NORTH FLORIDA TPO

Bicycle and Pedestrian Master Plan Update

Summer 2023

Bicycle and Pedestrian Master Plan Update

Prepared for:

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Acronyms

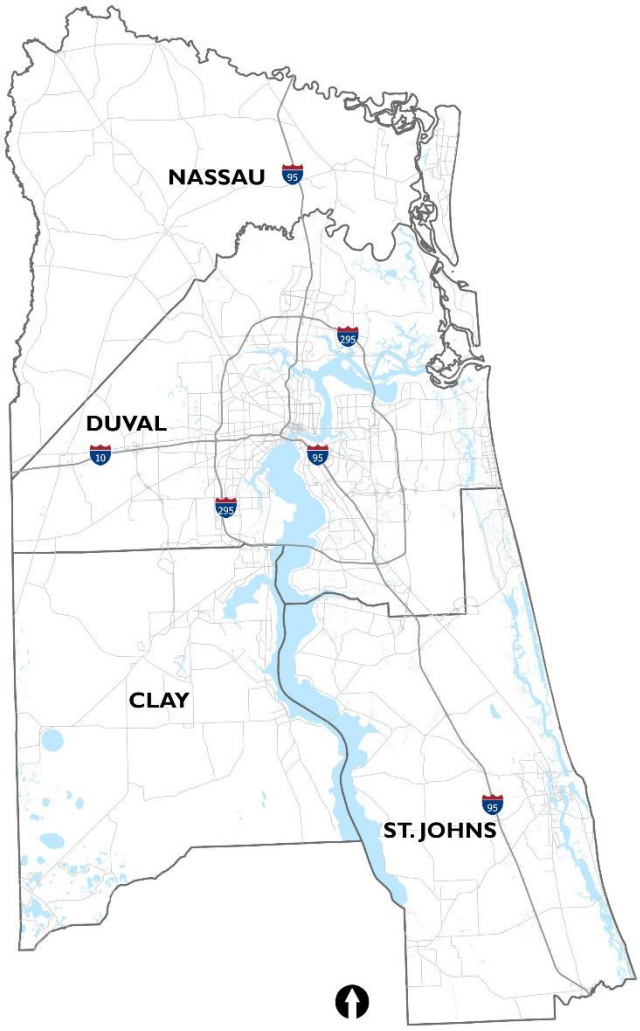
AADT	Annual Average Daily Traffic
AAG	Advocates Advisory Committee
ACS	American Community Survey
BB&T	Bikeways, Blueways, and Trails
BPAC	Bicycle and Pedestrian Advisory Group
C2C	Core to Coast
CBG	Census Block Group
CIP	Capital Improvement Program
D2	District 2 (FDOT)
ECG	East Coast Greenway
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FGB	Florida Greenbook
FGDL	Florida Geographic Data Library
FGTS	Florida Greenways and Trails System
GIS	Geographic Information System
JTA	Jacksonville Transportation Authority
LDC	Land Development Code
LDR	Land Development Regulation
LDM	Latent Demand Score
LOS	Level of Service
LRTP	Long Range Transportation Plan
NACTO	National Association of City Transportation Officials
NAS	Naval Air Station
NEFRC	Northeast Florida Regional Council
NFBC	North Florida Bicycle Club
RCI	Roadway Characteristics Inventory
S4	Signal 4 Analytics
SUN	Shared-Use Network
SUP	Shared-Use Path
TAC	Technical Advisory Committee
TAZ	Transportation Analysis Zone
TPO	Transportation Planning Organization

Section 1.0 Introduction

1.0 Introduction

This plan is a comprehensive review and update of the *North Florida Transportation Planning Organization (TPO) Bicycle and Pedestrian Master Plan* published in October 2013. The *2023 North Florida TPO Bicycle/Pedestrian Plan* (Bike/Ped Plan) update will build upon the 2013 plan by examining the North Florida TPO's bicycle and pedestrian planning efforts including policies, projects, demographics, high crash areas, and community input to develop a set of recommendations for future bicycle and pedestrian planning within the region comprised of Clay, Duval, Nassau, and St. Johns counties (see **Figure 1-1**).

Figure 1-1 Study Area



The focus of the plan is to provide regionally-significant connections and practical bicycle and pedestrian-specific improvements for all ages and abilities to increase the safety and transportation options throughout the four counties.

Project priorities will account for all types of users, functions, and destinations to encompass both practical users as well as recreational users. However, unpaved recreational paths are not included in this master plan. An emphasis will be placed on safety, practicality, equity, facility type, connectivity, and contributions to the overall bicycle and pedestrian network.

The recommendations developed in this plan guide the planning, funding, and implementing projects to create a safe and efficient network of bicycle and pedestrian facilities.

The plan will account for future pedestrian and bicycle needs based on existing conditions, existing plans, and currently recommended design standards. Furthermore, these recommendations will include a list of subarea studies, trail studies, and other bicycle and pedestrian-related programs that are needed to address safety issues and demand for active transportation alternatives. Finally, the recommendations will include general policies to guide future decision-making as well as bicycle and pedestrian design guidelines and potential funding opportunities.

1.1 Plan Purpose

The purpose of the plan is to serve as a guiding document that will implement biking and walking infrastructure throughout the region for all ages and abilities. By applying the *National Association of City Transportation Officials (NACTO)* *Designing for All Ages & Abilities* criteria as a strategy for planning and building biking and walking infrastructure, the end result seeks to "improve traffic safety, reduces congestion, improves air quality and public health, provides better and more equitable access to jobs and opportunities, and bolsters local economies". The positive community impacts are further detailed as follows:

Improved safety: Bicycle and pedestrian projects can improve safety for all road users by reducing conflicts between cars, bikes, and pedestrians. This can help to reduce the number of crashes and fatalities on the road.

Health benefits: Walking and biking are both great forms of exercise. By providing safe and accessible pedestrian and bicycle facilities, a region can encourage residents to engage in more physical activity. This can lead to improved health outcomes, including reduced rates of obesity, diabetes, and heart disease.

Reduced traffic congestion and emissions: By promoting alternative modes of transportation, such as biking and walking, a region can reduce traffic congestion and vehicle emissions, which can help to improve air quality and reduce greenhouse gas emissions.

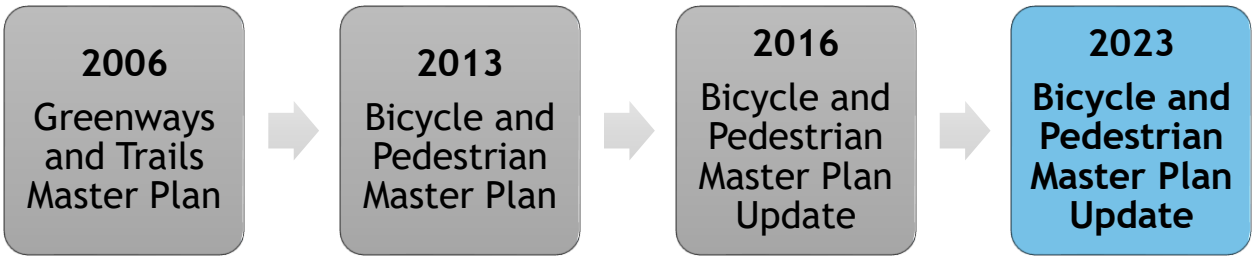
Improved economic development: Bicycle and pedestrian projects can also have a positive impact on economic development. By creating safe and inviting public spaces, these projects can help to attract new businesses and investment to a region.

Increased social equity: Many lower-income residents do not have access to reliable transportation options, which can limit their ability to access jobs, healthcare, and other essential services. By providing safe and accessible pedestrian and bicycle facilities, a region can help to reduce these transportation barriers and promote social equity.

Overall, implementing bicycle and pedestrian projects can help to create more livable, sustainable, and equitable communities while improving safety and health outcomes for all residents.

1.2 Plan Background

The first bicycle and pedestrian-related master plan developed for the North Florida TPO region was the *Greenways and Trails Master Plan* in 2006. This plan evolved and was updated as the *Bicycle and Pedestrian Master Plan* in 2013. The 2013 plan received a minor update in 2016 leading to this current comprehensive *Bicycle and Pedestrian Master Plan Update* which began in the fall of 2022 and published in the summer of 2023.



1.3 Planning Process

The planning process is comprised of four primary elements:

1.4 Goals and Objectives

The *Bicycle and Pedestrian Master Plan Update* will serve as a guide for the future development and implementation of the region's walking and biking facilities. Goals and objectives function as an integral part of this guide as they provide direction for the region's walking and biking transportation improvements and future plans. The goals and objectives listed in this section were reviewed and updated from the *2013 Regional Bicycle and Pedestrian Plan*. Goal 4 was revised to include an equity element in the bicycle and pedestrian planning process.

Goal 1: Provide an extensive, connected, and convenient on-road network of bicycle and pedestrian facilities throughout the North Florida TPO region.

- **Objective 1.1:** All agencies responsible for constructing and maintaining roadways within the region should continually review and potentially revise their roadway design standards to ensure that new and retrofitted roadways will accommodate bicycling and walking conditions.
- **Objective 1.2:** Maintain a unified inventory and associated map of bicycle and pedestrian facilities within the region every five years.
- **Objective 1.3:** Conduct at least one detailed "priority zone" subarea study identified in this plan per year to identify bicycle and pedestrian needs in those locations.
- **Objective 1.4:** Conduct at least one regional trail connection study for gaps outlined in this plan per year to identify appropriate bicycle and pedestrian facility improvements along those corridors..
- **Objective 1.5:** Design of all new and modified limited access facilities should be done with the utmost care and context-sensitivity to maintain non-motorized transportation connectivity throughout the region.
- **Objective 1.6:** Improve on-road bicycle and pedestrian access to the region's key bridge connections.
- **Objective 1.7:** Provide explicit support for any statewide initiatives to support bicycling on certain limited access facilities.
- **Objective 1.8:** Consider connectivity to the region's multi-use trails network whenever evaluating and prioritizing candidate bicycle and pedestrian facilities.
- **Objective 1.9:** Address regional non-motorized transportation needs early in the design phase of roadway projects.

Goal 2: Improve the safety of bicyclists and pedestrians in the North Florida TPO region.

- **Objective 2.1:** Continue to analyze crash data for the region every five years to identify trends in crash occurrence (locations and types).

- **Objective 2.2:** At a corridor and subarea level (including all subarea studies conducted in conjunction with Objective 1.4), continue to review crash trends to identify and implement appropriate awareness, enforcement and engineering crash countermeasures.
- **Objective 2.3:** By 2030, funding permitting, conduct a feasibility study for an annual regional bicycle and pedestrian count program. Such a program would enable the TPO to analyze bicycle and pedestrian crash rates in addition to the total number of crashes.
- **Objective 2.4**: Once crash rates have been established, reduce bicycle and pedestrian crash rates by a statistically significant degree by 2050, based on the projected trend of crash rates.

Goal 3: Improve multi-modal transportation efficiency in the North Florida TPO region.

- **Objective 3.1:** Develop and implement a plan to increase the number of local employers that provide incentives such as bicycle parking, shower/locker facilities, financial incentives, and flexible schedules to employees who commute to work via bicycle or pedestrian travel.
- **Objective 3.2:** Use bicycle and pedestrian facilities as part of an overall *Congestion Management Plan* strategy to maintain or improve motor vehicle levels of service in congested corridors that do not meet adopted LOS standards.
- **Objective 3.3:** At a subarea level, continue to develop wayfinding signage and maps to assist the traveling public in completing bicycle and pedestrian trips.
- **Objective 3.4**: Continue to explore opportunities within the region to implement a bike share program.
- **Objective 3.5:** Facilitate regular interaction and coordination between TPO staff and the region's local bicycle and pedestrian advocacy groups.
- **Objective 3.6:** Work with JTA, other public transportation providers, FDOT, and local jurisdictions to ensure that all transit stops have sidewalk access.
- **Objective 3.7:** Work with JTA and other public transportation providers to ensure that all existing and future transit shelters and other high-volume stop locations have bicycle racks and other basic amenities.

Goal 4: Provide an equitable bicycle and pedestrian network by focusing bicycle and pedestrian planning and facilities to those that need it most.

- **Objective 4.1:** Include an equity element in bicycle and pedestrian planning and programming efforts that focuses on low-income communities, and communities of color that have been disproportionately impacted by inadequate infrastructure.
- **Objective 4.2:** Include demographic elements in bicycle and pedestrian planning and programming efforts that focus on users that are more likely to benefit from and utilize the system including general population density locations, areas of high employment density, areas with a high percentage of zero car households, and concentrated areas of student populations.

1.5 Collaboration

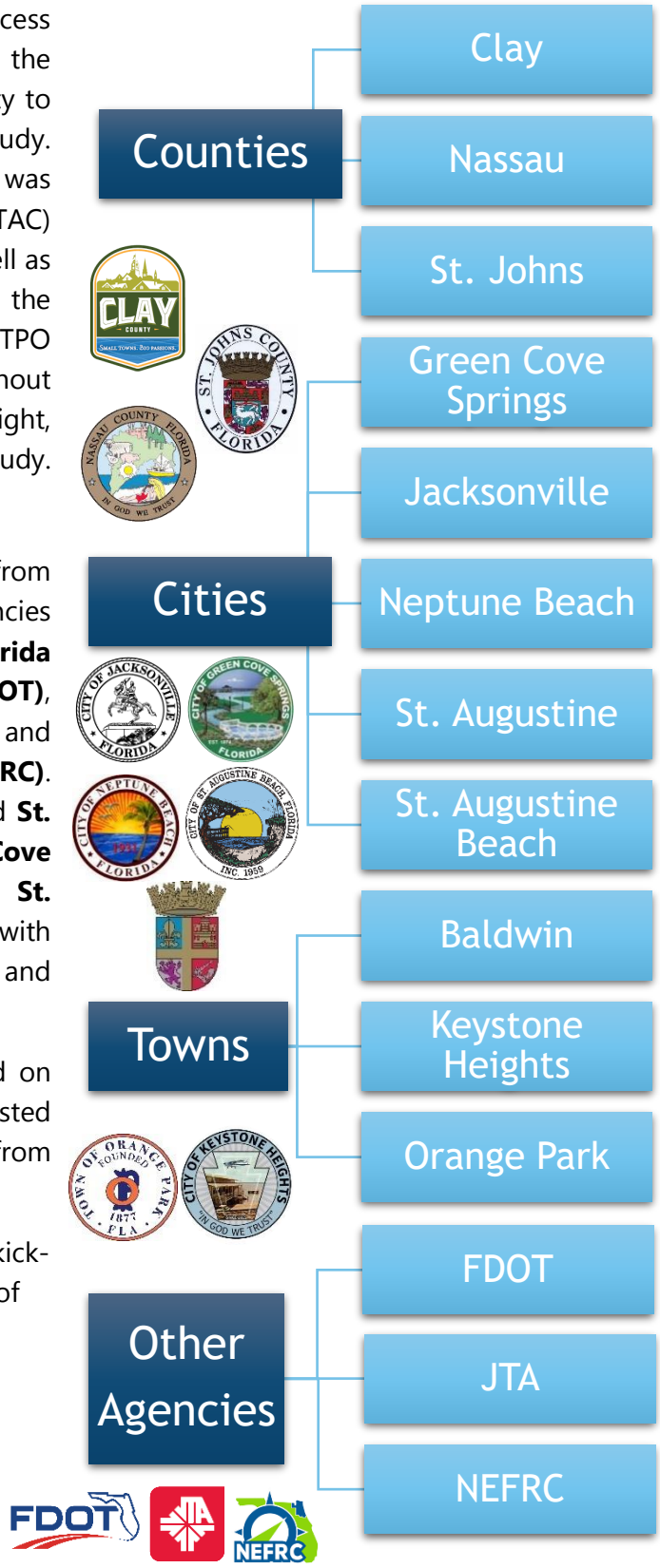
Collaboration during the master planning process facilitates a communication avenue between the study team, local agencies, and the community to receive invaluable input and context to the study. The collaboration element of this plan was comprised of a Technical Advisory Committee (TAC) and an Advocates Advisory Group (AAG) as well as continued coordination between the TPO and the study team. The two groups as well as the TPO guided the development of the plan throughout the study process as well as provided insight, feedback, and institutional knowledge to the study.

Technical Advisory Committee (TAC)

The TAC was comprised of representatives from local agencies and municipalities. Local agencies included representatives from the **Florida Department of Transportation (FDOT)**, **Jacksonville Transportation Authority (JTA),** and the **Northeast Florida Regional Council (NEFRC)**. The municipalities included **Clay, Nassau,** and **St. Johns** counties as well as the cities of **Green Cove Springs**, **Jacksonville**, **Neptune Beach**, **St. Augustine**, and **St. Augustine Beach** along with the towns of **Baldwin**, **Keystone Heights**, and **Orange Park**.

Two project coordination meetings were held on the dates listed below. Both meetings were hosted virtually via Microsoft Teams. Summary notes from the meetings are included in **Appendix A**.

- **Meeting #1, February 8, 2023**: Study kick-off meeting that provided an overview of the study, discussed potential future studies, and the public survey.
- **Meeting #2**, June 13, 2023: Presented future studies list, methodology, and evaluation; discussed other recommendations and next steps.



Advocates Advisory Group

To facilitate communication between the study team and members of the local bicycle and pedestrian advocacy groups, an Advocates Advisory Group (AAG) was formed. This allowed members of local advocate groups that are involved with bicycle and pedestrian planning to directly interact with the project team to provide input and feedback during the study process. The AAG was comprised of representatives from **Clay Bikeways, Blueways, and Trails (BB&T)**, **City of Jacksonville Bicycle and Pedestrian Advisory Group (BPAC)**, and the **North Florida Bicycle Club.**

One project coordination meeting was held with the study team and the AAG on the date listed below. The meeting was held virtually via Microsoft Teams. Minutes from the meeting are included in **Appendix A**.

- **Meeting #1, March 15, 2023**: Provided overview of study, discussed TAC input, discussed potential future studies and upcoming survey

1.6 Document Organization

This document is organized into the following sections:

- **1.0 Introduction**
- **2.0 Literature Review**
- **3.0 Spatial Planning Analysis**
- **4.0 Public Involvement**
- **5.0 Recommendations**
- **6.0 Implementation Strategy**
- **7.0 Conclusion**

Shared Lane Markings (Sharrows) at Vilano Beach. Source: Project Team.

Section 2.0 Literature Review

2.0 Literature Review

A literature review was conducted to collect and review recent planning documents completed since the previous master plan update in 2013. This literature review provided the context of bicycle and pedestrian planning efforts within the region largely over the past ten years. The review focused on the areas where bicycle and pedestrian planning has occurred, documenting their recommendations and findings, as well as surveying what types of bicycle and pedestrian-related policies currently exist in adopted documents. The results of the literature review guided the future study recommendations, design guidelines, and policy recommendations further detailed in **Section 5.0 Recommendations**.

2.1 Studies and Master Plans

A total of 26 studies and master plans were reviewed. The types of studies reviewed were divided into three types: Sub-Area Studies, Trail Planning Studies, and Other Studies. The remaining category includes the bicycle and pedestrian regional and sub-regional master plans. A summary sheet of each study or plan reviewed is included in **Section 2.2**.

The studies reviewed are listed below by category.

- **Sub-Area Studies (7)**
  - *14th Street Safety Study* (Nassau County, 2021)
  - *Amelia Island Bicycle and Pedestrian Focus Area Study* (Nassau County, 2016)
  - *Beaches Bicycle and Pedestrian Focus Area Study* (Jacksonville, 2016)
  - *Downtown to Beaches Bike-Ped Connectivity Study* (Jacksonville, 2016)
  - *North Florida Pedestrian Safety Campaign* (Jacksonville, 2019)
  - *Orange Park Bicycle and Pedestrian Sub-Area Plan* (Orange Park, 2016)
  - *Riverside/San Marco Bike/Ped Focus Area Study* (Jacksonville, 2016)
- **Trail Planning Studies (8)**
  - *Beaches East Coast Greenway Trail Feasibility Study* (Duval County, 2022)
  - *Clay-Duval Trail Feasibility Study* (Clay and Duval counties, 2022)
  - *Emerald Trail Master Plan* (Downtown Jacksonville, 2021)
  - *Florida Greenways and Trails System Plan* (State of Florida, 2018)
  - *Jax Beach Urban Trails Master Plan* (Jacksonville Beach, 2022)
  - *Multi-Use Trail Feasibility Study from St. Augustine to Ponte Vedra Beach* (St. Johns County, 2020)
  - *Multi-Use Trail Planning Study: SR 207 to Ponte Vedra* (St. Johns County, 2016)
  - *Schools to Downtown Waterfront Trail Study* (Fernandina Beach, 2020)
- **Other Studies (3)**
  - *Duval Schools Walkability Study* (Duval County, 2018)
  - *FDOT Bike/Ped Gap Study* (FDOT District 2, 2018)
  - *St. Johns County Sidewalk Asset Strategy* (St. Johns County, 2022)

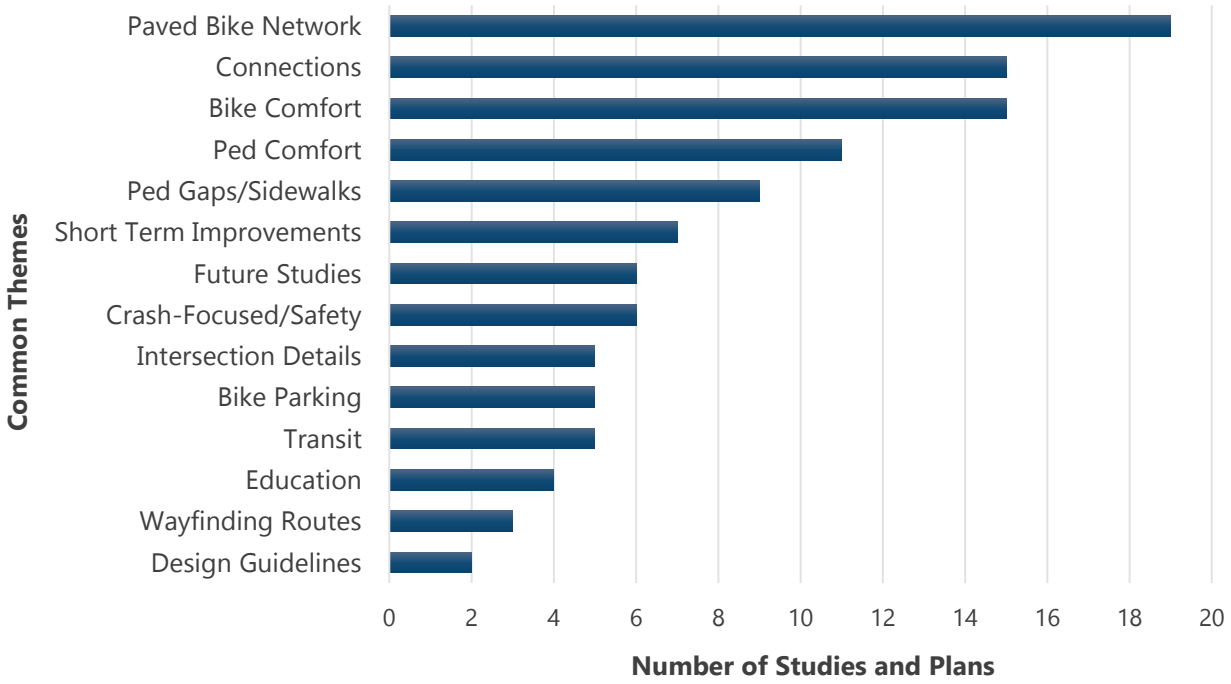
The eight (8) bicycle and pedestrian master plans reviewed are grouped into three geographies: regional, county, and city and sub-area. The master plans reviewed are listed below by category.

- **Regional Master Plans (3)**
  - *Bicycle and Pedestrian Regional Master Plan* (North Florida TPO, 2013)
  - *Bicycle and Pedestrian Regional Master Plan Update* (North Florida TPO, 2016)
  - *Northeast Florida Regional Multi-Use Trails Master Plan* (North Florida TPO, 2019)
- **County Master Plans (2)**
  - *St. Johns County Greenway, Blueway, and Trails Master Plan* (St. Johns County, 2003)
  - *Parks, Recreation, and Open Space Master Plan* (Nassau County, 2021)
- **City and Sub-Area Master Plans (3)**
  - *Bicycle Plan for St. Augustine, Florida* (St. Augustine, 2011)
  - *Jacksonville Pedestrian and Bicycle Master Plan* (Jacksonville, 2017)
  - *William Burgess District Connectivity Plan* (William Burgess Overlay, 2019)

Studies and Master Plans Trends

During the review process, certain bicycle and pedestrian common themes were present in many documents. Fourteen (14) total topics were identified across the documents with common themes including a paved bike network, specific connections, bicycle, and pedestrian comfort. The trend frequency of the common themes is displayed in **Figure 2-1**.

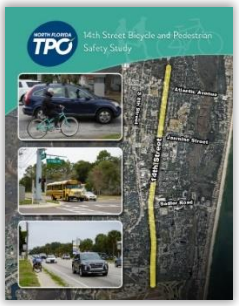
Figure 2-1 Studies and Master Plans Trends



2.2 Studies and Master Plans Summary Sheets

Sub-Area Plans

14th Street Bike/Ped Safety Study

Document Title: 14th Street Bicycle and Pedestrian Safety Study	**Document Cover:** 
Agency: North Florida TPO	
Geography: 14th Street (Nassau County)	
Document Year: 2021	

Document Summary: Evaluated 14th Street corridor for potential improvements to enhance safety for bicycles and pedestrians. The study corridor was 5.3 miles long of 14th Street between Fort Clinch State Park and Amelia Island Parkway.

