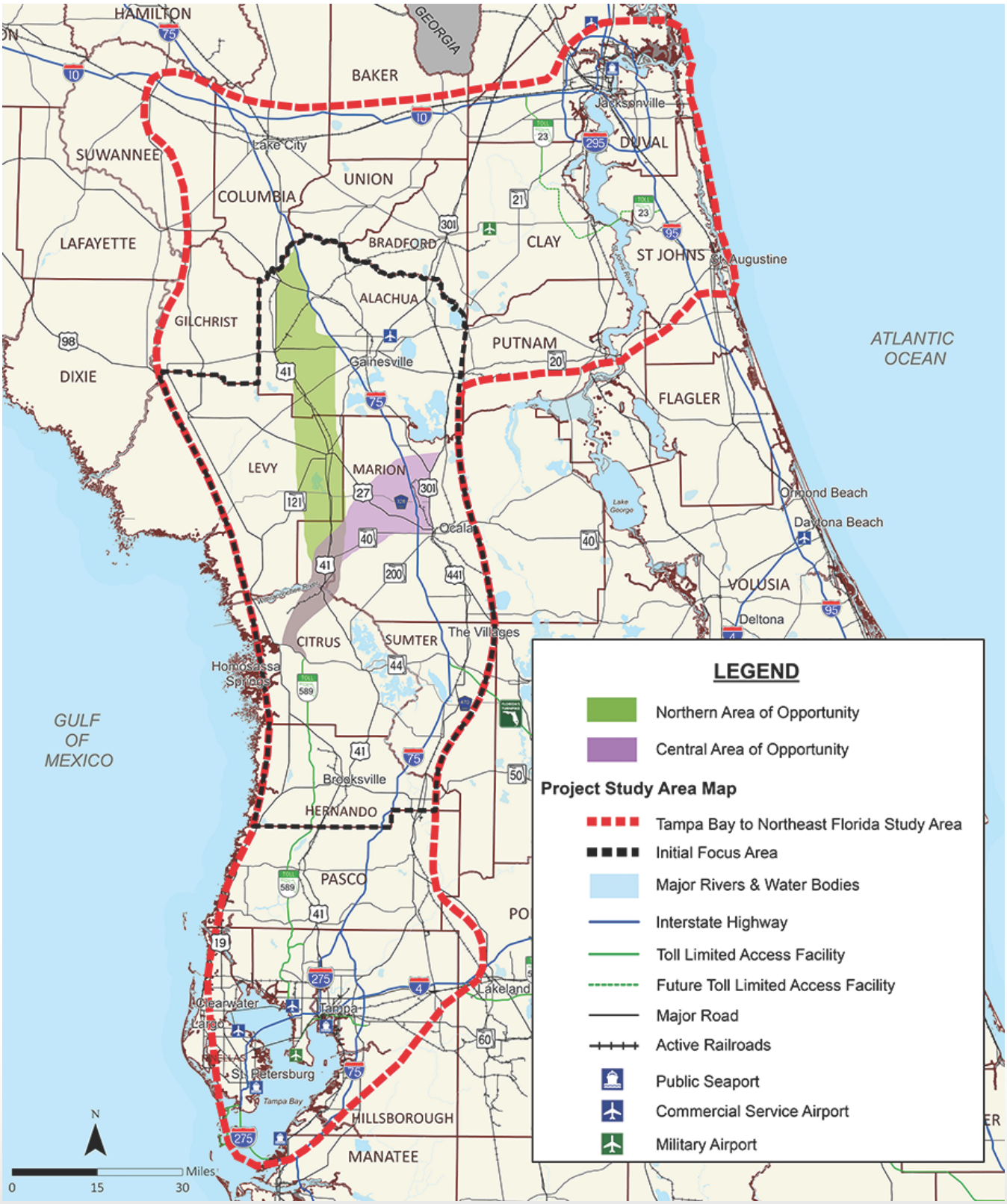


Figure 5 – Revised Areas of Opportunity – Modifications to Northern and Central Areas of Opportunity



6.0 Conclusion

In its Final Report, the Task Force recommended that FDOT take immediate action to identify and implement strategies to optimize I-75 from Hernando to Columbia County, as well as to evaluate the potential to transform I-75 such as the development of dedicated truck lanes and/or express lanes. The Task Force also recommended that FDOT coordinate with metropolitan planning organizations, local governments, and rail and intercity bus operators to evaluate potential improvements to U.S. 301 from U.S. 50 in Hernando County to I-10 in Duval County and U.S. 41 from S.R. 50 in Hernando County to I-10 in Columbia County, as well as potential enhancements to or creation of new intercity bus, passenger rail, and freight rail services to, from, and through the study area. The Task Force also recommended, based on further evaluation of the purpose and need and consideration of the assessment of the existing corridor options, FDOT conduct evaluation studies of potential areas of opportunity for new multimodal, multipurpose corridors that would provide additional relief to I-75 and improve long-term connectivity between Tampa Bay and Northeast Florida.

During future evaluation studies, existing and future corridors may be evaluated using the PCAT (or similar tools) to identify potential impacts pursuant to Title 23 USC 168(4)(d) "*Integration of Planning and Environmental Review*" or the state project development process, outlined in FDOT's *Project Development and Environment (PD&E) Manual*. Such analyses would be incorporated into future evaluation studies and project development phases, such as an ETDM programming screen for enhancement of existing facilities or an Alternative Corridor Evaluation (ACE) for new facilities.