Key Findings:

- Intersections – Perceived as unsafe (e.g., turning vehicles at southbound Sadler make it difficult for pedestrians to cross)
- Suggest special emphasis crosswalks where they are missing
- Walking – Based on the survey, people want wider sidewalks, more space between sidewalk and roadway and sidewalk repair to feel safer. People would also like more shade
- Bicycling – Survey respondents want bicycle lanes. Traffic and bad driver behaviors make them feel unsafe. Most are likely to use off-street multi-use path (56%) or on-street, clearly marked bicycle lanes (30%)
- Survey respondents and stakeholders are concerned about speed along the corridor
- Education and Enforcement - Bad driver behaviors/unsafe drivers discourage people from walking/bicycling

Recommendations:

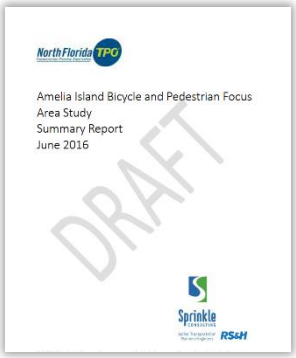
- Consider a shared-use path along the east side of 14th Street from Amelia Island Parkway to the public boat ramp
- Add Shared Lane Markings to the Roundabout
- Add/Improve bicycle lane markings and signage
- Add special emphasis crosswalks
- Eliminate sidewalk gaps

Table 10. Shared-Use Path – Potential Constrained Areas

Clear Zone Conflict Area	Location
Conflict Area 1	From 150 feet south of Robin Hood Dr to Robin Hood Dr
Conflict Area 2	From Lime St to 200 feet south of Jasmine St
Conflict Area 3	From 200 feet south of Jasmine St to Jasmine St
Conflict Area 4	From Jasmine St to 200 feet south of Hickory St
Conflict Area 5	From 200 feet south of Hickory St to Hickory St
Conflict Area 6	From Hickory St to 250 feet north of Hickory St
Conflict Area 7	From 175 feet south of Atlantic Ave to Atlantic Ave
Conflict Area 8	From Atlantic Ave to Alachua St
Conflict Area 9	From Alachua St to Broome St

Source: ETM, 2021

Amelia Island Bicycle and Pedestrian Focus Area Study

Document Title: Amelia Island Bicycle and Pedestrian Focus Area Study	**Document Cover:** 
Agency: North Florida Transportation Planning Organization (TPO)	
Geography: Amelia Island (Nassau County)	
Document Year: 2016	

Document Summary: This project identified the comprehensive network of bicycle and pedestrian facilities across Amelia Island including the City of Fernandina Beach. Recommendations for improvements of conditions for bicycling are provided.

Key Findings:

- The study reviewed existing conditions for bicycling and walking on Amelia Island, in Nassau County, Florida, while also including the City of Fernandina Beach. The recommendations are based on short-term improvements that can improve mobility around Amelia Island for bicyclists and pedestrians.
- The study addresses bicycle parking on the island and the link between the recommended bicycle and pedestrian network with the proposed transit service on the island.
- The study also identifies approximately five (5) miles of "provisional" routes, which currently don't allow full connectivity due to an existing barrier but, in the future, could provide a connection with minor improvements.

Recommendations:

- The study recommends improvements to the bicycling and walking network along nine (9) miles of major roadways on Amelia Island.
- The study recommends developing a network of routes that would guide bicyclists and pedestrians to the most comfortable and direct connections to important nodes in the community

Figure 1 Amelia Island Study Area

Beaches Bicycle and Pedestrian Focus Area Study

Document Title: Duval County Beaches Bicycle and Pedestrian Focus Area Study	**Document Cover:** 
Agency: North Florida TPO	
Geography: Duval County Beach Communities	
Document Year: 2016	

Document Summary: Identifies a comprehensive network of bicycle and pedestrian facilities in and around the Duval County beach communities.

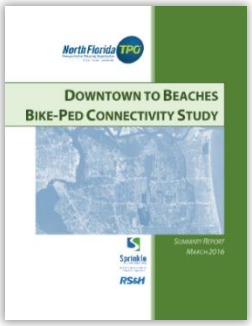
Key Findings:

- The beach communities have many conditions favorable to bicycling and walking such as dense population and development patterns and a high concentration of recreational destinations including parks and beach access points

Recommendations:

- Proposes wayfinding routes and potential shared roads
- Includes recommended bicycle facility maps including shared roads, bike lanes, buffered bike lanes and shoulders
- Appendices include route segment information tables and special intersection details

Downtown to Beaches Bike-Ped Connectivity Study

Document Title: Downtown to Beaches Bike-Ped Connectivity Study	**Document Cover:** 
Agency: North Florida TPO	
Geography: City of Jacksonville to the Beaches	
Document Year: 2016	

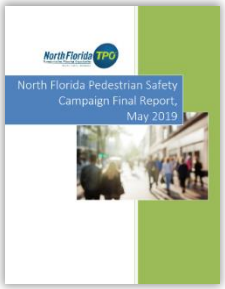
Document Summary: The study focuses on bicycle connectivity between the Riverside/San Marco communities and the Beaches communities.

Key Findings: Potential routes include:

- North option: follows Wonderwood Drive, McCormick Road, Monument Road, Lone Star Road, Arlington Road, and Atlantic Boulevard
- Atlantic Boulevard Option
- Beach Boulevard Option
- South Option- follows along J. Turner Butler Boulevard and Philips Highway or Old St. Augustine Road

Recommendations: Each of the four options provided has potential benefits and challenges with implementation to provide safe connectivity. The North, Atlantic, and Beach options all provide a more direct route when compared to the south option. The South Option is the most challenging regarding policy change needs. The Beach option provides the most connectivity. The North and South options both provide local bus connectivity.

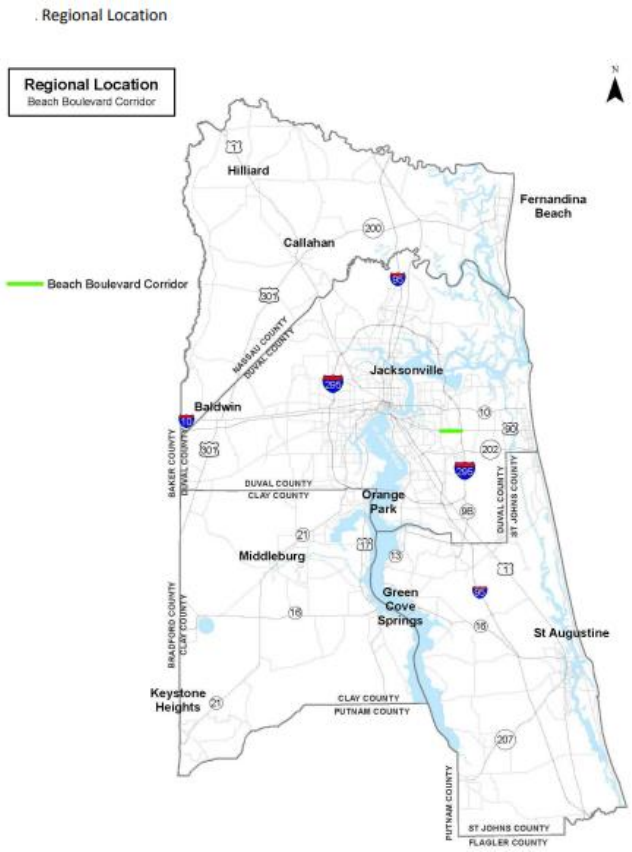
North Florida Pedestrian Safety Campaign

Document Title: North Florida Pedestrian Safety Campaign	**Document Cover:** 
Agency: North Florida TPO	
Geography: Beach Boulevard Corridor	
Document Year: 2019	

Document Summary: Summarizes a pedestrian safety campaign along the Beach Boulevard corridor from Southside Boulevard to I-295 which was identified as a hot spot for bicycle and pedestrian crashes. Includes recommendations and next steps.

Key Findings:

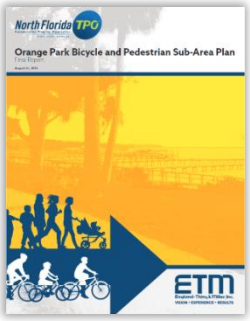
- Corridor issues for campaign development include:
  - Dangerous crossing and driving behaviors
  - Evening pedestrian crashes (lighting issues)
  - Pedestrians not using crosswalk signals
  - Drivers failing to yield to bicycles
  - Number of driveways
  - Bicycles crossing against signal
- Lack of understanding and education concerning pedestrian-related traffic laws and regulations
- Crash data does not reflect poor walking conditions
- Pedestrians feel safer with raised medians for crossings
- Drivers display lack of respect for bicycles/pedestrians



Recommendations:

- Install consistent pedestrian infrastructure
- Install countdown pedestrian signals
- Include leading pedestrian intervals
- Complete Street Corridor Study for Beach Boulevard
- Continued stakeholder coordination and education
- Maintain marked roadway lines including crosswalks and pedestrian signals

Orange Park Bicycle and Pedestrian Sub-Area Plan

Document Title: Orange Park Bicycle and Pedestrian Sub-Area Plan	**Document Cover:** 
Agency: North Florida TPO	
Geography: Town of Orange Park	
Document Year: 2016	

Document Summary: The study analyzed the existing bicycle and pedestrian network and identified areas for improvement.

Key Findings:

- The area has significant sidewalk resources, but lacks cohesive bike infrastructure
- Established a core network for bicycle and pedestrian movement within Orange Park

Recommendations:

- Installation of shared lane markings
- Expansion of the multi-use path network
- Infill of sidewalk gaps
- Improved crosswalk striping
- Construction of signalized crosswalks
- Installation of bicycle parking
- Land development code improvements
- Public awareness campaigns
- Includes Clay LDC and Orange Park LDC recs
- Recommends traffic calming studies and US 17 Multi-Use Trail Study
- Bike/ped facilities on Buckman Bridge
- Doctors Lake Loop Trail

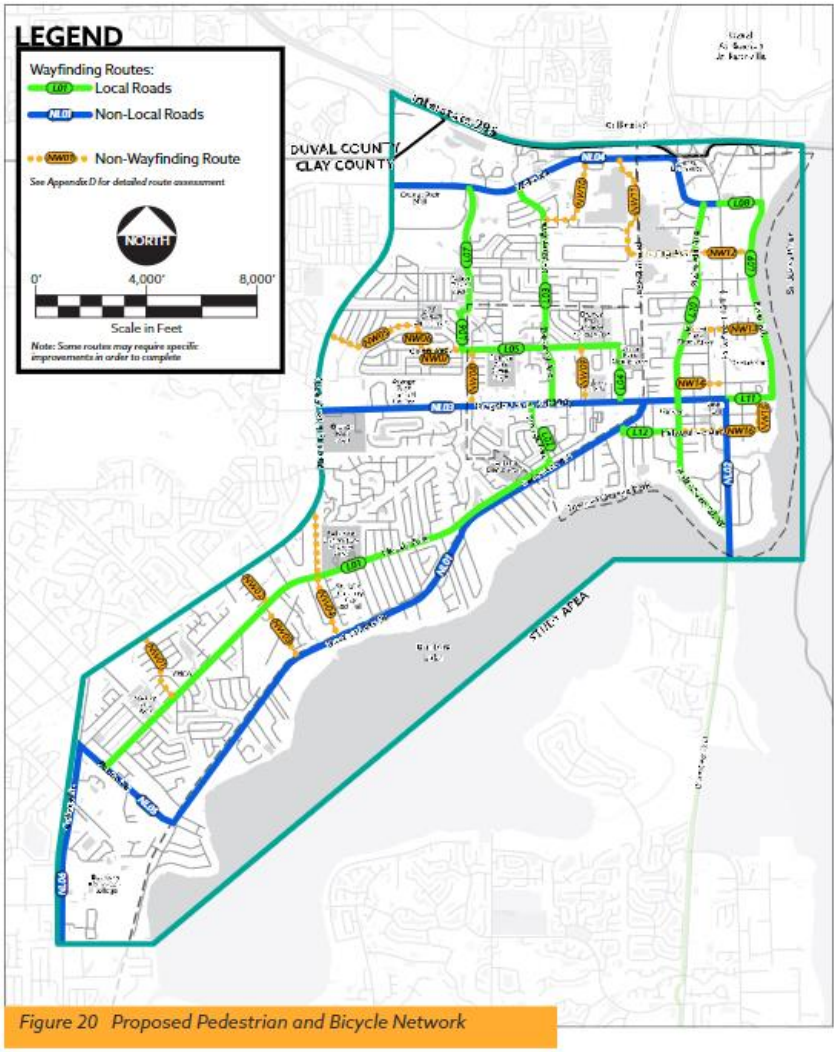


Figure 20 Proposed Pedestrian and Bicycle Network

Riverside/San Marco Bicycle and Pedestrian Focus Study Area

Document Title: Riverside/San Marco Bicycle and Pedestrian Focus Study Area	**Document Cover:** 
Agency: North Florida TPO	
Geography: Riverside and San Marco neighborhoods in Jacksonville	
Document Year: 2016	

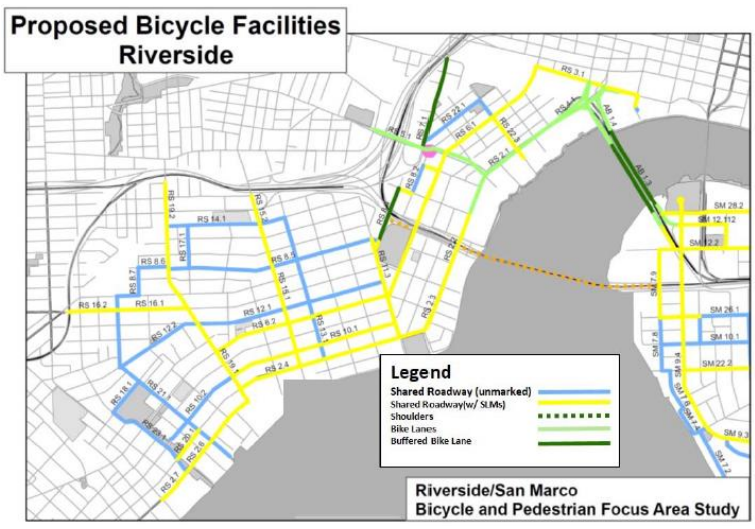
Document Summary: This project identifies the existing and proposed network of bicycle and pedestrian facilities for the neighborhoods of Riverside and San Marco in Jacksonville, Florida.

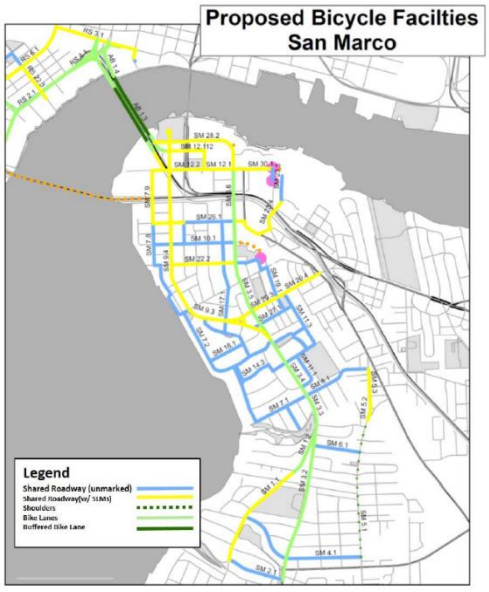
Key Findings:

- This report recommends improvements for bicycling along identified routes through small, short-term solutions which would not require significant changes to existing roadways.
- A field review was conducted to determine the existing pedestrian and sidewalk facilities. Results indicated that the existing sidewalk network has some missing links that if built-out would improve connectivity.
- Results for the bicycle facilities indicated that there are facilities that are disconnected and improvement for connectivity is needed.

Recommendations:

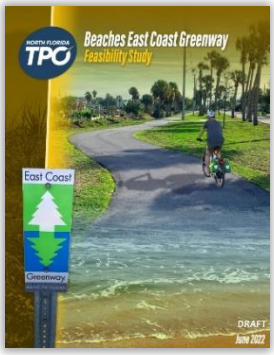
- Recommendations are based on input received from members of the public, stakeholders, and observations made in the field by the study team.
- As a general recommendation, sidewalks should be constructed on network segments that are currently missing or incomplete.
- Maps are provided showing bicycle facility type that is recommended to fill in gaps of the existing network.





Trail Planning Studies

Beaches East Coast Greenway Feasibility Study

Document Title: Beaches East Coast Greenway Feasibility Study	**Document Cover:** 
Agency: North Florida TPO	
Geography: Jacksonville Beaches	
Document Year: 2022	

Document Summary: Identified future routing alternatives for the East Coast Greenway through Jacksonville Beaches communities.

Key Findings: Connecting the trail to Hanna Park is a local popular option. However, past studies determined that it was not a feasible option due to the creation of an easement essentially blocking access to Hanna Park from Seminole Road. Therefore, that route as an alternative was not included in the study.

Recommendations: The recommended route is shown in the image to the right.

Figure 5-1 Recommended Route, Overall

Existing trail along Florida Boulevard. Source: Project Team.

Clay-Duval Trail Feasibility Study

Document Title: Clay-Duval County Trail Feasibility Study	**Document Cover:** 
Agency: North Florida TPO	
Geography: Portions of Clay and Duval counties	
Document Year: 2022	

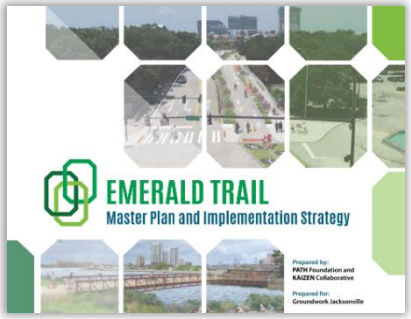
Document Summary: Identified potential alignments and feasible alternatives connecting Gold Head State Park in Clay County to the Cecil Trail in Duval County.

Recommendations:

- Highest scoring route through Jennings is shown in orange
- Recommended paved trail (brown) connecting to existing 10-foot sidewalk along Oakleaf Plantation Parkway follows SR 21 to Long Bay Road then Old Jennings Road
- From Old Jennings Road, the trail would travel north along Tynes Boulevard to Royal Pines Drive and Oakleaf Plantation Parkway
- Through Duval County, the trail would continue north along Cecil Connector Road/Perimeter Road, then along 103rd Street to Normandy Boulevard and the Cecil Trail
- Another alternative is to pursue routing south along POW-MIA Memorial Parkway and Newman Street to Cecil Trail

Figure ES-1 Final Recommended Routes

Emerald Trail Master Plan

Document Title: Emerald Trail Master Plan and Implementation Strategy	**Document Cover:** 
Agency: Groundwork Jacksonville	
Geography: Downtown Jacksonville	
Document Year: 2021	

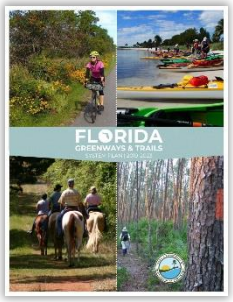
Document Summary: Serves as a guide for implementing the development of a greenway and trail system in and near downtown Jacksonville.

Recommendations:

- Identifies two implementation tiers of projects for 19.7 miles total of new trails based on apparent need, ease of development, and prospects for success
- Estimated cost is $184 million
- Identifies 6 trail types, design guidelines, and branding standards

Emerald Trail Implementation Tier 1

Florida Greenways and Trails System Plan

Document Title: Florida Greenways & Trails System Plan (2019-2023)	**Document Cover:** 
Agency: Florida Department of Environmental Protection (FDEP)	
Geography: State of Florida	
Document Year: 2019	

Document Summary: Outlines the vision for Florida's Greenways and Trails System (FGTS). Provides strategies, goals, objectives, and actions to provide a comprehensive approach to promote the system.

Key Findings:

- Trails are the top 4 community amenities sought by prospective homeowners of all ages
- The plan delineates distinct, long-distance regional trail corridors
- Provides strategies to plan, fund, develop, and market the priority FGTS network
- Includes priority and opportunity trail maps

Jax Beach Urban Trails Master Plan

Document Title: Urban Trails Master Plan	**Document Cover:** 
Agency: Jax Beach Parks & Rec	
Geography: City of Jacksonville Beach	
Document Year: 2022	

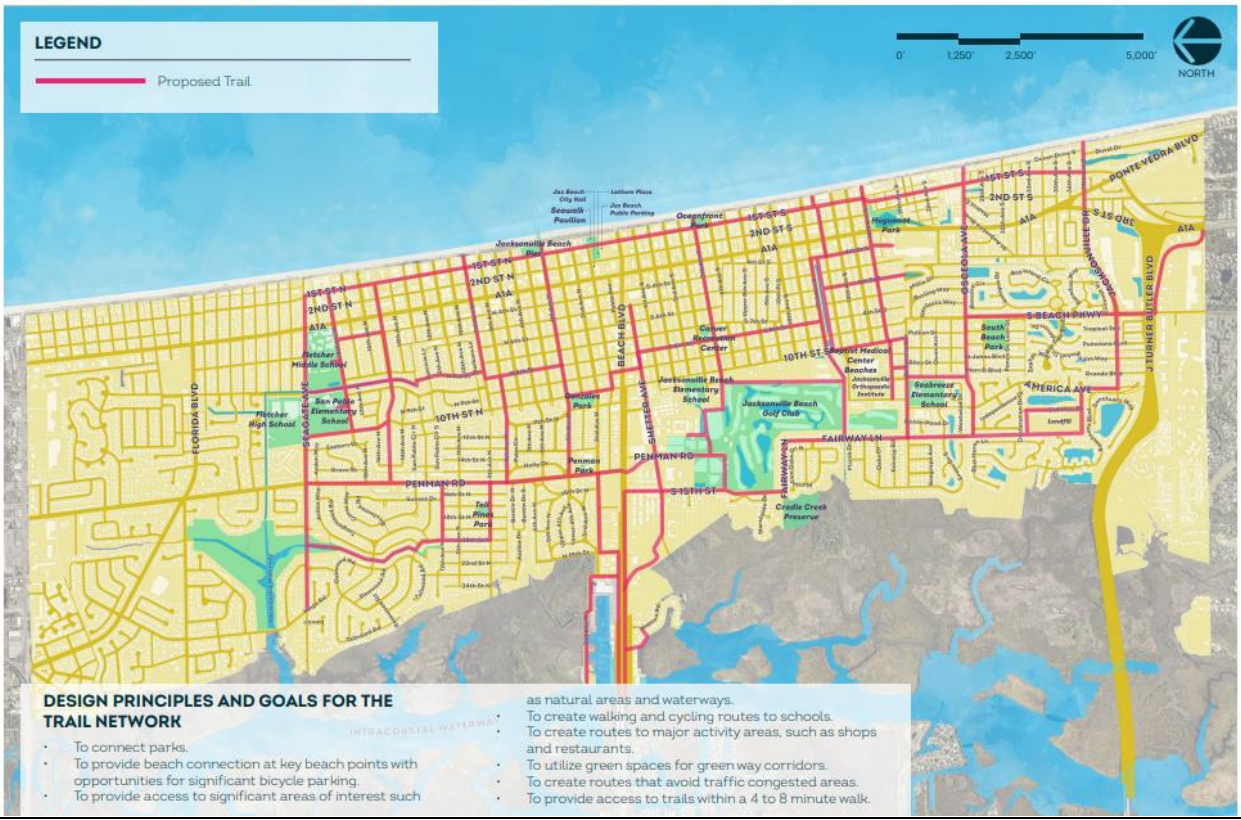
Document Summary: Creates a multi-modal urban trails network for the City of Jacksonville Beach that provides safe access and usability for all ages and abilities of residents and visitors.

Key Findings:

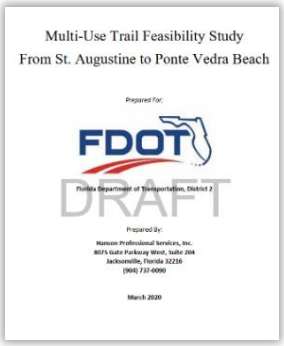
- Bicycle parking is limited and inconvenient
- On-street parking pushes bicycles to travel lane and constrains pedestrian walkway
- Wider ROW creates trail opportunities for a variety of users
- Opportunities focused on connections to neighboring communities and parks
- Constraints include urban nature, narrow ROW, stormwater requirements

Recommendations:

PROPOSED NETWORK MAP



St. Augustine to Ponte Vedra Trail Feasibility Study

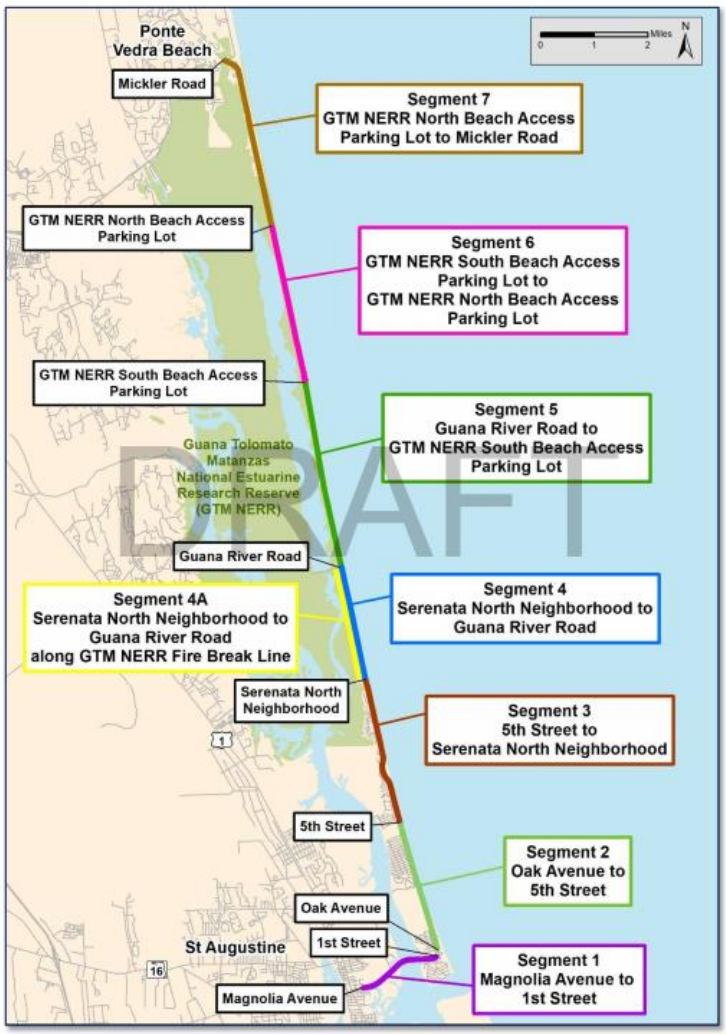
Document Title: Multi-Use Trail Feasibility Study: From St. Augustine to Ponte Vedra Beach	**Document Cover:** 
Agency: FDOT	
Geography: St. Augustine to Ponte Vedra Beach	
Document Year: 2020	

Document Summary: Provides a preliminary design concept and cost for implementing a multi-use trail from St. Augustine to Ponte Vedra Beach.

Key Findings:

- Existing right turn lanes would need to be removed to accommodate the trail
- In several locations, the road would have to be shifted and curb and gutter constructed to accommodate the trail
- Adding impervious area from the trail will generate additional stormwater runoff within the corridor. Dry areas should be installed
- Meeting minimum roadway lateral offset criteria for powerpoles is another factor
- Recommends reducing the speed limit from 50 mph to 45 mph
- Total cost is estimated to be around **$60 million for nearly 21 miles of trail**

Figure 1 – Study Area



SR 207 to Ponte Vedra Trail Planning Study

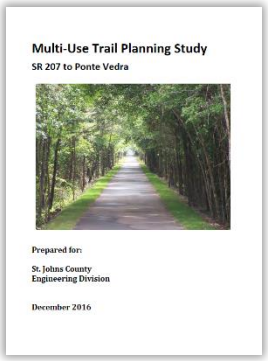
Document Title: Multi-Use Trail Planning Study: SR 207 to Ponte Vedra

Agency: St. Johns County Engineering Division

Geography: SR 207 Trail to Ponte Vedra Connection

Document Year: 2016

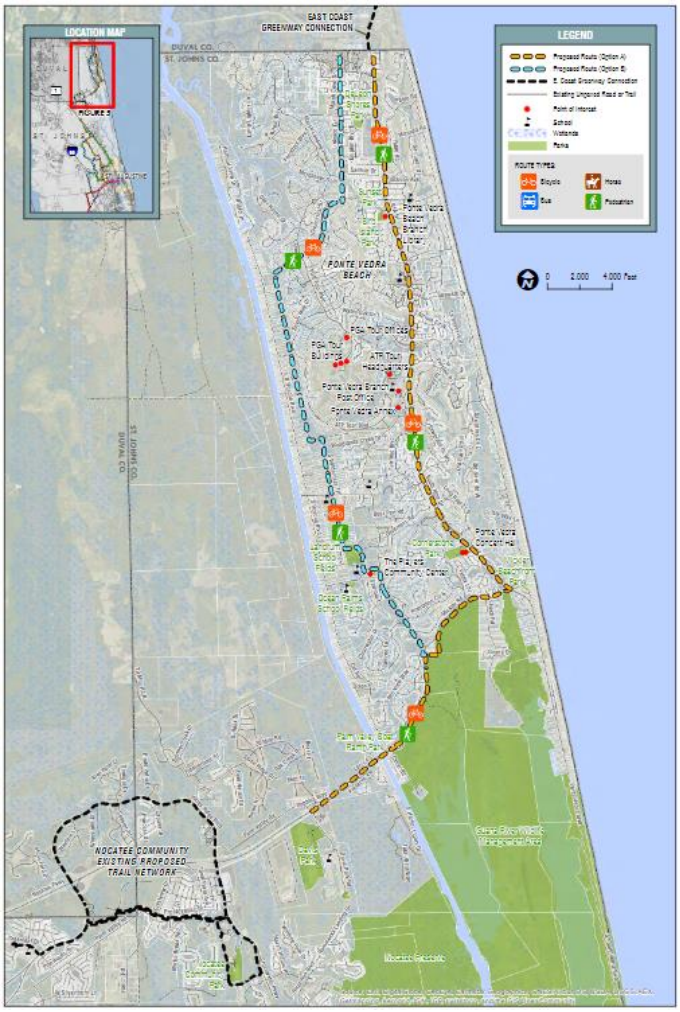
Document Cover:



Document Summary: Identifies a connection from the end of the existing trail on SR 207 to the Ponte Vedra/Duval County line. This included providing a connection to the City of St. Augustine.

Key Findings:

- Route along A1A considered not feasible due to numerous design constraints for providing a separated multi-use trail within the current ROW including:
  - Numerous driveways and side streets in the Vilano Beach area
  - Potential impacts to Guana Reserve
  - Amount of ROW acquisition
  - Lack of public support
  - Potential hurricane damage on public infrastructure



Recommendations:

- Preferred route options include:
  - Rail with trail concept from existing terminus to Holmes Boulevard to SR 16 (Options A and D)
  - Travel along Holmes through 12 Mile Swamp to Nocatee Trail Network
  - Continue north along Palm Valley Road and the Ponte Vedra Greenway concept

Schools to Downtown Waterfront Trail Planning Study

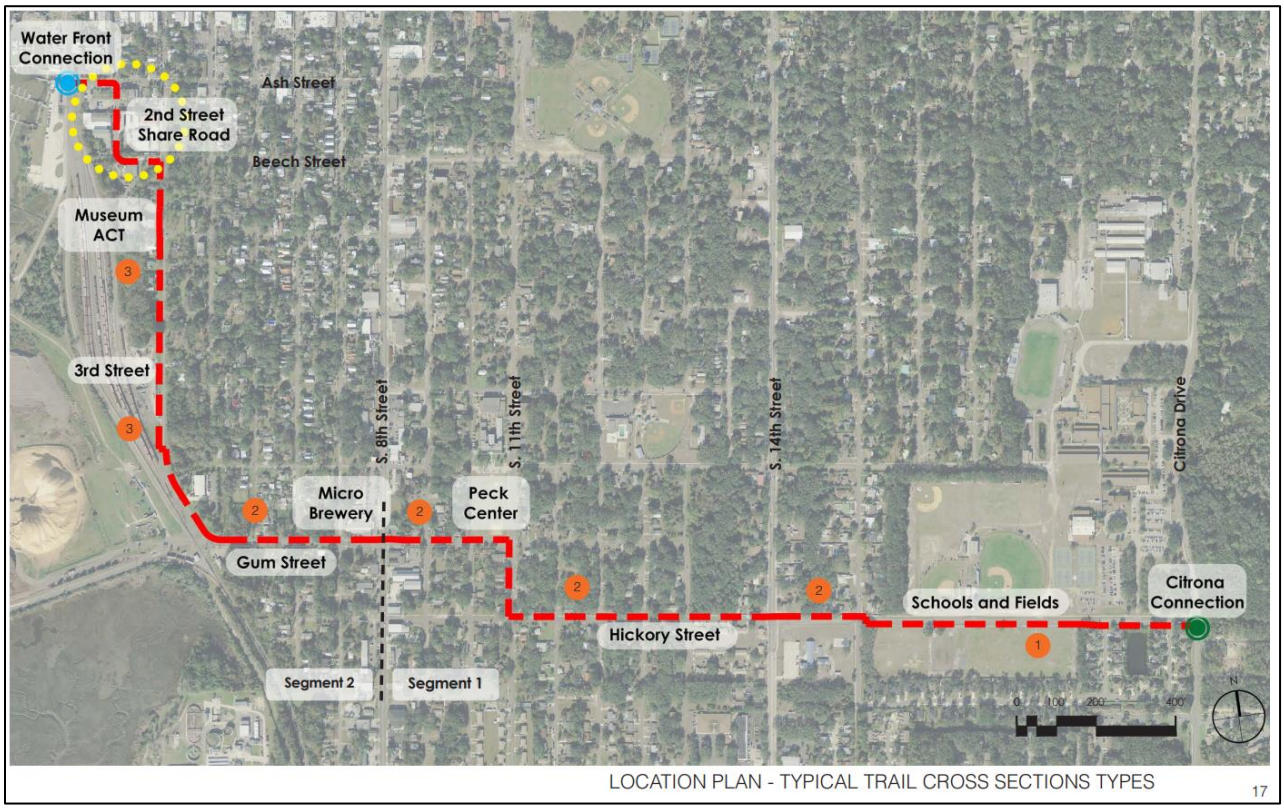
Document Title: Schools to Downtown Waterfront Trail Planning Study	**Document Cover:** 
Agency: City of Fernandina Beach	
Geography: 14th Street (Nassau County)	
Document Year: 2020	

Document Summary: Planning study for a new multi-use trail to connect the Schools and Citrona Trail to the downtown waterfront and future segment of the Cumberland to Timucuan Regional Trail. The goal is to add 2 miles of bike and pedestrian-friendly trail.

Key Findings: Identified issues include:

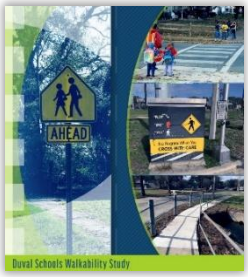
- ROW clearance, conflicts, easements, existing landscape
- Cost and neighborhood buy-in
- Stormwater, safety, and construction phasing

Recommendations: Recommended route below:



Other Bike/Ped Studies

Duval Schools Walkability Study

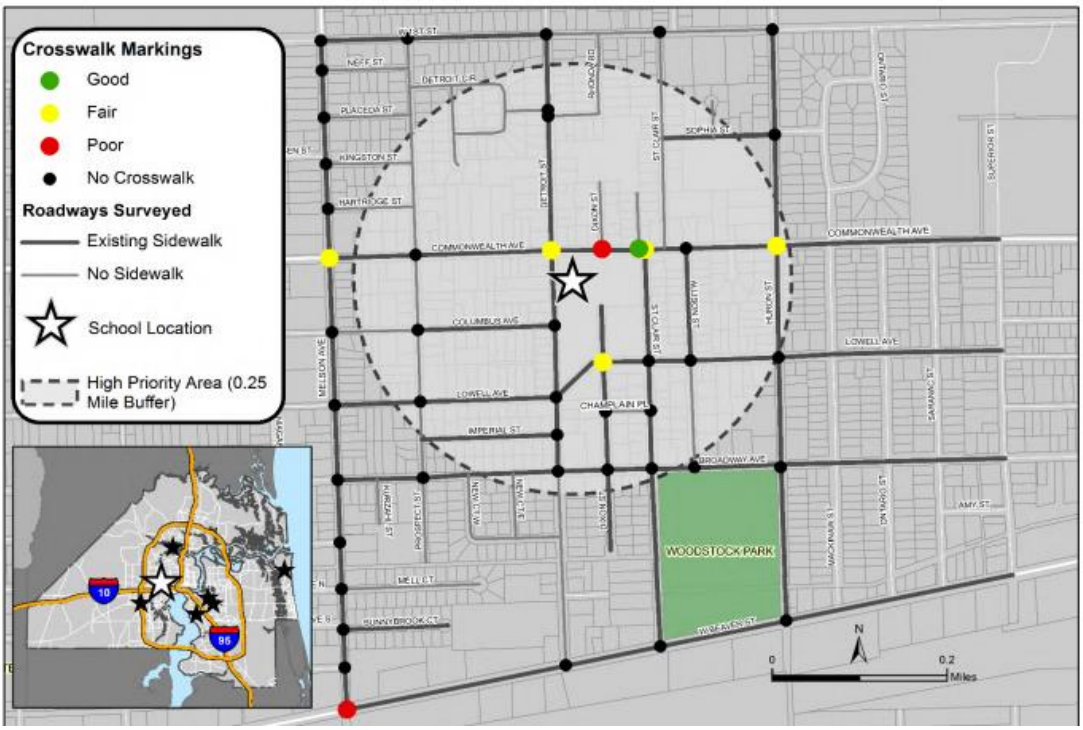
Document Title: Duval Schools Walkability Study	**Document Cover:** 
Agency: North Florida TPO	
Geography: Duval County	
Document Year: 2018	

Document Summary: Develops a methodology for conducting a context sensitive school walkability analysis that can be replicated in schools throughout the region.

Key Findings:

- Roadway selection should include local roads in addition to collector and arterial roads when determining walkability
- Improvements should be prioritized based on proximity to school
- Efforts should be focused on establishing quality and complete walking infrastructure immediately adjacent to the school and within the first 0.25 mile radius
- Priority rings could be established for funding and constructing infrastructure
- A school walkability database should be developed as a living document
- A walking network of safe walking routes for each school may help concentrate improvements

FIGURE 3-15 ANNIE MORGAN CROSSWALK CONDITIONS



FDOT Bike/Ped Gap Study

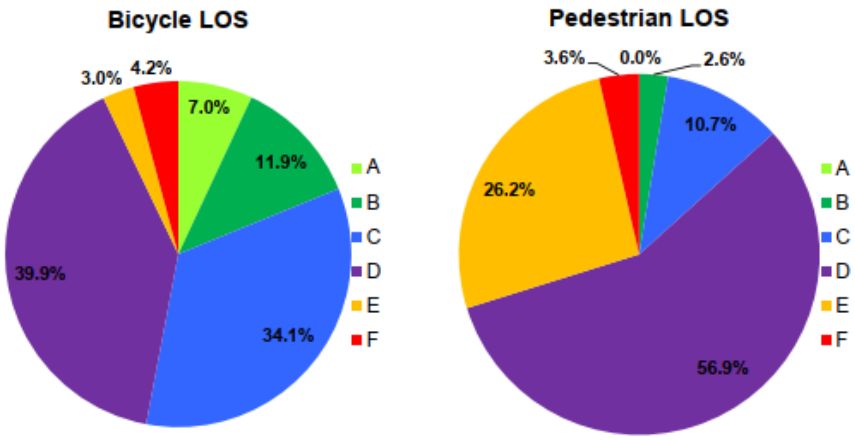
Document Title: BikePed Gap Study	**Document Cover:** 
Agency: FDOT	
Geography: FDOT District 2 (D2)	
Document Year: 2018	

Document Summary: Assessed the existing conditions of the D2 bicycle and pedestrian system to determine the location of gaps in the connectivity of the bicycle and pedestrian facilities throughout the district.

Key Findings:

- Components used to identify gaps include:
  - Existing bike/ped facilities (bike lanes, paved shoulders, shared use paths, sidewalks). Used 2017 FDOT Roadway Characteristics Inventory (RCI) database
  - Level of Service (LOS) analysis for bicycle and pedestrian travel on state roads (base LOS models in the Highway Capacity Model)
  - Current (2010) and future (2040) demand for bike/ped facilities
  - Bike/ped crash locations and analysis
- Pedestrian facility was defined as a sidewalk on at least one side of the street
- Performed a bicycle and pedestrian demand analysis using a variation of the Latent Demand Score (LDS) method – estimates the latent or potential demand for bike travel by analyzing the trip generation potential of activity centers to determine the potential demand for a facility using Transportation Analysis Zones (TAZ), population, employment, and school enrollment
- Crashes and fatalities were concentrated heavily in Alachua, Duval, and St. Johns

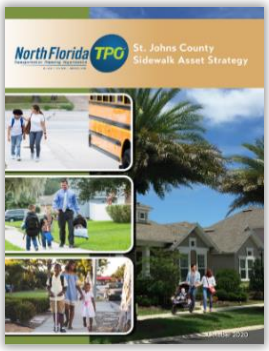
Figure 1. Bicycle LOS and Pedestrian LOS Percentages for District Two Roadway Miles



Recommendations:

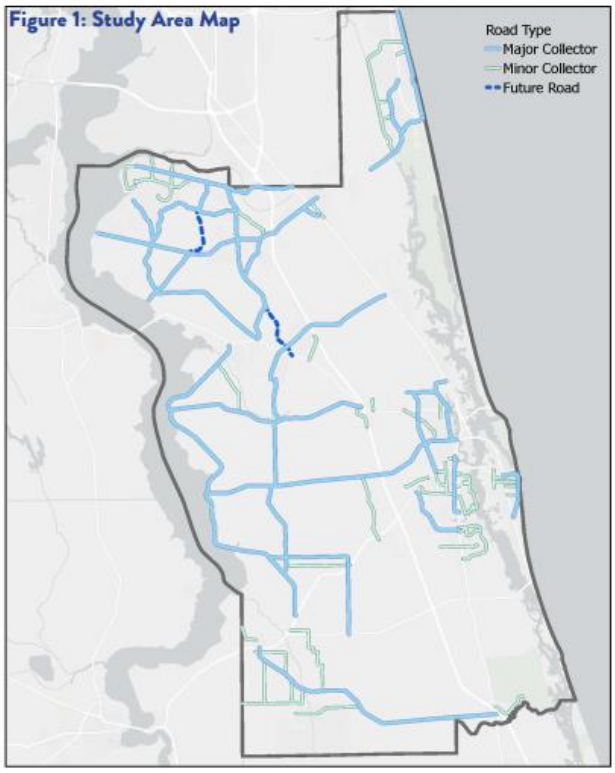
- Next step in this process is to conduct a bicycle and pedestrian gap evaluation and prioritization utilizing a streamlined scoring schema
- Update this report every three (3) years with the latest RCI data to track progress

St. Johns County Sidewalk Asset Strategy

Document Title: St. Johns County Sidewalk Asset Strategy	**Document Cover:** 
Agency: North Florida TPO	
Geography: St. Johns County	
Document Year: 2020	

Document Summary: This project identified sidewalk gaps along major and minor collector roads located throughout St. Johns County.

Key Findings:



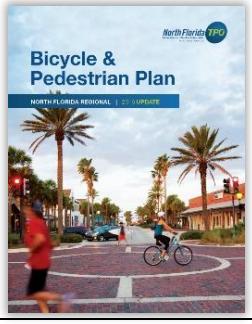
- Study Area included the collector roadways as identified in the County's Roadway Functional Classifications list
- 311 sidewalk gaps were identified. Rankings were based on needs and cost
- Need-based criteria: (1) Access and Demand- Locations where potential walking demand is greatest and that provide access to major destinations. (2) System Connectivity - Locations where the additions promote connections. (3) Safety- Locations with a history of accidents. (4) Mobility and Equity- Locations that promote walkability, especially for individuals in underserved communities, and that facilitate first/last mile for public transit
- Cost-Based criteria considered bridges, elevation, right-of-way availability, stormwater concerns, wetland impacts, presence of specimen trees, and conflicts with utilities. The second step involved evidence of pedestrian usage

Recommendations:

- Establish a sidewalk asset steering committee to create a process of selecting sidewalk gaps for the Capital Improvement Program (CIP)
- Provide revisions to the existing Land Development Code (LDC)
- Due to rapid growth in St. Johns County, regular updates should be provided to the existing sidewalk gaps to better determine needs every three (3) years
- The Steering Committee should consider modifying existing evaluation criteria

Bike/Ped Master Plans

Bicycle and Pedestrian Plan Regional Update

Document Title: Bicycle & Pedestrian Plan North Florida Regional 2016 Update	**Document Cover:** 
Agency: North Florida TPO	
Geography: North Florida TPO Region	
Document Year: 2016	

Document Summary: Tracks the progress of the 2013 bike/ped master plan and identifies next steps.

Key Findings:

- Summarized completed focus area studies since 2013
- Identified two priority groups for future study areas:
  - Priority Group 2: UNF/St. Johns Town Center, Ponte Vedra Beach, Yulee
  - Priority Group 3: Middleburg, Naval Station Mayport, Naval Air Station Jacksonville
- Identified regional route needs for future study:
  - Clay: SR 21, US 17, SR 16
  - Duval: SR A1A, US 1, SR 13, US 17
  - Nassau: SR A1A, SR 200, US 17, US 1, SR 115
  - St. Johns: SR A1A, US 1, SR 13, SR 16, CR 210, Race Track Road
- Developed Context Sensitive Solutions Guidelines
- Provided safety highlights from agency partners on bike/ped safety education efforts
- Provided goals to guide planning and investment decisions

The North Florida TPO developed the following goals to guide planning and investment decisions:

- Provide an extensive, connected and convenient on-road network of bicycle and pedestrian facilities throughout the North Florida TPO region.
- Expand the region's greenways and trails system to create a connected network of greenways and trails within the North Florida TPO region.
- Improve the safety of bicyclists and pedestrians in the North Florida TPO region.
- Improve multi-modal transportation efficiency in the North Florida TPO region.

Bicycle Plan for St. Augustine, FL

Document Title: Bicycle Plan for St. Augustine, FL	**Document Cover:** 
Agency: North Florida TPO	
Geography: St. Augustine, Florida	
Document Year: 2011	

Document Summary: This Bicycle Plan for the City of St. Augustine recommends a series of steps to improve the viability and practicality of bicycling in St. Augustine. These steps include developing of a network of bicycle routes, improving of bicycle parking, and developing countermeasures to observed bicycle safety issues in the City.

Key Findings:

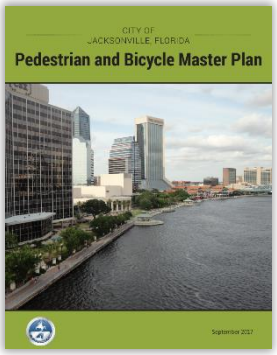
- Proposed bike network is a total of 50 miles including: 17 miles of roadway maintained by the City of St. Augustine, 10 miles maintained by St. Johns County, and 22 miles maintained by FDOT
- Bike crash data was spread evenly throughout the year with small peaks in March and July

Figure 4.1: Recommended Bicycle Route Network

Recommendations:

- Various improvements based on existing roadway conditions are recommended in the report pertaining to bicycle safety. These improvements include the installing shared lane markings, roadway repair/resurfacing, widening shoulders for bicycle lanes, signal retiming, adding buffered and non-buffered bike lanes, traffic calming, improved wayfinding, and adding bicycle-compatible speed tables
- All existing bicycle racks are recommended to be improved to either "inverted U" or post and ring type bicycle racks
- St. Augustine and St. Johns County coordinate with the Sunshine Bus Service to include bicycle parking locations at all bus stops
- Continued coordination between FDOT, St. Johns County, and the City of St. Augustine to achieve the recommendations listed.

Jacksonville Pedestrian and Bicycle Master Plan

Document Title: Pedestrian and Bicycle Master Plan	**Document Cover:** 
Agency: City of Jacksonville	
Geography: Jacksonville, Florida	
Document Year: 2017	

Document Summary: This Master Plan for the City of Jacksonville provides a roadmap to transform the city into a more walkable and bike friendly city.

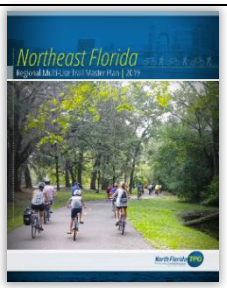
Key Findings:

- Filling in sidewalk network gaps and increase buffers to better protect pedestrians and lower crash rates.
- Existing off-road bicycle facilities are disconnected, but recommendations found in the report help improve upon connectivity.
- Several shared-use paths were recommended, and many were adopted into the regional trail network plan (2019).

Recommendations:

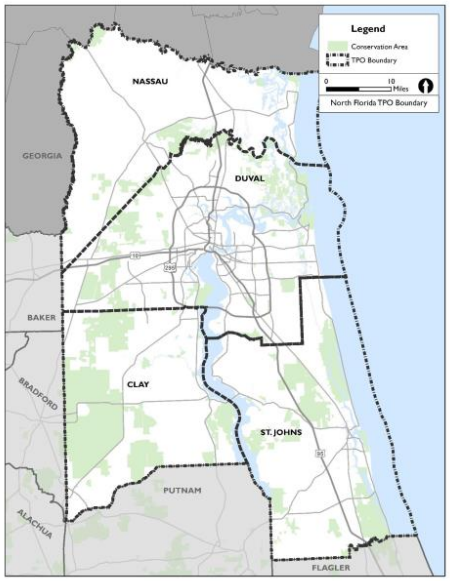
- City adopts a Vision Zero policy
- Plan recommends a 250+ mile on-street/off-street bikeway network
- Bicycle and pedestrian counting program
- Install sidewalks where missing and increase sidewalk widths
- Reduce curb radii at intersections
- Install traffic calming features
- Prioritize lane reductions/road diets on four-lane or two-lane roadways with parking
- Install center median islands
- Convert one-way streets to two-way streets
- Add outdoor seating through the creation of parklets or on widened sidewalks
- Install curb extensions
- Use high visibility marked crosswalks at all locations
- Identify locations for Rectangular Rapid Flashing Beacon placement

Northeast Florida Regional Multi-Use Trail Master Plan

Document Title: Northeast Florida Regional Multi-Use Trail Master Plan	**Document Cover:** 
Agency: North Florida TPO	
Geography: Northeast Florida	
Document Year: 2019	

Document Summary: Provides documentation to identify regionally endorsed network of trails that can be used as a tool to apply for funding and grant opportunities. 540 miles of proposed trails were identified in Nassau, Clay, Duval, and St. Johns counties.

Key Findings:

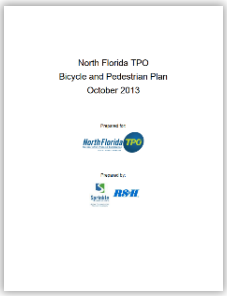


- Project focused on recommendations of off-street trails and paths to remain consistent with Shared-Use Network (SUN) trail guidelines.
- Approximately 121 miles of existing trails are throughout the North Florida TPO Region.
- The TPO Network in Clay County consists of approximately 93.1 miles of trails. Approximately 26.2 miles of trails are existing, with 66.9 miles of trails proposed in this plan.
- The TPO Network in Duval County consists of approximately 274 miles of trails. Approximately 60 miles of trails are existing, with 214 miles of trails proposed in this plan.
- The TPO Network in Nassau County consists of approximately 114 miles of trails. Approximately 12 miles of trails are existing, with 102 miles of trails proposed in this plan.
- The St. Johns County Network consists of approximately 178 miles of trails. About 20 miles of trails are existing, with 158 miles of trails proposed in this plan.

Recommendations:

- Adopted a North Florida TPO Trail network consisting of 540 miles of proposed trails
- Priority Trails identified by each county:
  - Clay County: 1) Duval to Gold Head Trail; 2) Cecil Trail Extension; 3) Green Cove Springs to St. Johns County Trail; 4) Green Cove Springs to Putnam County Trail
  - Duval County: 1) C2C Loop and remaining East Coast Greenway (ECG) gaps; 2) Roosevelt Trail; 3) Connection between Baldwin Trail and Emerald Trail; 4) POW-MIA Memorial Parkway/Cecil Trail; 5) New Kings Road/Moncrief Trail
  - Nassau County: Amelia Island Trail connection with the Trans Nassau Trail/ECG across SR 200 Bridge
  - St. Johns County: 1) SJR2C Loop; 2) SJR2C Loop connection to Duval County; 3) SR 207 to Ponte Vedra Trail

North Florida TPO Bicycle and Pedestrian Plan

Document Title: North Florida TPO Bicycle and Pedestrian Plan	**Document Cover:** 
Agency: North Florida TPO	
Geography: Northeast Florida	
Document Year: 2013	

Document Summary: Serves as a guide to plan improved bicycle and pedestrian facilities throughout the northeast Florida region. Coincides with the North Florida 2040 Long Range Transportation Plan (LRTP). Builds on recommendations from the 2006 Greenways and Trails Master Plan.

Key Findings:

- Study focuses on general future bicycle and pedestrian corridors as opposed to specific projects.
- Report included a public survey covering three key questions: how often people rode a bicycle, how often people have walked, and primary barriers for bicycling.
- Study provides specific areas as focal points including Downtown Jacksonville/ Springfield, Duval beaches, and Mayport/Naval Air Station (NAS) Jacksonville.
- Provides a policy review of existing local bicycle and pedestrian focused policies.

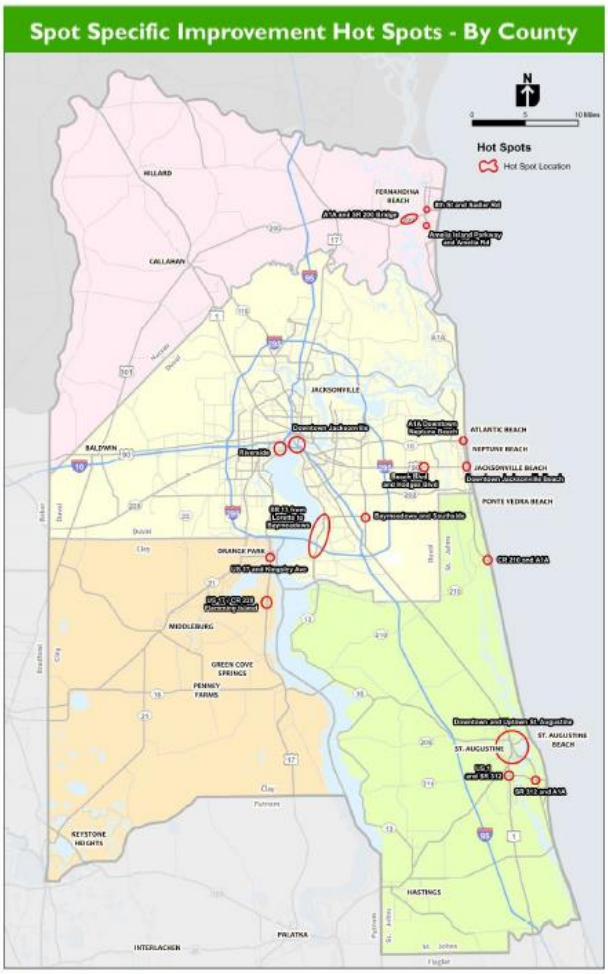
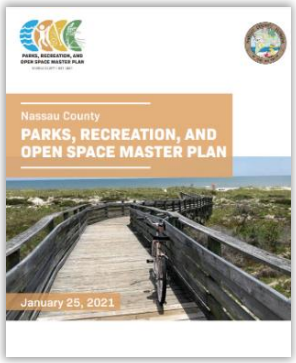


Figure 7. Spot Specific Improvement Hot Spots by County

Recommendations:

- Bicycle parking was not consistently addressed within the North Florida TPO. Composite bicycle parking text is provided in the report.
- Increased implementation of mid-block pedestrian crossings.
- Add Shared-Use Paths that comply with the Florida Greenbook (FGB).
- Require bicycle facilities along arterial and collector roadways.
- Report provides recommended safety measures for pedestrians and bicyclists to improve visibility.

Nassau County Parks, Recreation, and Open Space

Document Title: Parks, Recreation, and Open Space Master Plan	**Document Cover:** 
Agency: Nassau County	
Geography: Nassau County	
Document Year: 2021	

Document Summary: Includes an Implementation Framework, Analysis of Existing Conditions, Comprehensive Needs Assessment, a Long-Range Vision, and developing a Phased Implementation Strategy for future parks, recreation, and open space facilities in Nassau County.

Key Findings:

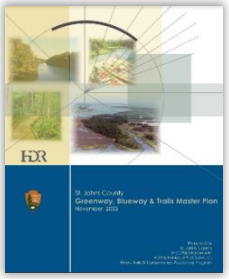
- Focuses on parks as a way of stabilizing and improving neighborhoods, providing bicycle and pedestrian connectivity, establish new economic development, etc.
- Includes how to include urban design, transportation, stormwater, and environmental elements into parks, recreation, open space for the county

Recommendations:

- New greenway trails, high quality bike facilities, and shaded sidewalks ranked as the number one priority to improve county's parks and recreation system
- Parks can be trailheads and training areas within a bicycle and pedestrian network
- Bicycle and pedestrian access is a guiding principle to the parks and recreation vision
- Improve bike/ped access to Scott Road Access Dune Walk

- Every resident should be able to walk or bike on safe facilities to a local park located with one half (1/2) mile of their home
- Wherever possible, existing public corridors such as drainage and utility easements and fire access roads should also be designed as multi-use trails

St. Johns Greenway, Blueway & Trails Master Plan

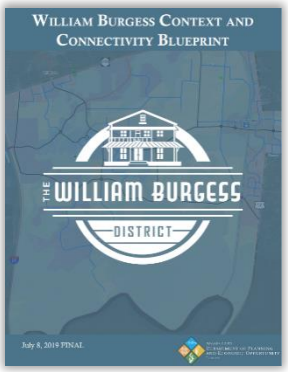
Document Title: St. Johns County Greenway, Blueway & Trails Master Plan	**Document Cover:** 
Agency: St. Johns County	
Geography: St. Johns County	
Document Year: 2005	

Document Summary: Provides the vision, directives, summary of existing programs, design standards, and recommendations for blueways and trails in St. Johns County.

Recommendations:

- Locate trail corridors in areas that limit extensive construction or major land acquisition efforts. Consider selecting sites where greenways can be accommodated in existing transportation corridors, rights-of-way, and easements or within proposed roadway corridors.
- Select sites that will have the least impact on the surrounding environment including wetlands, floodplains and significant habitats.
- Provide sufficient buffers in areas where trails are parallel to the roadway or are adjacent to residential uses.
- Establish connections with existing trails, conservation areas, parks and boating facilities to promote trail use and activities. Also consider links to other facilities such as schools, community centers and any historical features that may provide a unique opportunity to users.
- Establish linear east-west and north-south greenway corridors that will help link the county's resources to one another.
- Provide connections to surrounding counties and create linkages to existing trails wherever possible.
- The existing Greenway, Blueway & Trails Master Plan map will be updated periodically

William Burgess District Connectivity Plan

Document Title: William Burgess Context and Connectivity Blueprint	**Document Cover:** 
Agency: Nassau County Planning and Economic Opportunity Department	
Geography: William Burgess District, Nassau County	
Document Year: 2019	
Document Summary: Design standards for the William Burgess Overlay District.	

Key Findings:
Visual preference survey results showed a priority on bike/ped facilities.

Bike/Ped Policies:
1.3.2.11: Provide interconnected developments regardless of ownership, including bike/ped facilities.
4.5.2.1.iv: Configure buildings to have an active and pedestrian friendly streetscape
4.5.2.3.c: Block face more than 500 feet shall have a midblock pedestrian pathway a minimum of 20 feet
4.5.2.6: Pedestrian connectivity: a pedestrian circulation plan shall be provided with linkages to existing or planned pathways; minimum sidewalk width is 6 feet; minimum multi-use trail width 10 feet
4.5.2.7: Parking areas: On-street parking areas shall provide locations for midblock crossings; parking areas shall provide a minimum of 8' wide walkway; bicycle parking is required for all non-residential and mixed-use developments; bicycle parking shall be in a usable location and not block pedestrian throughways
4.5.3.1 Building Height and Placement: place buildings to encourage a more active pedestrian zone such as closer to the public ROW
4.6.2 and 4.6.3: Façade transparency and treatments at pedestrian scale
4.9.2 Streets: All new and rebuilt thoroughfares must include multiuse trails on both sides of the road; provide pedestrian access in cul-de-sacs
4.9.6 Movement Types: design speed of thoroughfares is 20-35 mph depending on movement type to promote bicycle and pedestrian safety.

Recommendations:
Strong pedestrian and bicycle orientation that integrates with the identified commuter rail/transit facility located at the intersection of the CSX railroad and William Burgess Boulevard and other potential transit facilities/infrastructure along SR 200/A1A, US 17, and William Burgess Boulevard corridors.

2.3 Comprehensive Plans

By reviewing the studies and master plans, ten (10) of the adopted comprehensive plans within the region were reviewed to determine if they include existing polices relevant to bicycle and pedestrian infrastructure and implementation. The goal was to document which types of bicycle and pedestrian policies are present in existing comprehensive plans and which types of policies were lacking. The results of the comprehensive plan review would guide the policy recommendations detailed in the **Section 5.3**.

Comprehensive Plans Reviewed

The comprehensive plans that were reviewed during this process are listed below.

- *Clay County Comprehensive Plan*
- *City of Atlantic Beach Comprehensive Plan*
- *City of Fernandina Beach Comprehensive Plan*
- *City of Jacksonville Comprehensive Plan*
- *City of Jacksonville Beach Comprehensive Plan*
- *City of Neptune Beach Comprehensive Plan*
- *City of St. Augustine Comprehensive Plan*
- *Nassau County Comprehensive Plan*
- *St. Johns County Comprehensive Plan*
- *Town of Orange Park Comprehensive Plan*

Policies Reviewed

Nine specific bicycle and pedestrian-related policies were examined including complete streets, development regulations, maintenance of facilities, mapping, public transportation, regional collaboration for safety, resurfacing to expand the existing network, safety, and trails. These policies are further described below and listed in **Table 2-1** at the end of this section.

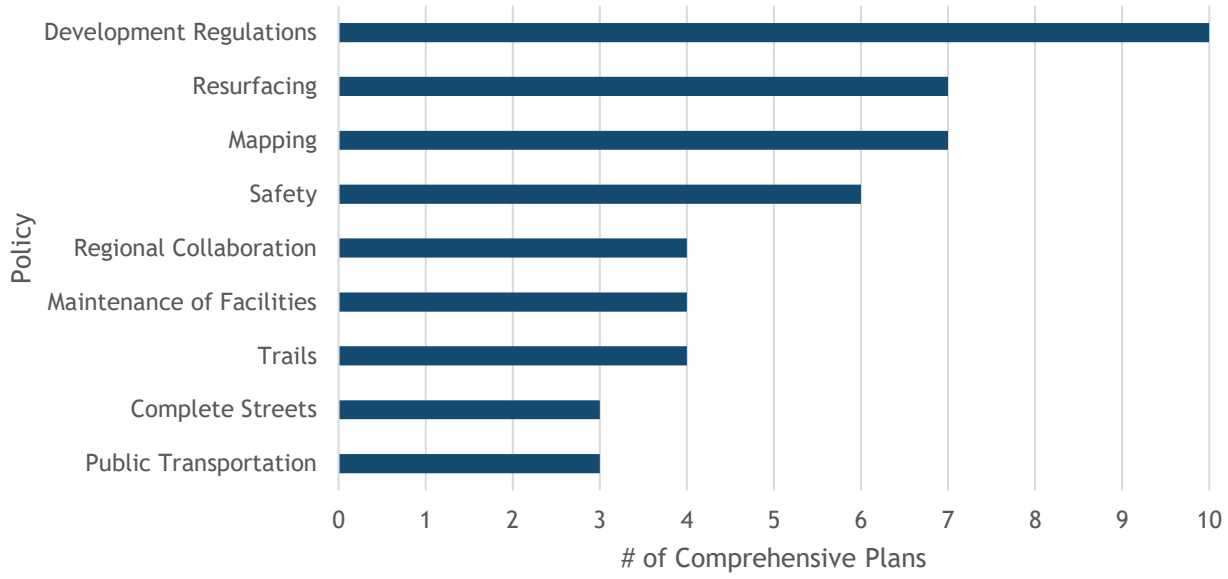
- **Complete Streets Policy:** Complete Streets policies promote a multi-modal approach to street design. Multi-modal design promotes walking, bicycling, transit, and automotive use. Of the communities examined, three (3) included a complete streets policy within their comprehensive plan.
- **Land Development Regulations (LDRs):** Land Development Regulations (LDRs) ensure that new development provides safe and connected bicycle and pedestrian facilities.
- **Maintenance of Facilities:** Policies that promoted maintaining bicycle and pedestrian facilities through cleaning and pavement surface maintenance were found within four (4) comprehensive plans reviewed.
- **Mapping Policy**: The mapping policy ensures that local counties and municipalities are maintaining a Geographic Information System (GIS) database of bicycle and pedestrian facilities within their jurisdiction. Of the communities examined, seven (7) included a policy promoting the mapping of their bicycle and pedestrian network.

- **Public Transportation Policy:** This policy determined if communities are promoting the connection of public transportation stops (bus stops) to the bicycle and pedestrian network. Of the communities examined, three (3) included this policy in their comprehensive plan.
- **Regional Collaboration:** Regional collaboration for improved safety within the bicycle and pedestrian network was in the comprehensive plans of four (4) communities.
- **Resurfacing to Expand Existing Network**: Resurfacing as an opportunity to re-stripe and add bicycle lanes that expand the bicycle and pedestrian network was found within seven (7) of the comprehensive plans.
- **Safety:** Safety policies that encouraged safe practices and safe access to facilities were found within six (6) comprehensive plans analyzed.
- **Trails Policy:** This policy includes provisions to expand the existing trails network within the jurisdictions analyzed. Of the communities examined, four (4) included a trails policy.

Policy Trends

The nine (9) policies reviewed are summarized in **Figure 2-2**. The most common policies were Development Regulations for new developments to build bicycle and pedestrian infrastructure, which were included in all ten (10) plans reviewed. The next two popular policies were resurfacing and map policies, each found in eight of the ten plans. The least frequent policies were Complete Streets and Public Transportation policies, which were only in three of the ten plans.

Figure 2-2 Comprehensive Plan Trends



Policy Locations

Table 2-1 displays which comprehensive plan reviewed included which bicycle and pedestrian-related policy. A green check mark (✓) indicates that the plan included the policy. The *City of Fernandina Beach Comprehensive Plan* included the most bicycle and pedestrian-related policies featuring all nine of the policies reviewed. The *St. Johns County Comprehensive Plan* included the second most policies with seven of the policies reviewed included in their plan. The plans with the fewest policies were the *City of Atlantic Beach Comprehensive Plan*, *City of St. Augustine Comprehensive Plan*, *Clay County*, and *Town of Orange Park Comprehensive Plan* with three bicycle and pedestrian-related policies each.

Communities without a policy are recommended to include them to improve the connectivity and safety of their bicycle and pedestrian network.

Table 2-1 Comprehensive Plan Summary

Comprehensive Plan	Complete Streets	LDRs	Mainte-nance	Map	Public Trans.	Regional Collab.	Resur-facing	Safety	Trails
Clay County		✓		✓			✓		
City of Atlantic Beach		✓			✓		✓		
City of Fernandina Beach	✓	✓	✓	✓	✓	✓	✓	✓	✓
City of Jacksonville		✓	✓		✓		✓		✓
City of Jacksonville Beach		✓	✓	✓	✓		✓		
City of Neptune Beach		✓		✓		✓	✓	✓	
City of St. Augustine	✓	✓							
Nassau County	✓	✓		✓		✓		✓	✓
St. Johns County		✓	✓	✓	✓	✓		✓	✓
Town of Orange Park		✓		✓			✓		

Section 3.0 Spatial Analysis

3.0 Spatial Planning Analysis

A planning-level spatial analysis was conducted to identify future bicycle and pedestrian planning needs. The spatial analysis included the following four elements: base demographic analysis, a socioeconomic analysis, a crash analysis, and previous studies analysis. The data utilized is briefly described in each section. As there is a concurrent safety study being conducted for the North Florida TPO, the crash analysis was high-level and focused on the general location of bicycle and pedestrian crashes to be used for future sub-area and safety study identification.

This spatial analysis was presented to both the TAC and AAG at their initial meetings to provide study background, discussion topics, and to provide the context for potential future studies. The ability to visualize these data trends on a regional level as well as see where planning efforts have been focused within the region provides the baseline for the development of recommendations for this master plan.

The overall goal of the spatial analysis is to avoid duplicating previous planning efforts while highlighting potential areas on the maps that may be suitable for additional study as well as emphasize equitable, populous, and high-crash areas.

Bicycle using full lane, Anastasia Island. Source: Project Team.

3.1 Base Demographic Analysis

The base demographic analysis was conducted using American Community Survey (ACS) data which is produced by the US Census Bureau from 2017-2021 by census block group (CBG). The data was obtained from the Florida Geographic Data Library (FGDL). The four data points utilized as part of this analysis were population density, employment density, student population, and zero car households. Further socioeconomic data is discussed in **Section 3.2 Socioeconomic Analysis.**

Population Density

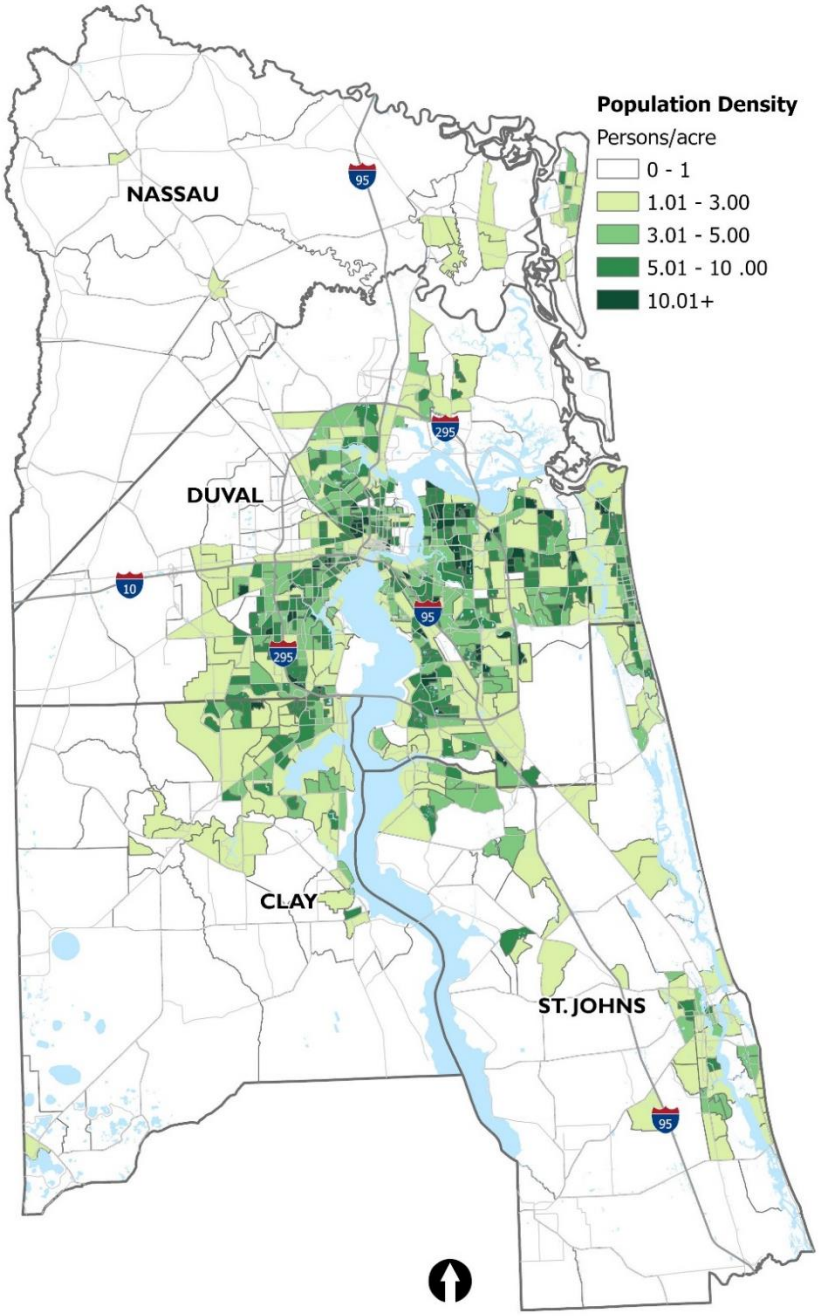
Population density (persons per acre) of the region is displayed in **Figure 3-1** by census block group. Areas with a higher population density tend to be more easily serviced by bicycle and pedestrian infrastructure than low density areas because fewer miles of trails, bike lanes, and sidewalks are needed to provide access.

The areas of higher population density are shown in darker green and the areas of lower population density are shown in lighter green. Areas that have a density of one person or less per acre are shown as white.

The higher density areas are concentrated in central Duval County, the Beaches areas in Duval County, and northeast Clay County. Some higher density pockets are near St. Augustine and Northwest St. Johns County, and the North Ponte Vedra Beach area.

The lower density areas are concentrated largely in Nassau, Clay, portions of St. Johns County, and west Duval County.

Figure 3-1 Population Density



Employment Density

High density employment areas can serve as attractors for commuting, shopping, and other services.

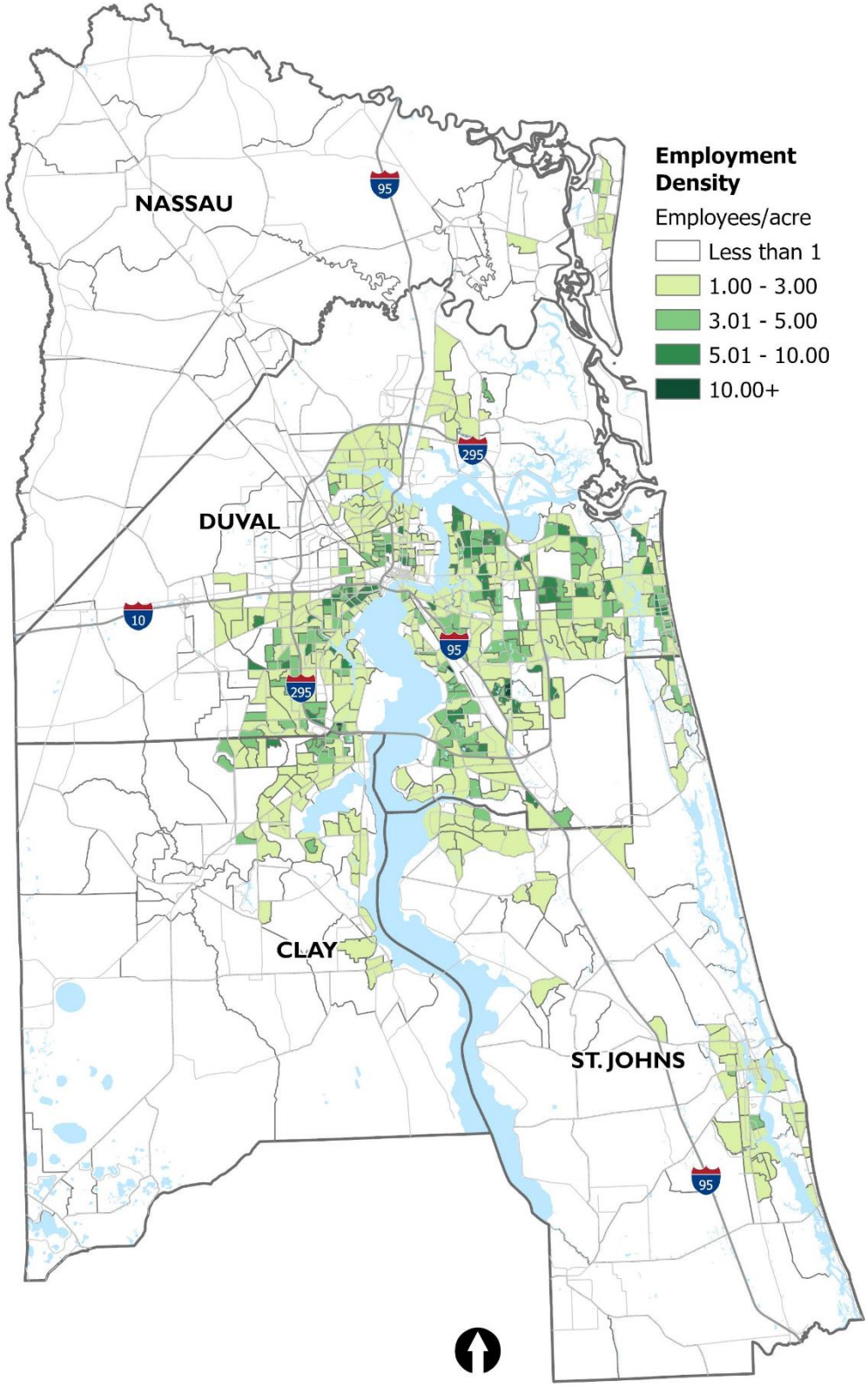
Figure 3-2 displays the civilian employed population aged 16 years and over ("employee") per acre within the region by census block group.

The areas of higher employment density are shown in darker green and the areas of lower employment density are shown in lighter green. Areas that have an employment density of less than one employee per acre are shown in white.

A majority of the region has less than one employee per acre, and many of the remaining block groups have between one and three employees per acre.

The higher density employment areas are clustered around central Duval County. There are also pockets have higher employment in northeast Clay County and along US 1 near St. Augustine in St. Johns County.

Figure 3-2 Employment Density



Student Population

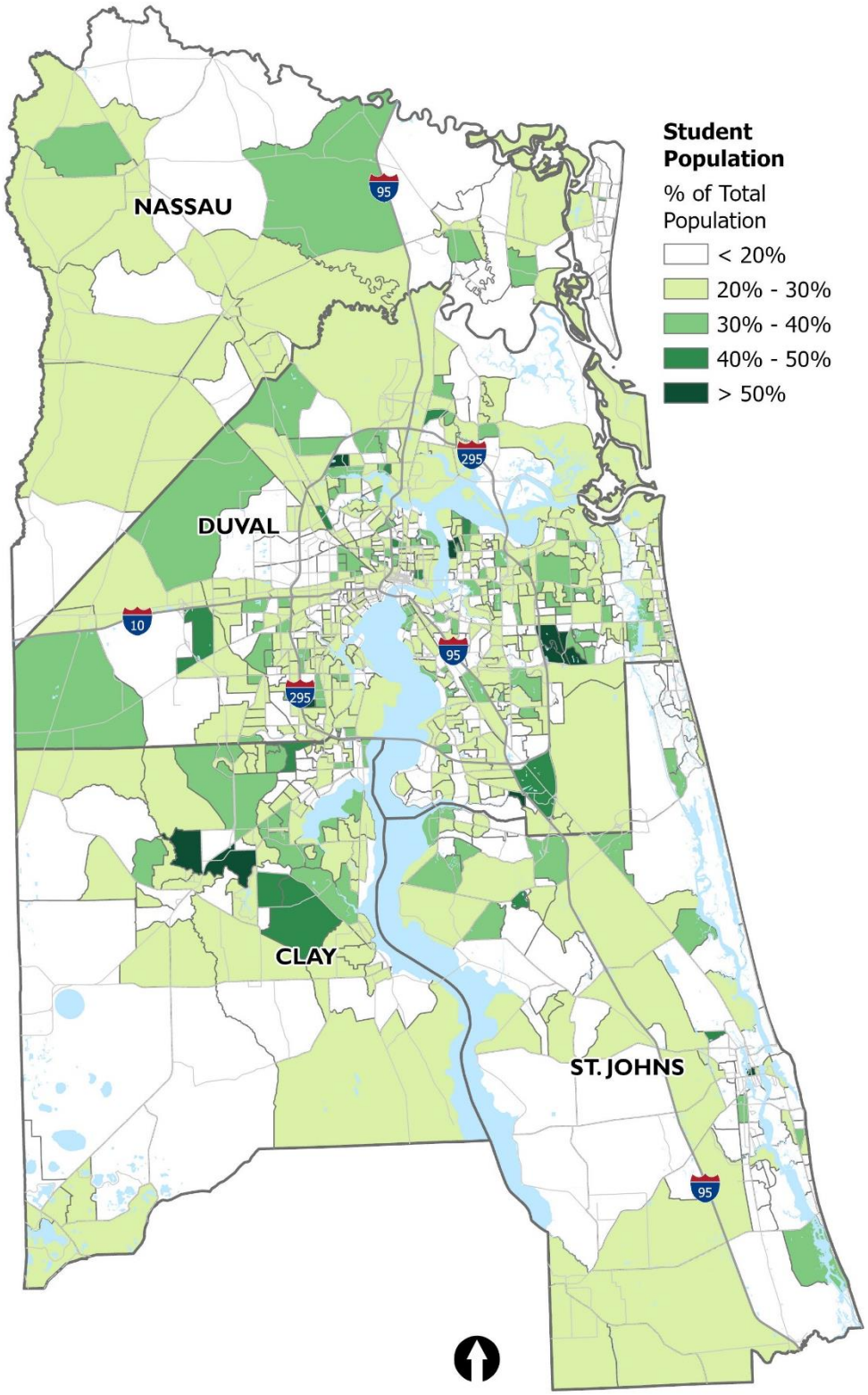
Student populations are an important target for bicycle and pedestrian improvements because their access to motorized vehicles is less compared to the overall population. This is due to the fact that grade school age students are largely below driving age and college students tend to have lower car ownership rates than other adult populations.

Figure 3-3 displays the percentage of enrolled students aged three and up of the total population by census block group.

A majority of the region has a student population of at least 20%. The areas of higher concentration are near northeast Clay County, northwest St. Johns County, and west Duval County.

Areas of lower student populations are the Ponte Vedra Beach/Vilano Beach and the rural Elkton area areas of St. Johns County, Amelia Island in Nassau County, and the southwestern area of Clay County near Camp Blanding.

Figure 3-3 Student Population



Zero Car Households

The zero car households data point was selected as part of the base demographic analysis because it highlights the areas that may be more inclined to utilize or demonstrate more of a need for bicycle and pedestrian planning and facilities as they have limited options for travel. Linking these areas to regional destinations and the overall bicycle and pedestrian network is key for an equitable transportation network.

Figure 3-4 Zero Car Households

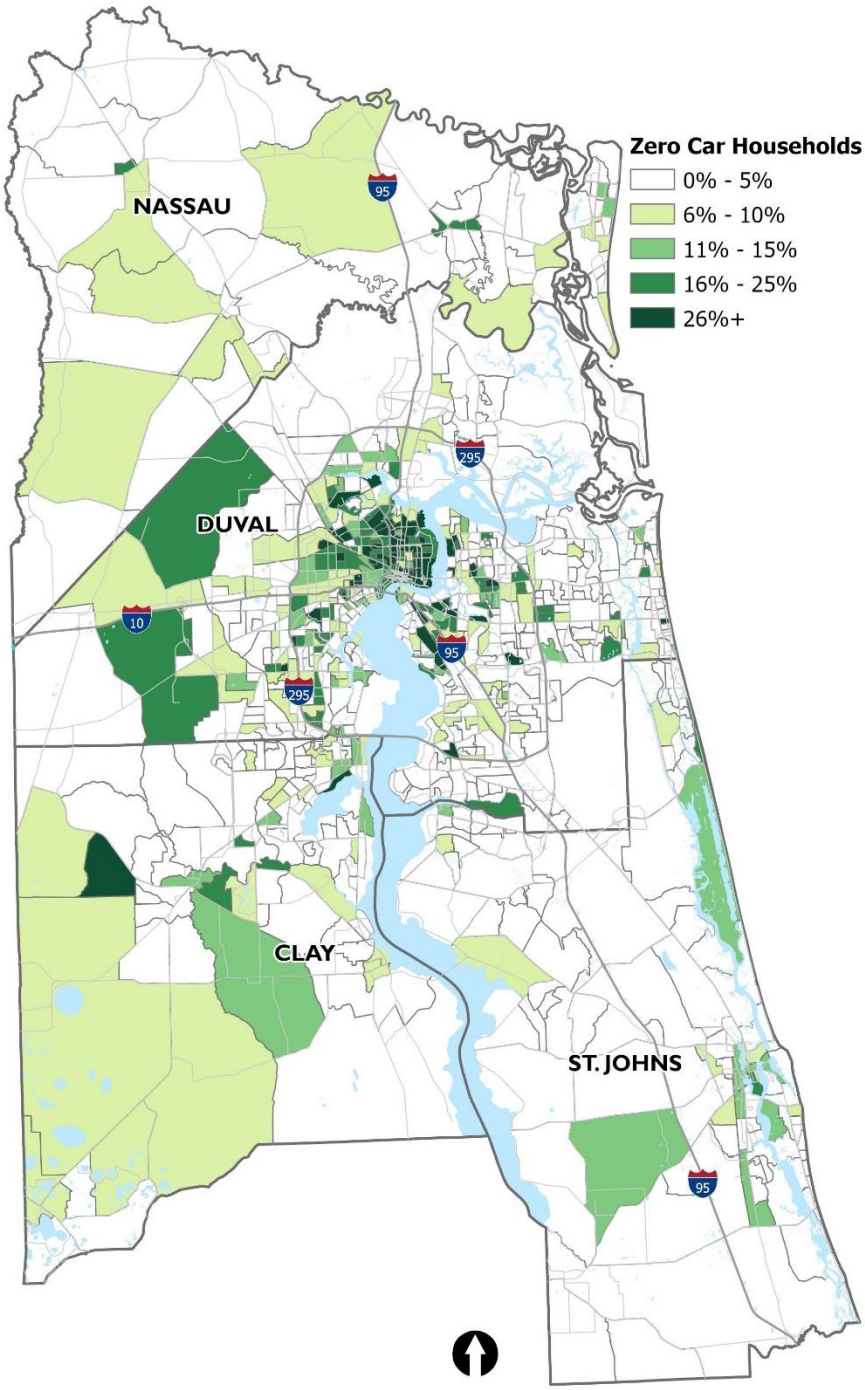


Figure 3-4 displays the percentage of zero car households by census block group. The areas in darker green have a higher percentage of zero car households than the areas in lighter green. Block groups that have a 5% or less zero car households are shown in white.

Central Jacksonville has the highest concentration of zero car households.

Some of the more rural areas of the region are showing a higher density of zero car households, especially in western Duval and Clay counties.

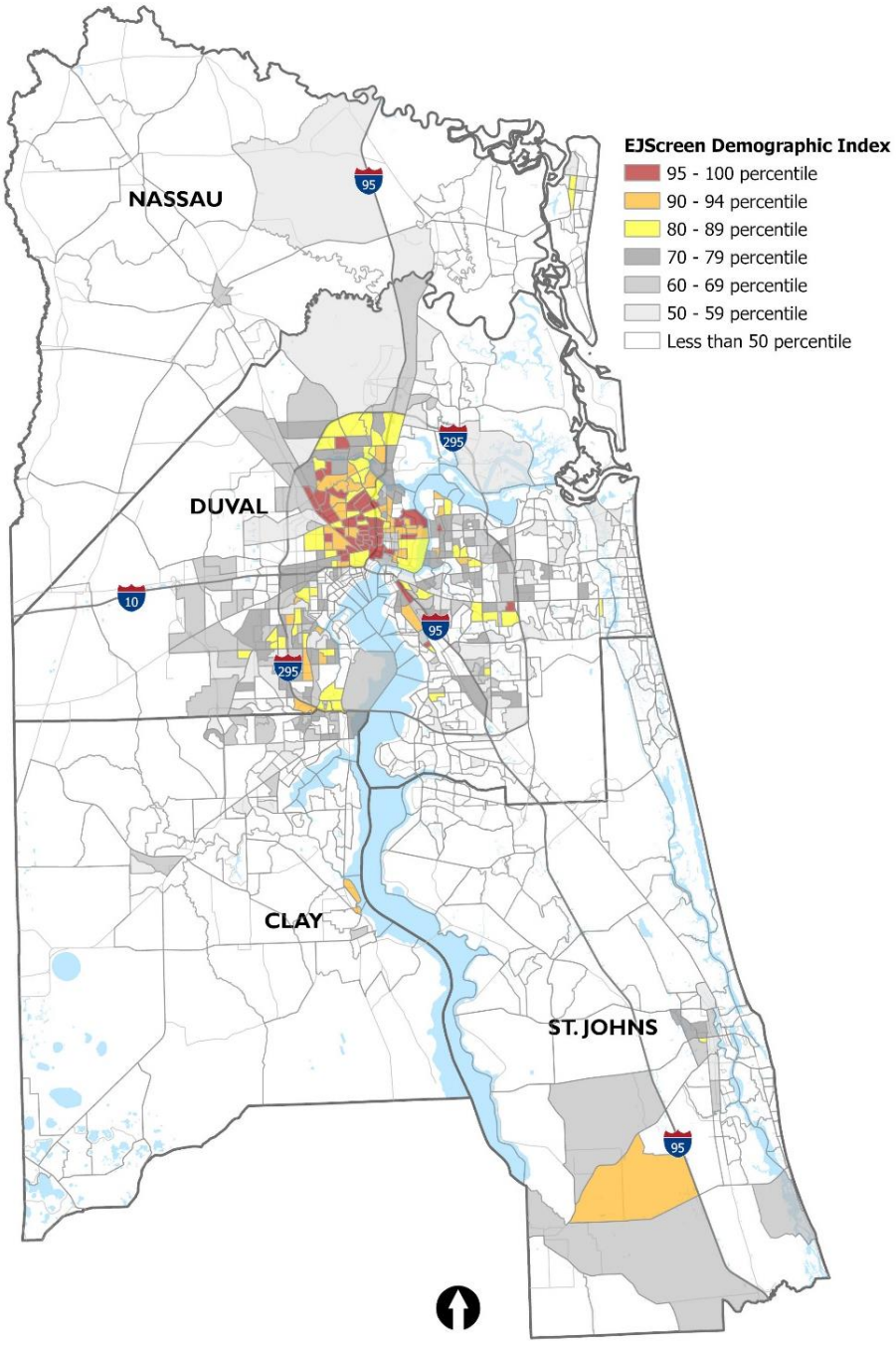
Nassau County has several large block groups between 6%-10% zero car households. There are also some areas along the beaches in Duval, Nassau, and St. Johns counties that have a higher concentration of zero car households.

3.2 Socioeconomic Analysis

A socioeconomic analysis was performed for the North Florida TPO region using the US Environmental Protection Agency's (EPA) EJScreen tool. The socioeconomic data source utilized by EJScreen is the US Census Bureau's ACS 2016-2020 5-Year Estimates (ACS 2020).

NACTO's *Urban Bikeway Design Guide* states that low-income communities and communities of color have been disproportionately impacted by poor and inadequate infrastructure. Therefore, for the purposes of this study, EJScreen's Demographic Index was utilized to highlight areas of potentially vulnerable population. The Demographic Index is based on the average of two demographic indicators: percent-low income and percent people of color. The results of the Demographic Index are displayed in **Figure 3-5**.

Figure 3-5 EJScreen Demographic Index



Most of the North Florida TPO region is below the 50th percentile for the Demographic Index. The areas of higher percentiles on the Demographic Index are clustered in central Duval County. There is a small area in Clay County and southern St. Johns County that are between the 90th – 94th percentiles. There is also an area near Fernandina Beach that is between the 80th and 89th percentiles.

More information on how this data is calculated can be found on the EPA's website: https://www.epa.gov/ejscreen

3.3 Crash Analysis

A crash analysis was performed for the North Florida TPO region using the *Signal 4 Analytics (S4)* database for the previous five years (2018-2022). Only crashes involving bicycles or pedestrians were analyzed. There were 4,503 crashes involving bicycles or pedestrians. The general trends of these crashes is provided below.

- 20% of these crashes resulted in a fatality or serious injury.
- 64% of the crashes involved pedestrians and 36% involved bicycles.
- 67% of the crashes occurred during the day.
- 63% were classified as intersection-related
- Crashes by county:
  - Clay: 447 (10%)
  - Duval: 3,356 (75%)
  - Nassau: 78 (2%)
  - St. Johns: 622 (14%)
- Crashes by year:
  - 2018: 903 (20%)
  - 2019: 906 (20%)
  - 2020: 809 (18%)
  - 2021: 910 (20%)
  - 2022: 975 (22%)

Figure 3-6 Bicycle and Pedestrian Fatalities

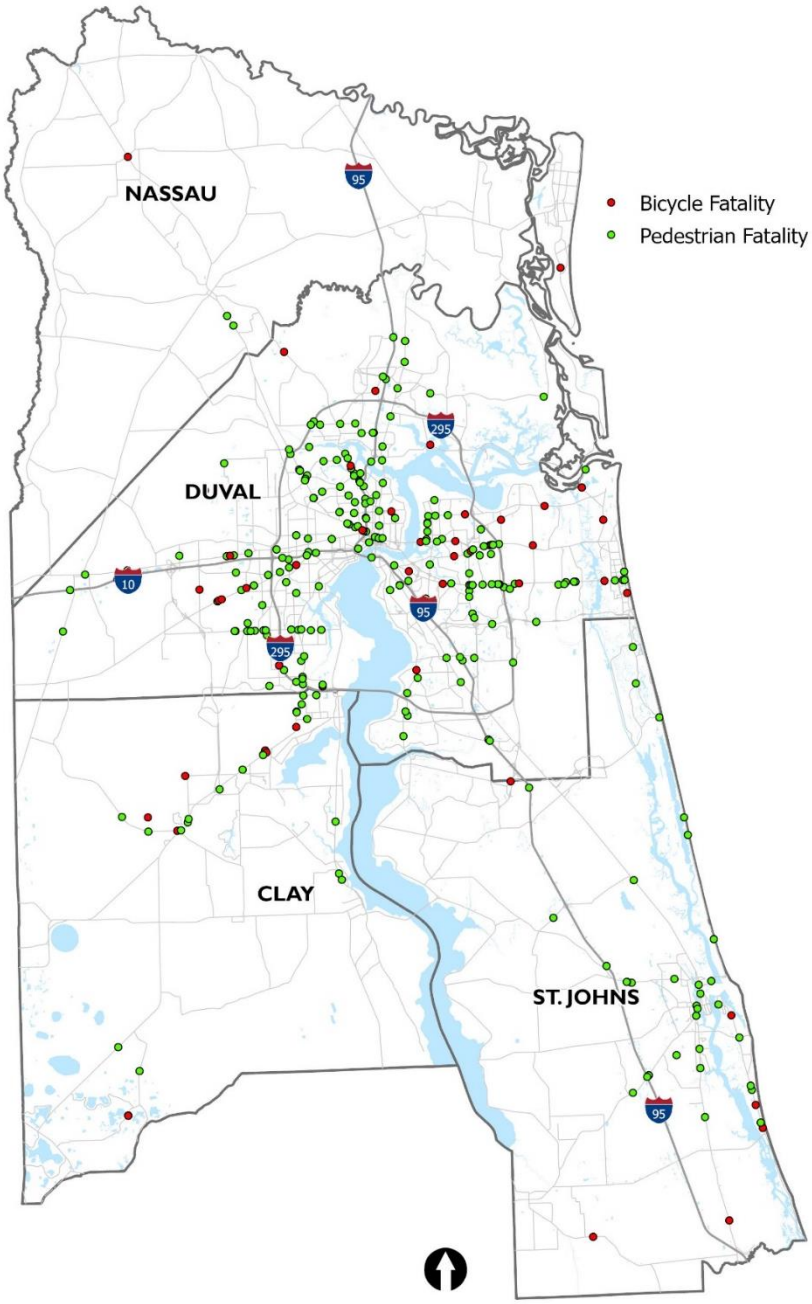


Figure 3-6 displays the bicycle (red) and pedestrian (green) fatality locations. Many of the fatalities are clustered around central Duval County. The Blanding Boulevard/SR 21 corridor in Clay County experienced a pattern of fatal crashes as well as the main roads leading into St. Augustine in St. Johns County (SR 16, SR 207, US 1). Nassau County experienced limited fatal bicycle and pedestrian crashes.

3.4 Previous Studies Spatial Analysis

The previous studies spatial analysis provided a visualization of recent planning efforts within the region. This spatial analysis was a multi-step process that included mapping the sub-area studies and trail studies detailed in the literature review and layering them with other data sets including recommended studies from the 2013 bicycle and pedestrian master plan, existing and proposed trails, crashes, and demographic index areas.

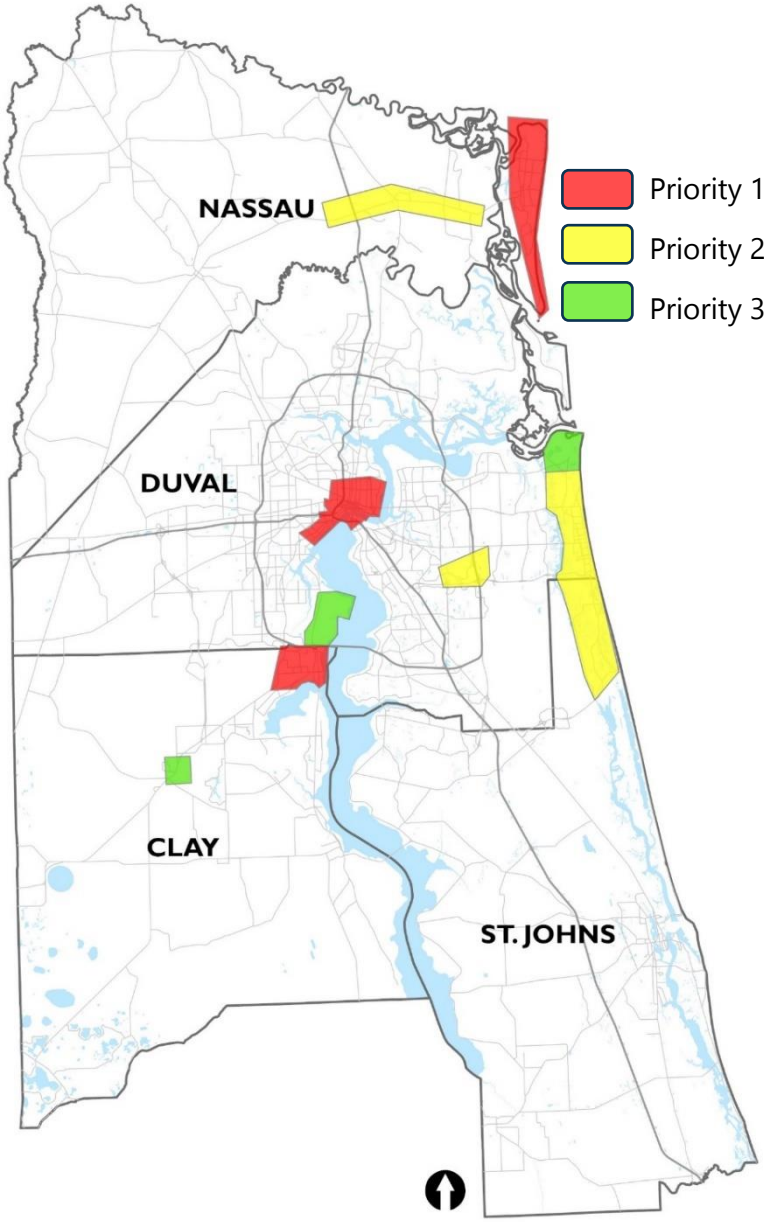
The resulting maps show the areas within the region that have recently been studied and highlights gaps. To avoid duplicating planning efforts, the focus of future study areas should be on the planning area coverage gaps that arise from this spatial analysis.

This spatial analysis is presented as a map series over the following pages. Each map is listed and briefly described below.

- Priority Studies from 2013 Plan
- Completed Sub-Area Studies
- Completed Trail Studies
- Completed Sub-Area + Trail Studies
- Completed Studies + Existing and Proposed Trails
- Completed Studies + Crashes
- Completed Studies + Demographic Index

Figure 3-7 shows the recommended studies from the 2013 Bicycle and Pedestrian Master Plan. These studies were grouped as either Priority 1, 2, or 3.

Figure 3-7 Priority Studies from 2013 Plan



Completed Studies

Figure 3-8 displays the recently completed sub-area studies and **Figure 3-9** displays the recently completed trail studies. Four sub-area studies were completed in Duval County, one in Clay County, and two in Nassau County.

For trail planning, two sets of overlapping trail coverage areas, both involve the East Coast Greenway (ECG) alignment through the region.

It appears that the focus of bicycle, pedestrian, and trail planning within the region has been concentrated along the coastal areas of the region.

Figure 3-8 Completed Sub-Area Studies

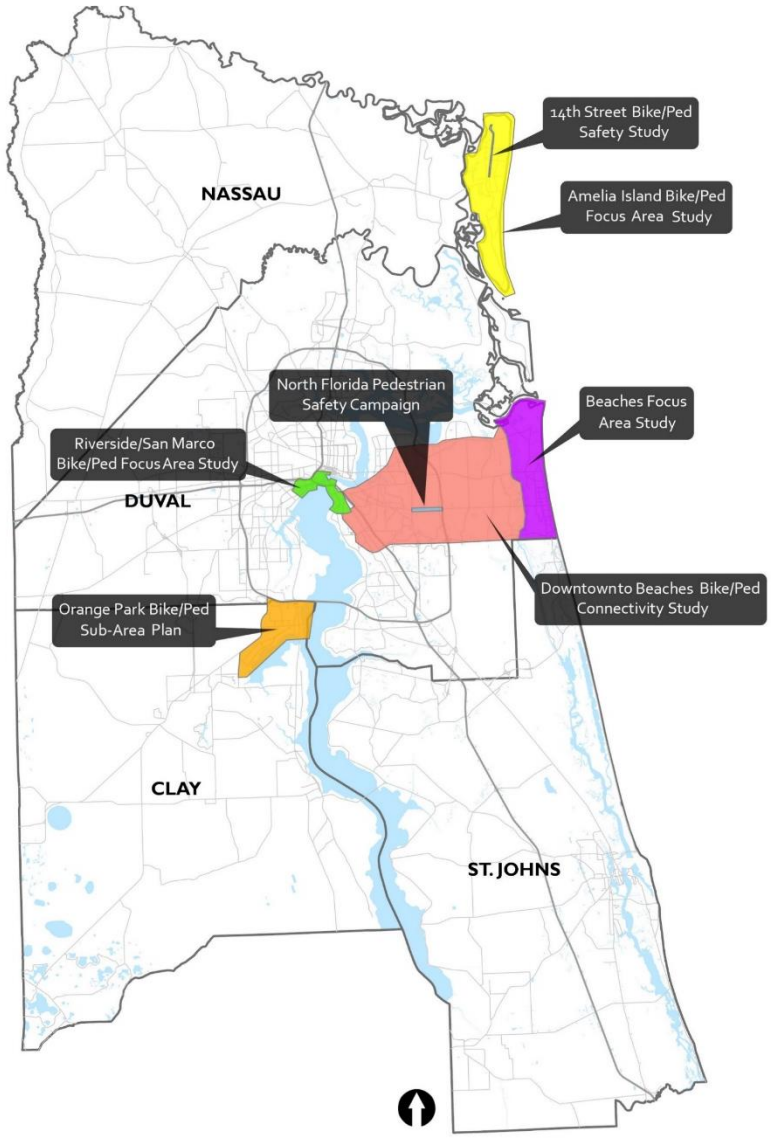
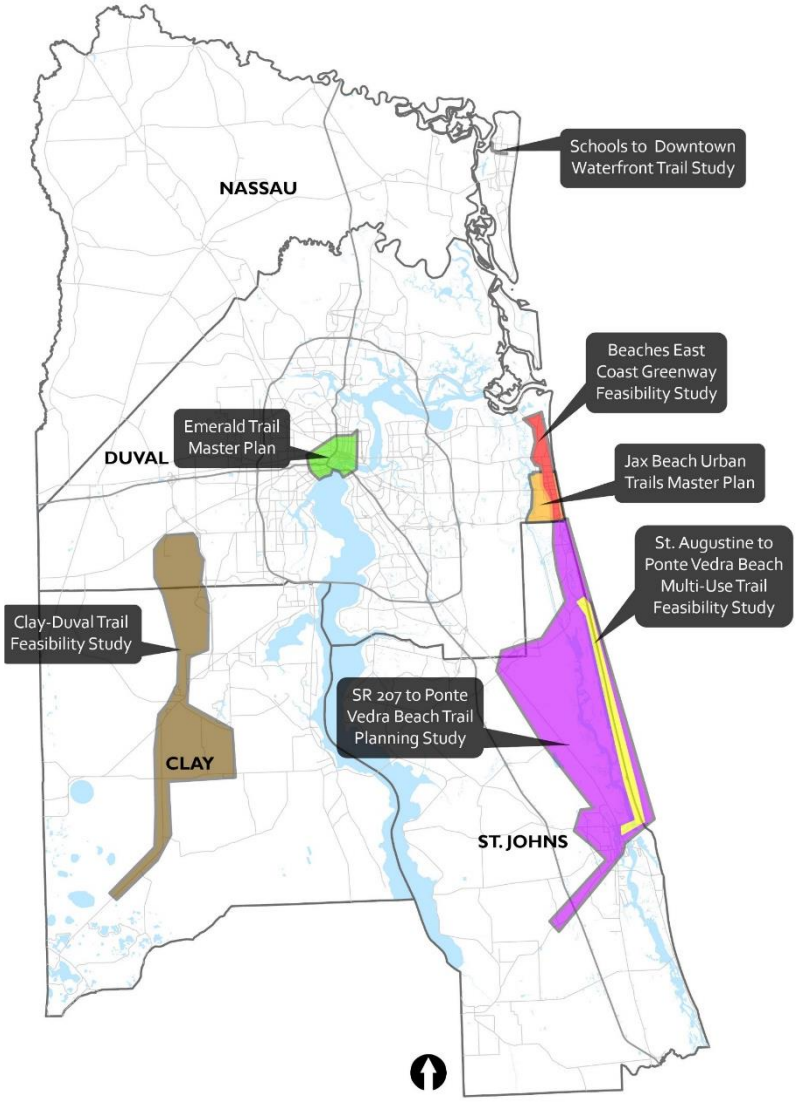


Figure 3-9 Completed Trail Studies



Completed + Priority Studies

Figure 3-10 displays the combined sub-area and trail study coverage for the region with the sub-area studies shown in orange and trail studies shown in green. **Figure 3-11** displays the combined recently studied coverage area in grey on top of the priority studies recommended in the 2013 master plan.

A sub-area or trail study was conducted for all Priority 1 projects in the 2013 master plan and for the majority of Priority 2 and Priority 3 projects. The only two areas that were not studied as a result of the previous master plan were the SR 200 corridor in Nassau County (Priority 2) and the NAS Jax area in Duval County (Priority 3).

Figure 3-10 Combined Completed Studies

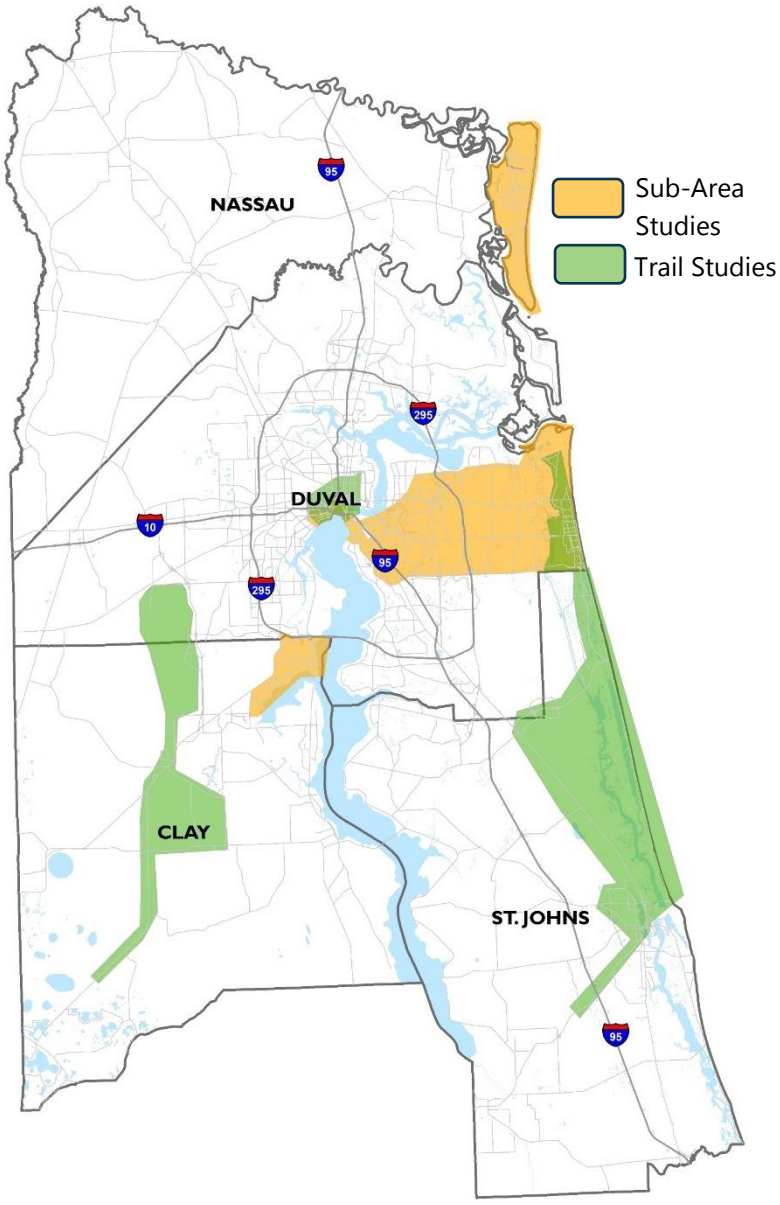
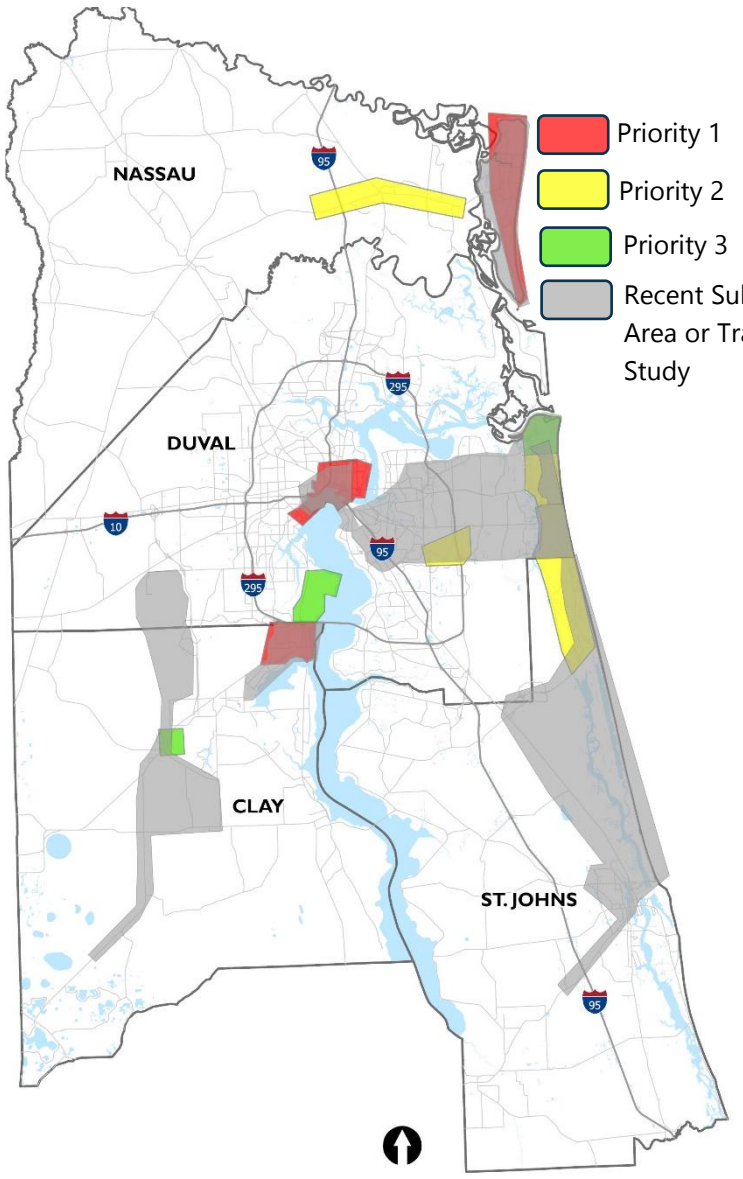


Figure 3-11 Priority Studies + Recent Studies



Completed + Existing and Proposed Trails

Figure 3-13 displays the existing trails within the region along with the recently completed trail studies (grey). Building upon **Figure 3-13, Figure 3-14** displays the proposed trails in addition to the existing trails with the completed trail studies.

The data source utilized for the existing and proposed trails is from the *Regional Multi-Use Trail Master Plan* (2019).

Figure 3-13 Existing Trails

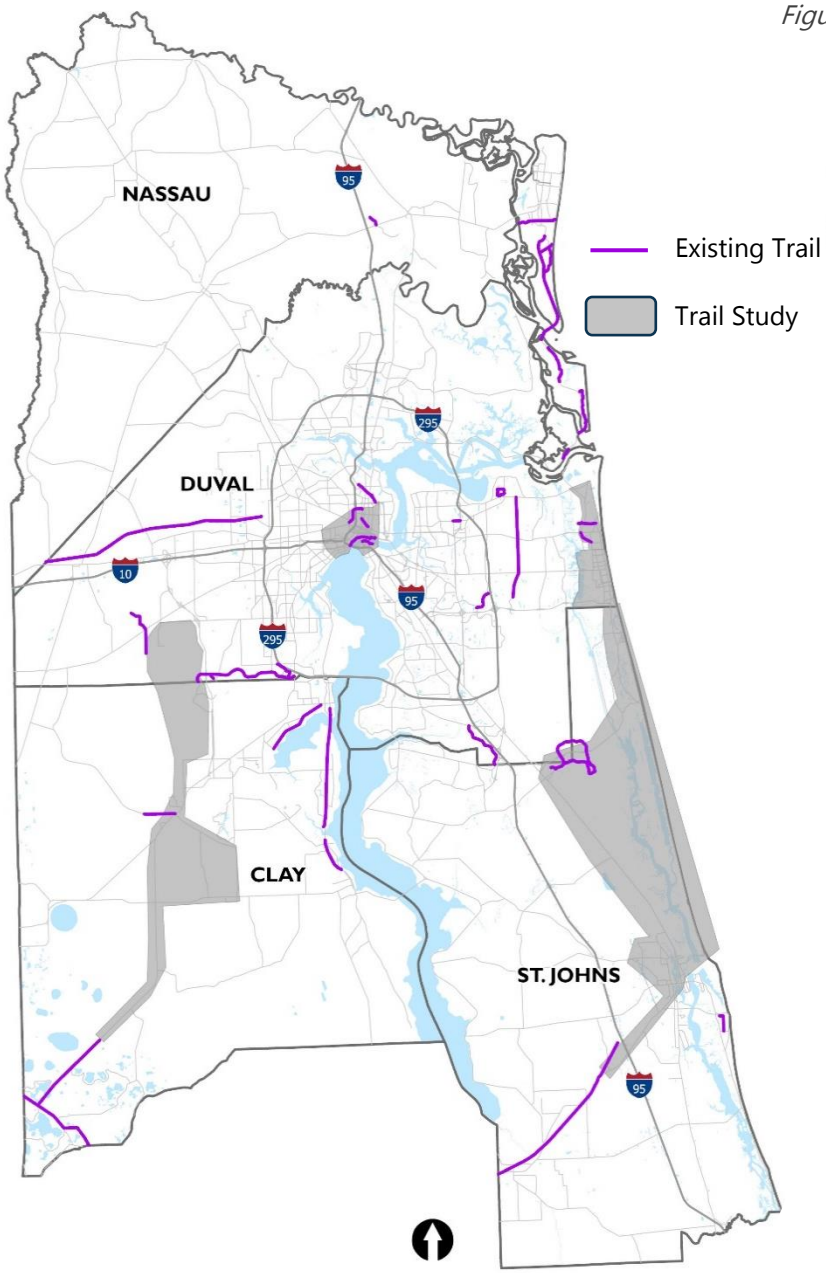
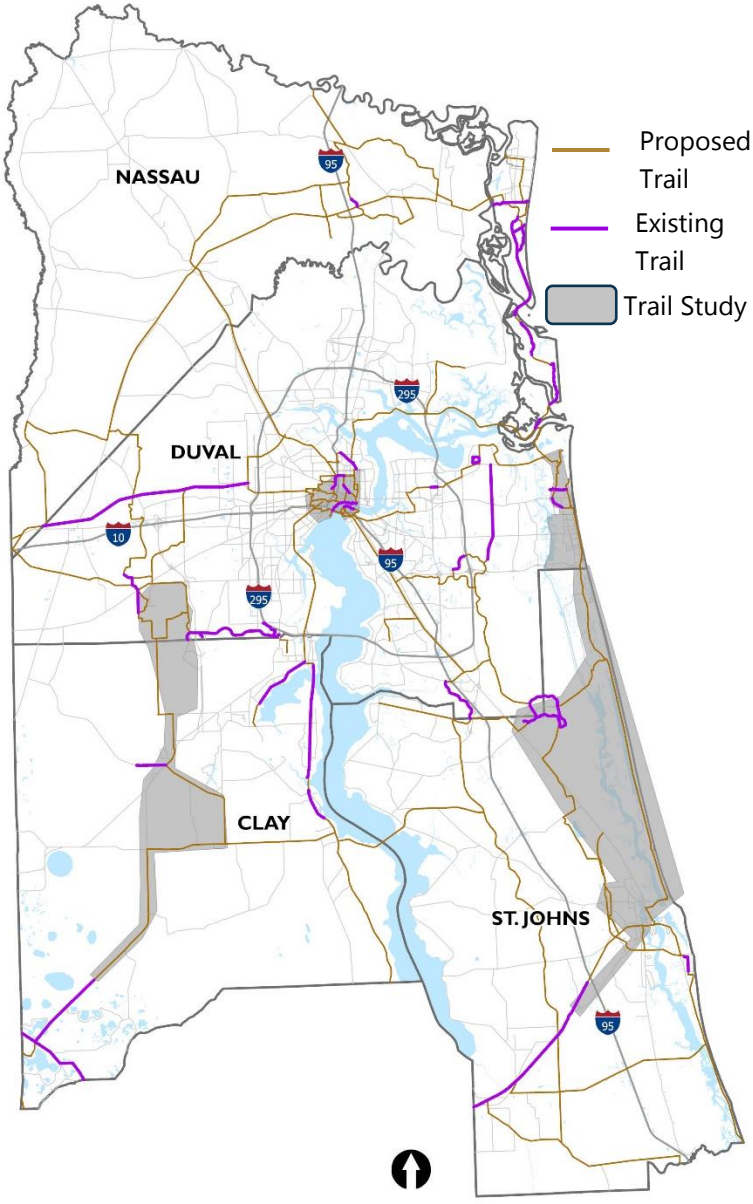


Figure 3-12 Existing + Proposed Trails



Completed + Population Density and Zero Car Households

Figure 3-14 displays the recently completed studies in grey with the population density map**.** **Figure 3-15** displays the recently completed studies in grey with the zero car households. Many of the areas with a higher population also have higher rates of zero car households, but several areas also show the opposite, especially in parts of Duval and Clay counties.

Figure 3-14 Population Density + Completed Studies

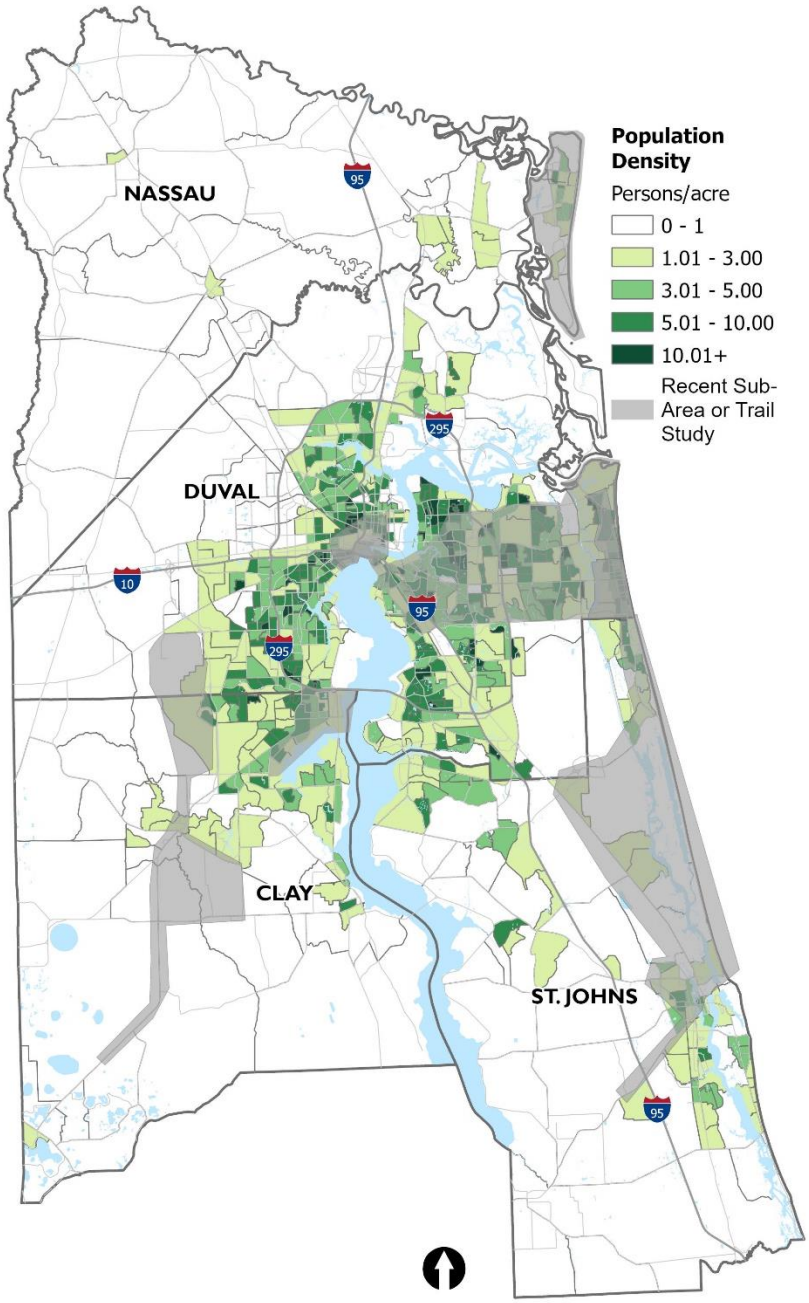
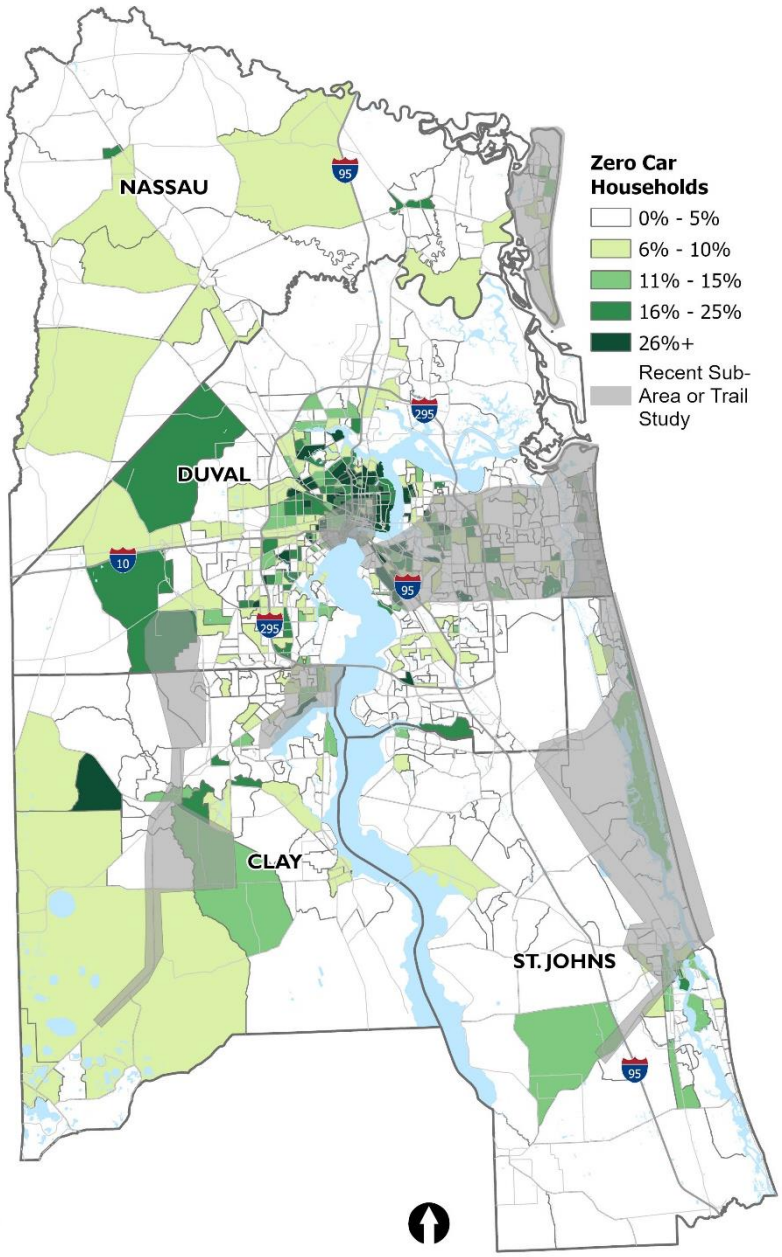


Figure 3-15 Zero Car Households + Completed Studies



Completed + Employed and Student Populations

Figure 3-16 displays the recently completed studies with the employment density and **Figure 3-17** displays the recently completed studies with the percent student population.

Figure 3-16 Employment Density + Studies

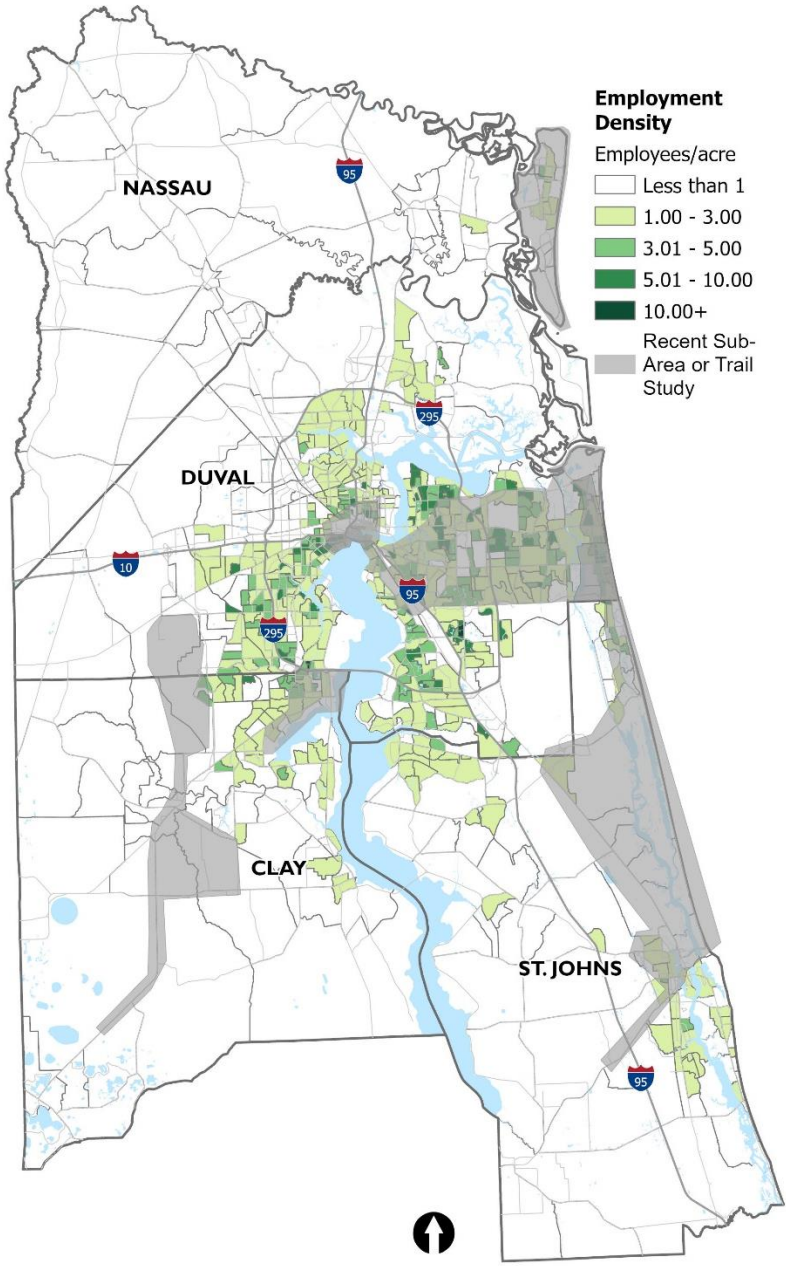
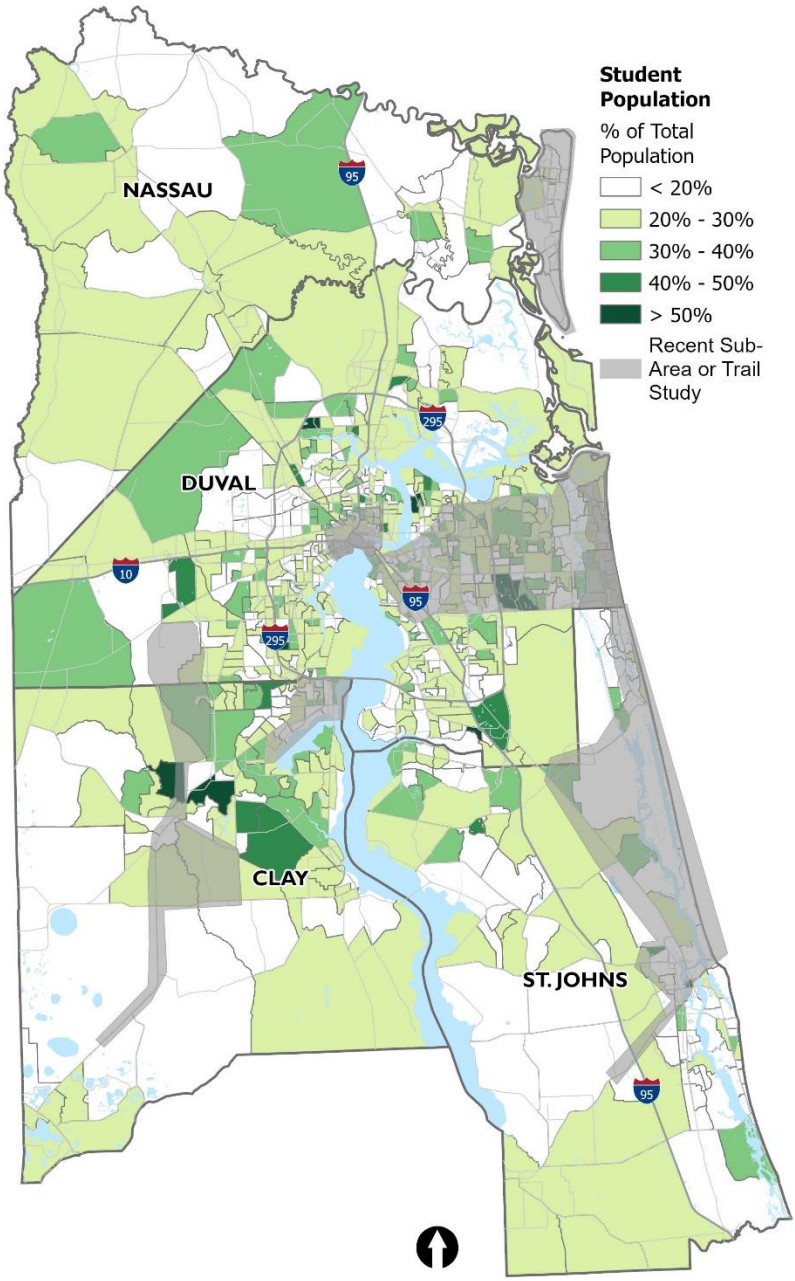


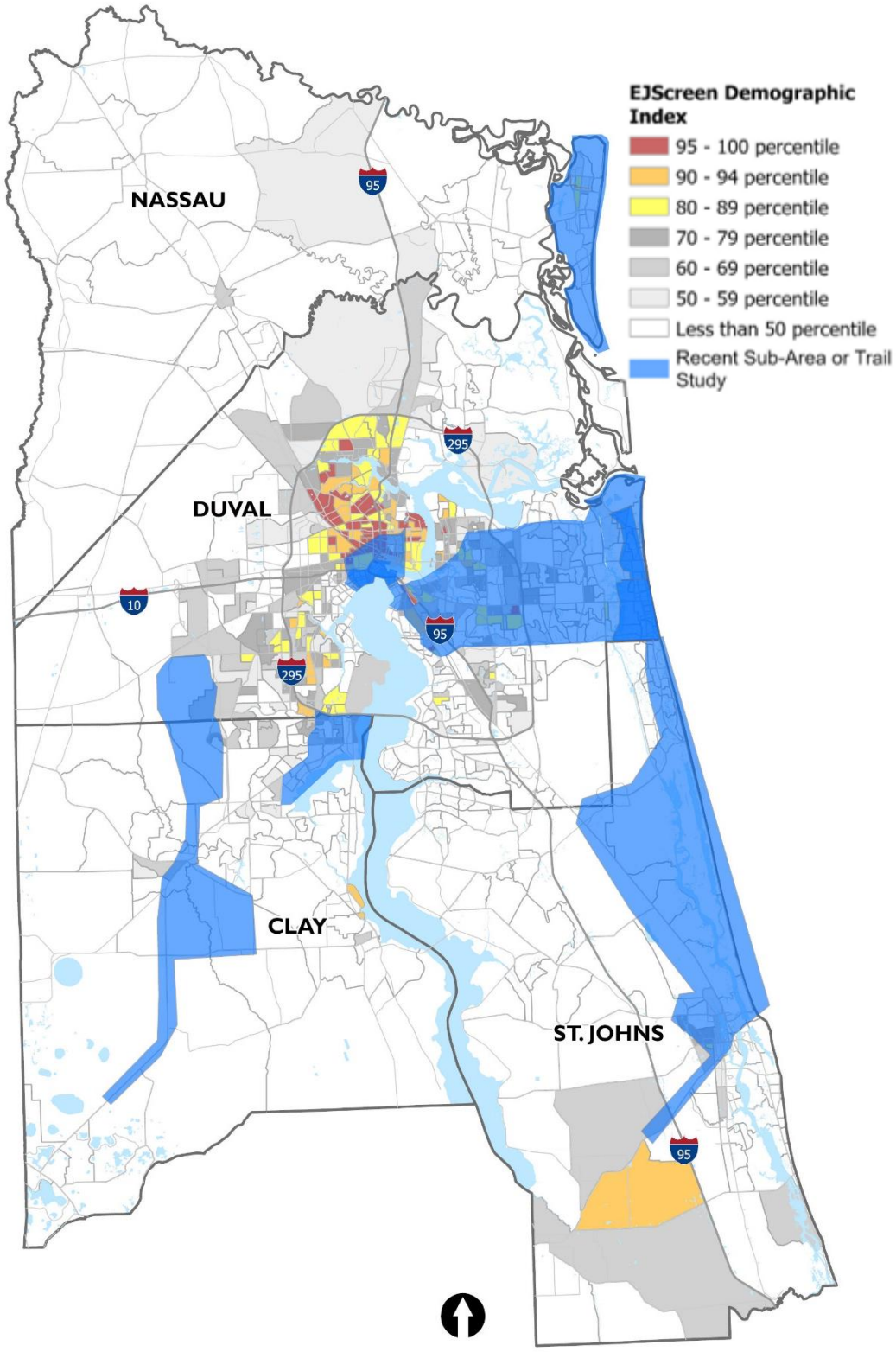
Figure 3-17 Student Population + Completed Studies



Completed + Socioeconomics

Figure 3-18 displays the recently completed studies in blue with the Demographic Index.

Figure 3-18 Demographic Index + Completed Studies



Completed + Crashes

Figure 3-19 displays a heat map of the total bicycle and pedestrian crashes with the recent studies overlayed in grey. **Figure 3-20** displays the bicycle and pedestrian crashes that resulted in a fatality with the recent studies overlayed in grey.

Figure 3-19 Bike/Ped Crashes + Studies

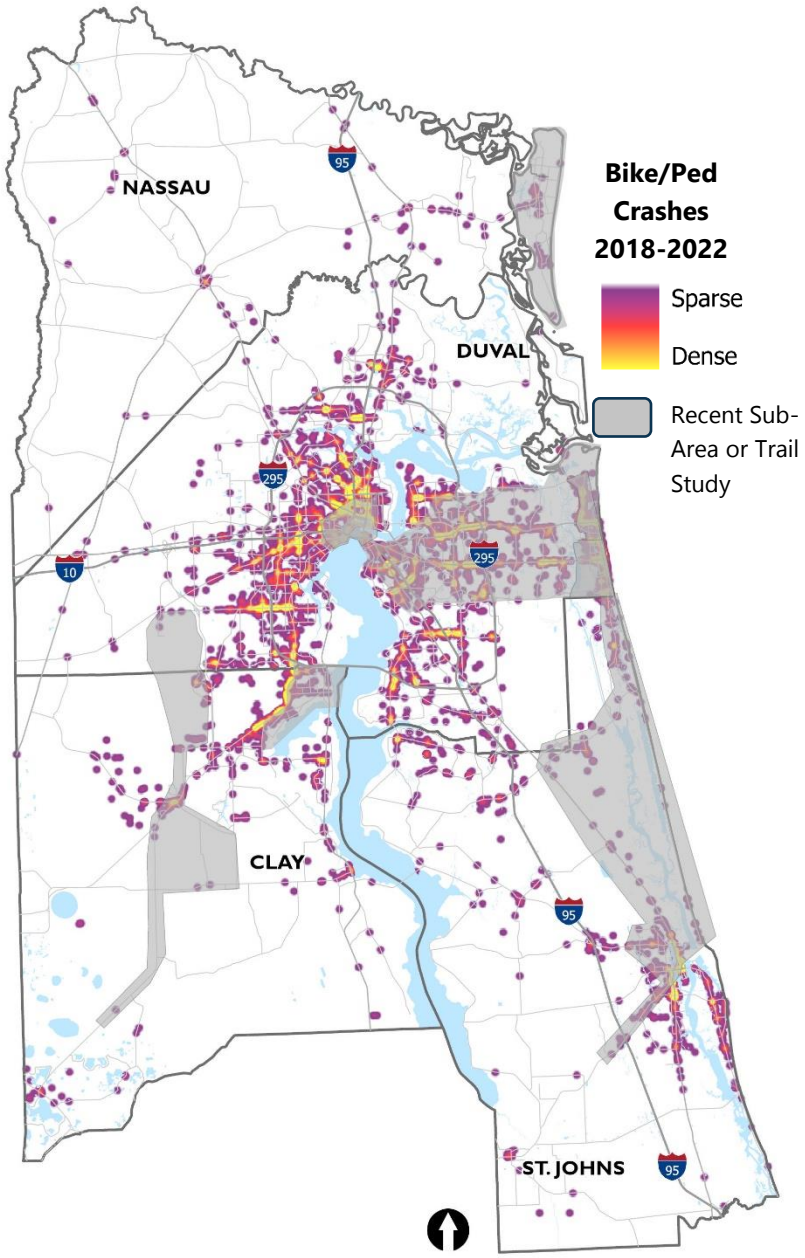
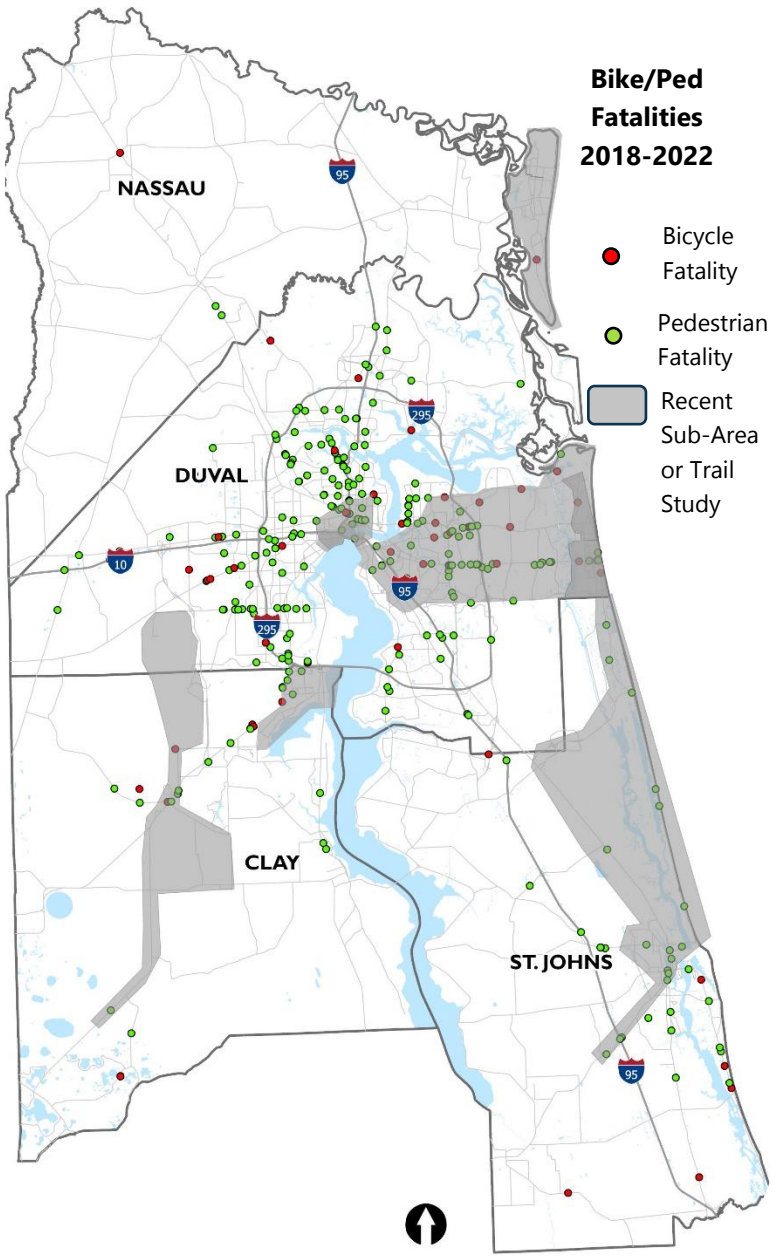


Figure 3-20 Bike/Ped Fatalities + Studies



3.5 Spatial Analysis Findings

The spatial analysis identified areas within the region that are candidates for bicycle and pedestrian planning and improvements. These ideal areas focus on places where new and improved facilities would potentially be used and could provide individuals with additional transportation options to goods, services, employment, and education.

It appears that some of the bicycle and pedestrian planning efforts over the past ten years have focused more on recreational facilities located in lower density and lower needs areas. While it is important to provide recreational opportunities for the community, it is also important to provide facilities that will reach the most potential users and users that need these facilities the most. These places include areas of the general population, vulnerable population, employment population, populations with a higher propensity of potential users as well as areas of higher crashes that should be the emphasis areas for future study.

Bike lane and sidewalk on Tynes Boulevard in Clay County. Source: Project Team.

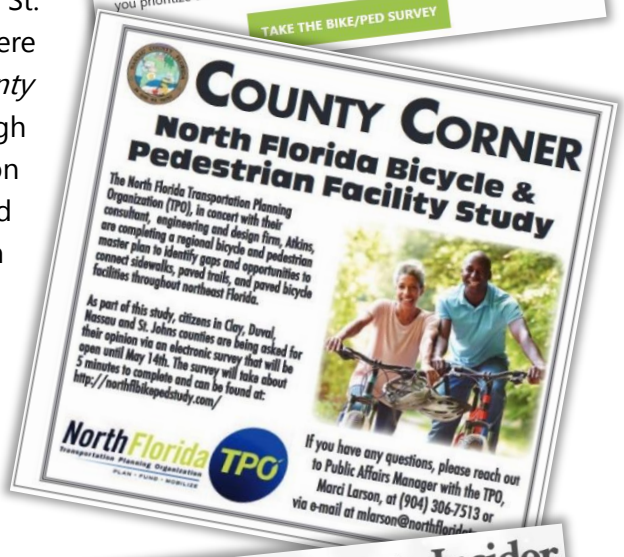
Section 4.0 Public Involvement

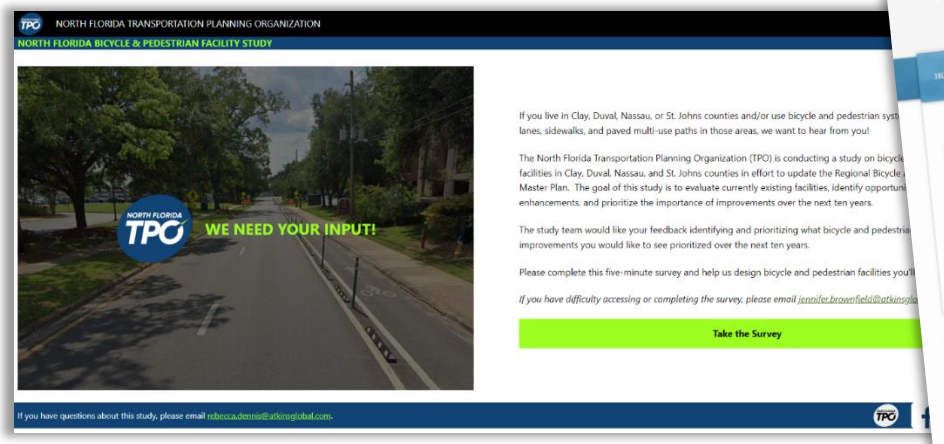
4.0 Public Involvement

Public involvement is a critical element in any planning process. The public involvement process provides the people living in the region the opportunity to influence the study and be included in the decision-making process as well as provide any additional facts, values, and local perspectives. To achieve this, a public survey was administered via *SurveyMonkey* and was hosted on its own webpage at *www.northflbikestudy.com*.*

The survey was promoted through local Public Involvement Officers (PIOs) for each county and through members of the TAC and AAG, included in the North Florida TPO newsletter, email blasts, Twitter and Facebook pages, included on the St. Johns County Facebook page and county website, articles were included in Nassau County's *The County Insider* and *County Corner*, the *JaxToday* newsletter, on WJCT radio, through Riverside/Avondale's Historic Preservation and Transportation newsletter, Historic Springfield's newsletter, and was featured on the City of Jacksonville's website for the Transportation Planning Division.

The survey was live from April 14 to May 14, 2023 and generated **1,803** responses. The results are summarized in this section and were utilized in the recommendations and study prioritization elements of this plan. The full survey results are included in **Appendix B**.

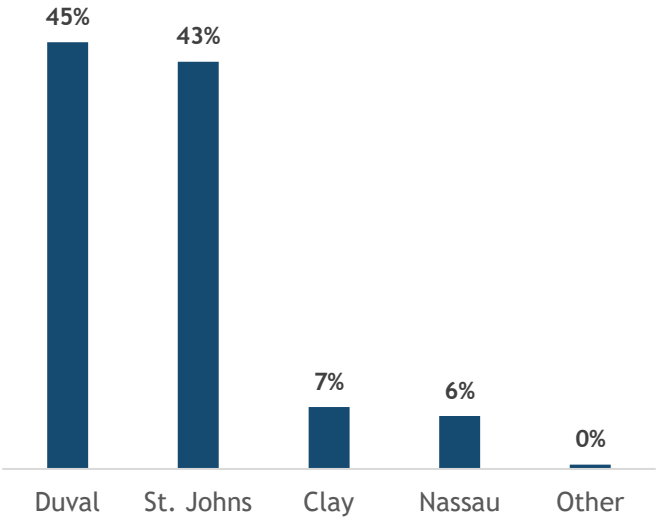




** The webpage link was deactivated at the conclusion of the survey.*

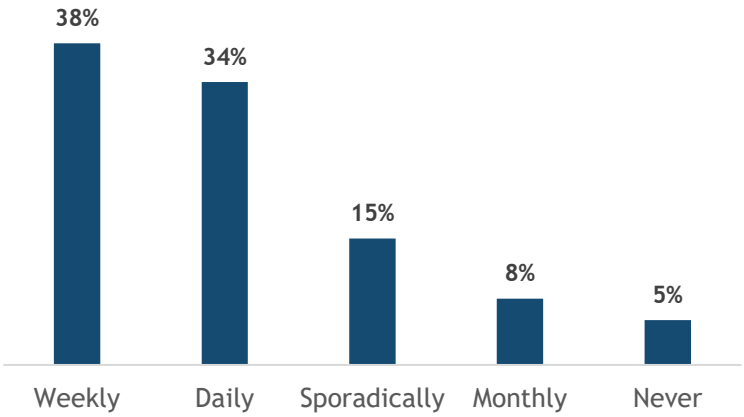
Q1. Participant Location

Nearly half of the survey participants (45%) were located in Duval County and 43% of the participants were located in St. Johns County. The remaining participants were located in Clay County (7%), Nassau County (6%), or Other (less than 1%).



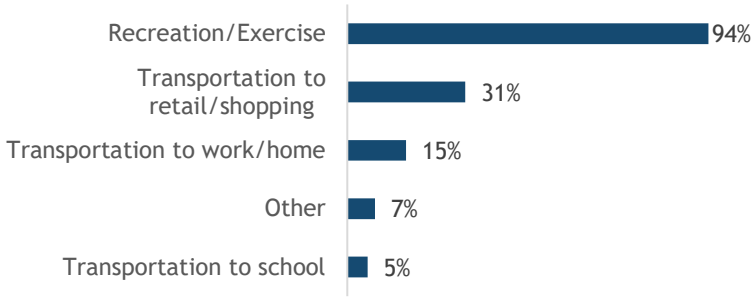
Q2. Existing Facilities Use Frequency

A majority of the participants use the existing bicycle and pedestrian facilities (bike lanes, sidewalks, or paved multi-use paths) either Weekly (38%) or Daily (34%). Approximately 15% of the participants use the facilities Sporadically throughout the year. Five percent (5%) of the participants Never use the existing bicycle and pedestrian facilities.



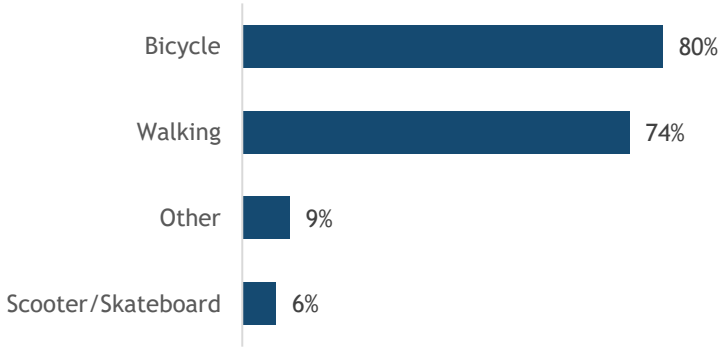
Q3. Existing Facilities Use Purpose

This was a 'check all that apply' question. Most respondents indicated they use the existing facilities for Recreation/Exercise (94%) while over half of the respondents (51%) indicated they also use the existing facilities for transportation purposes either to retail/shopping (31%), to work/home (15%) or to school (5%). Some of the Other purposes included transportation to visit family/friends, doctor's appointments, the park, library, beach, downtown, or restaurants and walking the dog.



Q4. Existing Facilities Transportation Modes

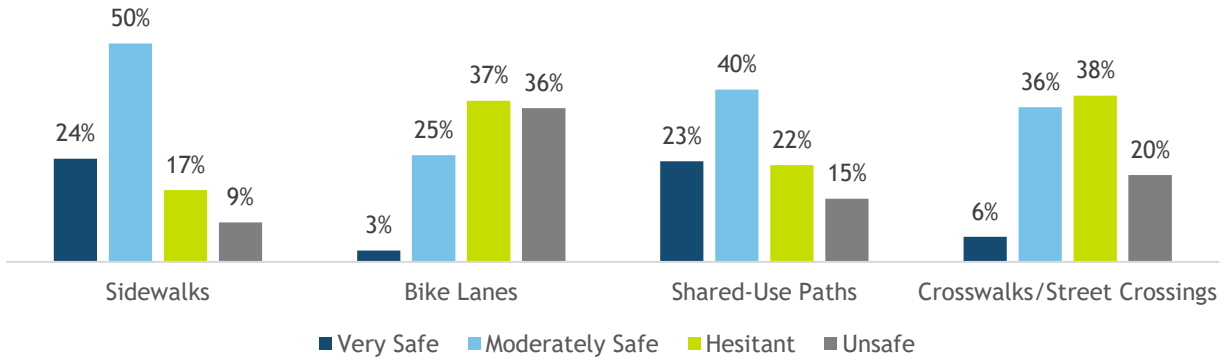
Approximately 80% of the bicycles on the existing facilities and 74% use them for walking. The remaining responses were Other (9%) and Scooter/Skateboard (6%). Of those that selected Other, many mentioned that they used the facilities for running/jogging or golf carts. This was a 'check all that apply' question.



Q5. Existing Facility Safety

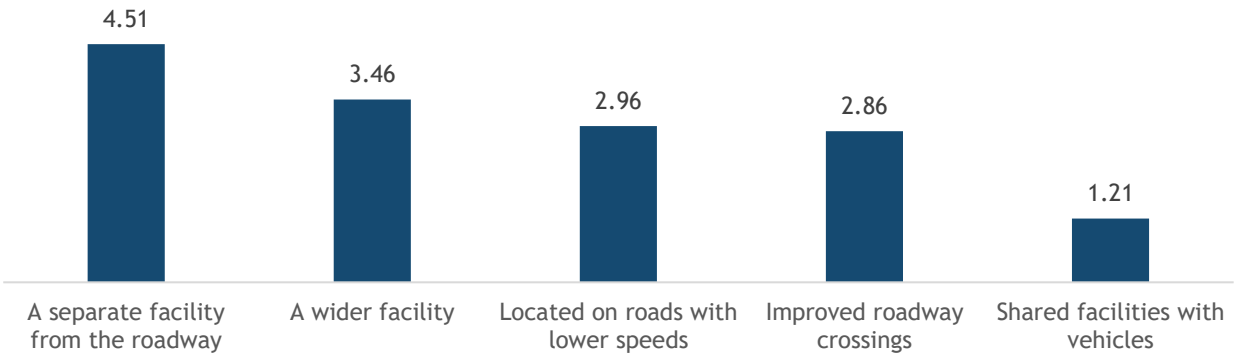
Question 5 asked the respondents how safe they felt while using the existing bicycle and pedestrian facilities. They could select either Very Safe, Moderately Safe, Hesitant, or Unsafe.

- **Sidewalks**: Approximately 74% of the respondents indicated that they felt Very Safe (24%) or Moderately Safe (50%) using the existing sidewalks.
- **Bike Lanes:** A majority of the respondents (73%) felt either Hesitant (37%) or Unsafe (36%) using the existing bike lanes. Only 3% indicated that they felt Very Safe, and 25% felt that they were Moderately Safe using the existing bike lanes.
- **Shared-Use Paths**: Approximately 63% of the respondents felt Very Safe (23%) or Moderately Safe (40%) using the shared-use paths. About 22% felt Hesitant on the shared-use paths, and 15% felt Unsafe.
- **Crosswalks/Street Crossings**: Largely, the respondents felt either Hesitant (38%) or Moderately Safe (36%) using the existing crosswalks or street crossings. Only 6% felt Very Safe, and 20% felt Unsafe.



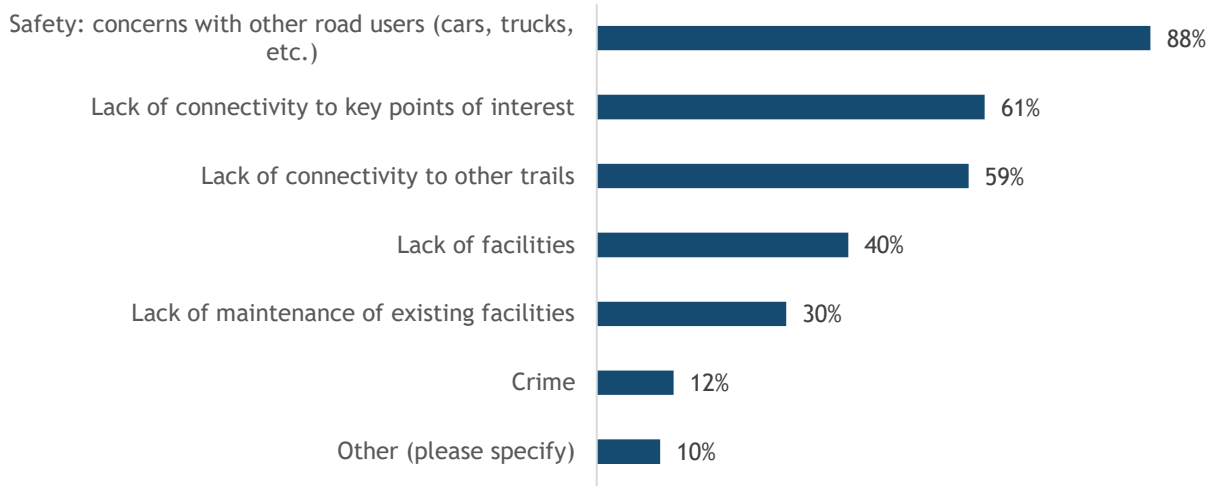
Q6. Future Facility Safety

Question 6 asked the respondents to rank from one to five which types of bicycle and pedestrian improvements would make them feel safest while using them. 'A separate facility from the roadway' ranked highest with an average score of 4.51. The second highest ranked facility type was a 'wider facility' with an average score of 3.46. 'Shared facilities with vehicles' ranked lowest with an average score of 1.21. Facilities 'located on roads with lower speeds' and 'improved roadway crossings' scored similarly with average scores of 2.96 and 2.86, respectively.



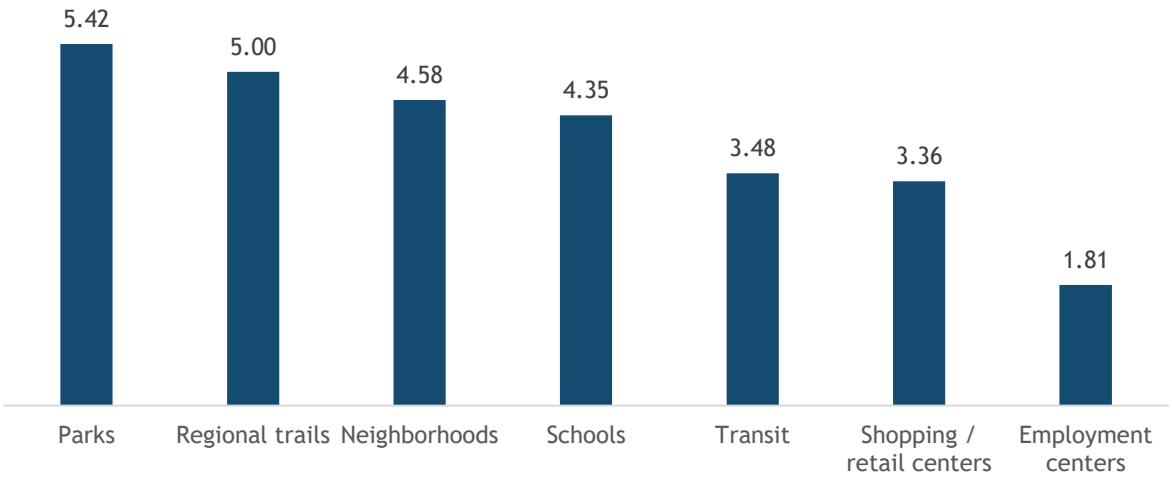
Q7. Bicycle and Pedestrian Barriers

Question 7 asked the respondents which barriers they feel currently limit bicycle and pedestrian use within the region (check all that apply). The most frequently selected barrier was 'Safety: concerns with other road users' with 88%. 'Lack of connectivity to key points of interest' and 'Lack of connectivity to other trails' scored similarly, with 61% and 59% of the respondents selecting them. 'Crime' (12%) and 'Other' (10%) were the lowest ranking barriers.



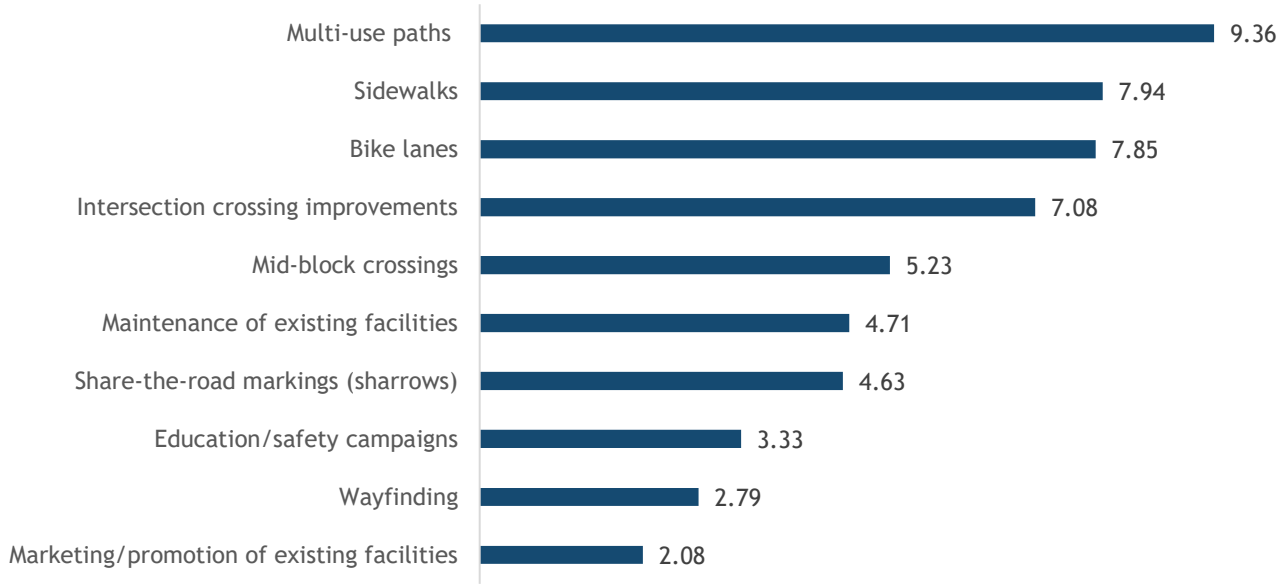
Q8. Ranking of Connections

Question 8 asked the respondents to rank in order of importance the connections they would like to see the bicycle and pedestrian system prioritize over the next 10 years. The top two connections were Parks (5.42) and Regional Trails (5.00). The connection that ranked lowest was to Employment Centers with a score of 1.81. Connections to Neighborhoods (4.58) and Schools (4.35) scored in the middle and connections to Transit (3.48) and Shopping/Retail (3.36) scored towards the end.



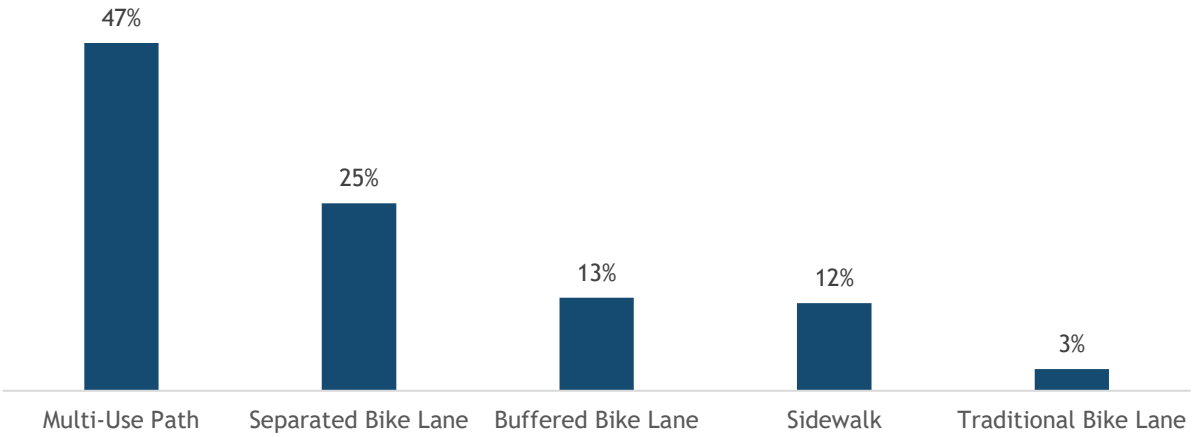
Q9. Improvement Prioritization

Question 9 asked the respondents to rank in order of importance the type of bicycle and pedestrian improvements they would like to see prioritized over the next 10 years. The highest prioritized improvement was 'Multi-use paths' receiving 67% of the #1 ranked votes and with an average score of 9.36 out of 10. The next two highest prioritized improvements were 'Sidewalks' (7.94) and 'Bike lanes' (7.85). The lowest priority improvement was 'Marketing/promotion of existing facilities' with an average score of 2.08. 'Education/safety campaigns' and 'Wayfinding' improvements were also low priorities scoring 3.33 and 2.79, respectively.



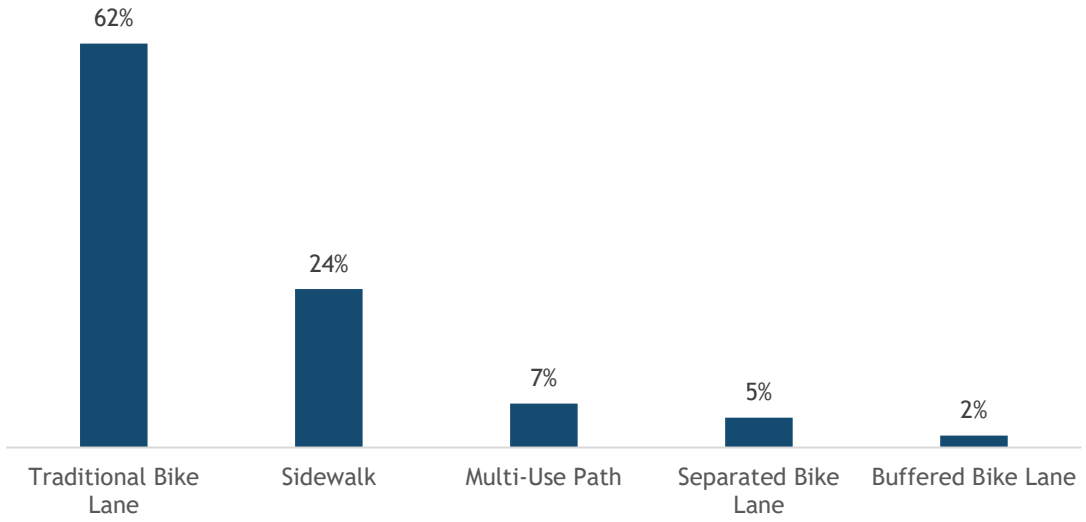
Q10. Most Preferred Facility Type

Question 10 asked the respondents to select their most preferred bicycle and pedestrian facility type. Multi-Use Paths were the preferred facility for nearly half of the respondents (47%). The second most preferred facility type was a Separated Bike Lane (25%). Buffered Bike Lanes and Sidewalks scored similarly with 13% and 12%, respectively. The lowest scoring facility type was a Traditional Bike Lane (3%).



Q11. Least Preferred Facility Type

Question 11 asked the respondents to select their least preferred bicycle and pedestrian facility type. Consistent with the results of Question 10, a Traditional Bike Lane was selected as the least preferred facility type (62%). Sidewalks were the second least preferred facility type with 24%. Multi-Use Paths and Separated Bike Lanes scored similarly at 7% and 5%, respectively. Only 2% of the respondents selected Buffered Bike Lanes as their least preferred facility type.



Comments and Suggestions

To conclude, the survey respondents were asked to provide any final comments or suggestions for the study team regarding the Bicycle and Pedestrian Master Plan Update. A total of 843 write-in comments were submitted. Some of the popular themes within the comments include:

- An emphasis on separation between bicycles, pedestrians, and motorists
- Requests for specific locations for improvements such as bike lanes, sidewalks, path connections, etc.
- Requests for more enforcement and education of all mode users
- Noting region-wide safety issues with walking and biking
- Requests for stronger minimum development regulations for roadways for bicycle and pedestrian facilities
- Requests to maintain existing facilities
- General support for the study and bicycle and pedestrian planning efforts

"The safer you make bike paths…the more of us will use them."

"North Florida needs to catch up to the rest of the world with more bike paths & pedestrian options."

"Hardly a day goes by when I don't have a dangerous close call as a pedestrian."

The complete list of comments is provided in **Appendix B**.

Section 5.0 Recommendations

5.0 Recommendations

5.1 Future Studies

A primary focus of this master plan was to develop a list of future bicycle and pedestrian-related studies. This list guides future bicycle and pedestrian planning efforts within the region. Implementing these future studies are not limited to the TPO for funding and implementation; they can serve as a guide for recommended future studies for any agency to conduct as funding becomes available.

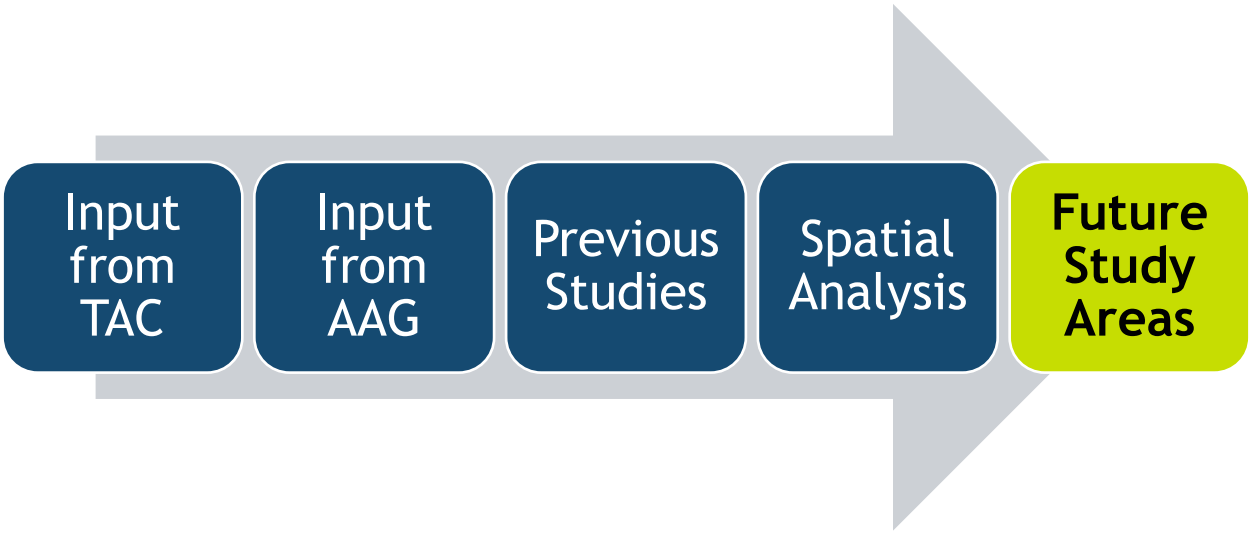
The list of studies were focused on areas that met any of the following criteria:

- An area that has not been recently studied
- An area that has a higher frequency of bicycle and pedestrian-related crashes
- An area with a demographic concentration of population density, employment density, student population, and/or zero car households
- An area that has a socioeconomic concentration of potentially vulnerable population
- An area that fills a regional trail planning gap

The list of studies is organized into three categories: Trail Studies, Sub-Area Studies, and Other Studies. The limits of the studies shown in this section are intended to portray general areas. More precise limits of these studies should be refined as they are funded and scoped.

Methodology

This list was developed as a result of the literature review, coordination with TAC and AAG, public input, and the previous studies spatial analysis. Recommended study areas from the two committees were mapped. Then, the locations of the previous studies were combined with the results of the spatial analysis to develop the future study areas.



Trail Studies

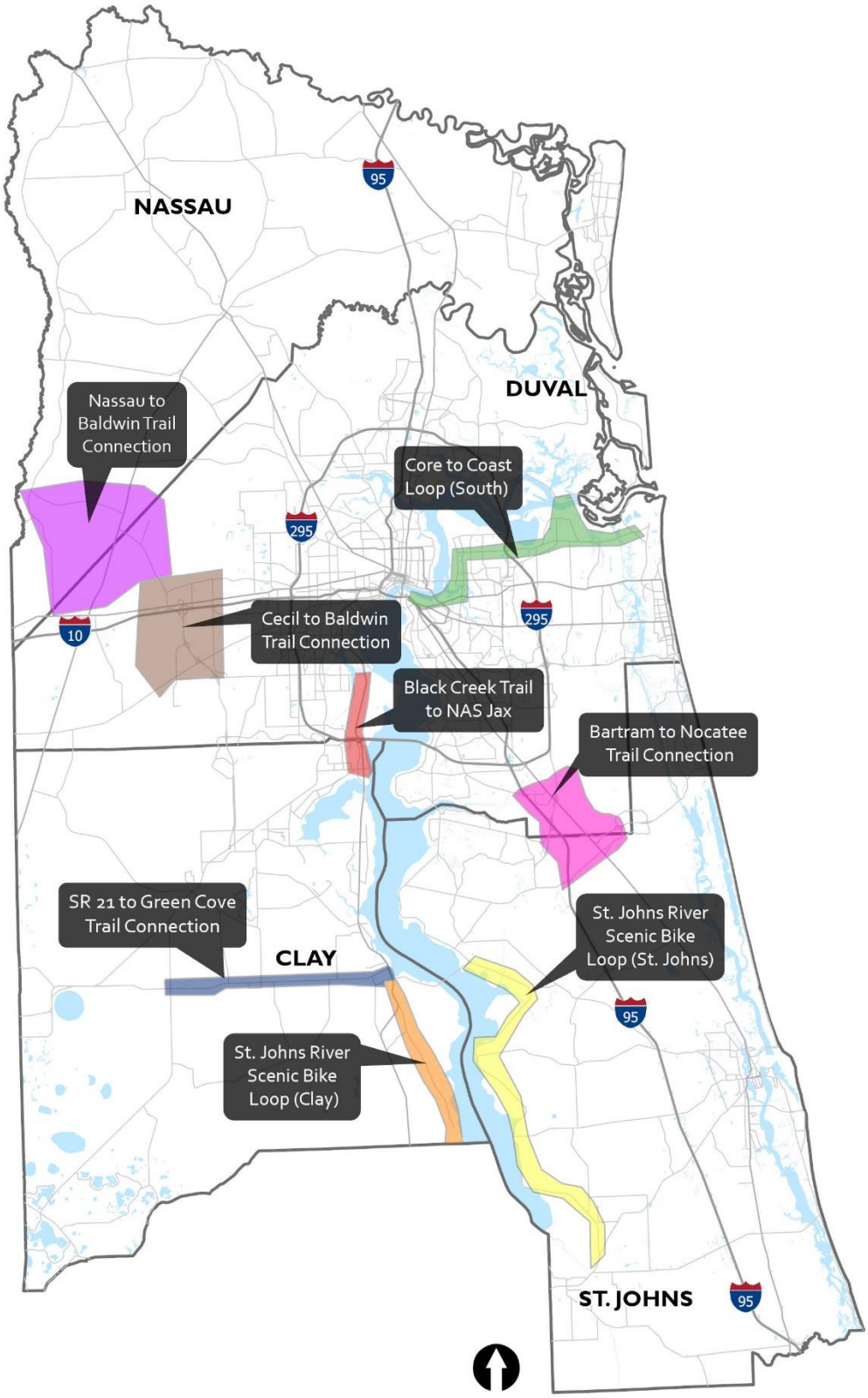
Seven recommended trail studies were identified throughout the study process. All of the trails are of regional significance as they connect one or more existing or programmed major trail systems. Four of the seven trails connect trail systems across county lines within the region. Six of the seven trails are on the Florida Greenways and Trails System (FGTS) Priority or Opportunity networks. The recommended trail studies are displayed in **Figure 5-1** and listed in **Table 5-1.**

Table 5-1 Trail Studies List

Project Name	County	Source	Notes
Bartram Trail to Nocatee Trail	Duval, St. Johns	Data Analysis	Proposed trail connection in the Regional Multi-Use Trail Master Plan. Connects two existing trails across county lines. Serves several demographic areas: employment density, student density, zero car households, and population density.
Black Creek Trail to NAS Jax	Clay, Duval	AAG	Connects existing Black Creek trail across county lines to NAS Jax.
Cecil Trail to Baldwin Trail	Duval	AAG	Starting at the northern terminus of the Clay-Duval Trail study connecting to the existing Baldwin Trail.
Core to Coast Loop (South)	Duval	AAG	Refines alignment of the southern leg of the Core-to-Coast (C2C) loop.
Nassau County to Baldwin Trail	Duval, Nassau	Data Analysis	Proposed connection in Regional Multi-Use Master Plan; provides cross-county connections from Nassau to the existing Baldwin Trail in Duval.
SR 21 to Green Cove Trail	Clay	TAC	Provides the east-west connection from the Palatka-to-Lake Butler State Trail to the City of Green Cove Springs and the programmed FCE multi-use path.
St. Johns River Scenic Bike Loop	Clay, St. Johns	AAG	Use existing scenic roads to connect to programmed FCE multi-use path (Shands Bridge replacement) to the SJR2C Loop. Includes a Clay County alignment and St. Johns County alignment.

Cecil Trail in Duval County. Source: Project Team.

Figure 5-1 Future Trail Studies



Sub-Area Studies

The recommended sub-area study locations shown in **Figure 5-2** and **Figure 5-3** and listed in **Table 5-2** are the cumulative result of the planning process for this bicycle and pedestrian master plan update. There were 24 total sub-area studies identified throughout this process. The sub-area studies shown also include potential bicycle and pedestrian master plan locations, connectivity studies, and bicycle and pedestrian safety studies. The study types are general recommendations as to what the sub-area study can potentially focus on. Ideally, these studies will evolve over time and become refined during the scoping and funding process. Specific subarea study elements are expected to vary significantly due to the individual characteristics of the subareas.

These study area types are generally defined as follows:

- **Bicycle and Pedestrian Master Plans**: Develop a bicycle and pedestrian master plan for a city, overlay, or other designated area. A master plan will provide a guide designed for the community to create the vision and framework for future planning and improvements.
- **General Sub-Area Studies**: A general bicycle and pedestrian study for the sub-area that focuses on a variety of improvements that are context-specific to the needs of the sub-area at the time of the study.
- **Connectivity Studies**: A study which focuses on providing bicycle and pedestrian connectivity within the study area.
- **Safety Studies**: A study that addresses the bicycle and pedestrian safety of the sub-area. These study areas had high frequencies of bicycle and pedestrian fatalities and crashes over the past five years.

Bicycle parked at Vilano Beach in St. Johns County. Source: Project Team.

Table 5-2 Sub-Area Studies List

Full Project Name	County	Limits	Source	Description/Type
Blanding Boulevard Bike/Ped Safety Study	Clay	First Coast Expressway (FCE) to Duval County Line	Data Analysis	Bike/Ped Safety Study due to the high bike and ped fatalities.
Green Cove Springs Bike/Ped Master Plan	Clay	Green Cove Springs City Limits	TAC	Bike/Ped Master Plan for the City of Green Cove Springs.
Middleburg Sub-Area Study	Clay	Middleburg area	2013 Plan	General Sub-Area Study from 2013 plan.
North Clay School Connectivity Study	Clay	Henley Road, Sandridge Road, US 17, CR 21	Data Analysis	School Connectivity Study due to the concentration of students and schools.
103rd Street Pedestrian Safety Study	Duval	Monroe Smith Road to Roosevelt Boulevard	Data Analysis	Bike/Ped Safety Study due to the high bike and ped fatalities.
Blanding Boulevard Pedestrian Safety Study	Duval	Clay County Line to 103rd Street	Data Analysis	Pedestrian Safety Study due to the high ped fatalities.
North Jacksonville Sub-Area Study	Duval	I-295, I-95, Broward Road, Lem Turner Road, Capper Road	Data Analysis	General Sub-Area Study.
Hyde Park Sub-Area Study	Duval	Normandy Blvd, Cassat Avenue, Wilson Blvd, Old Middleburg Road	Data Analysis	General Sub-Area Study.
Mandarin Sub-Area Study	Duval	SR 13 to I-295	TAC	General Sub-Area Study.
Midwest Sub-Area Study	Duval	RR tracks, I-95	Data Analysis	General Sub-Area Study.
Moncrief Sub-Area Study	Duval	RR tracks, New Kings Road, Ribault River, I-95	Data Analysis	General Sub-Area Study.
Old Arlington Sub-Area Study	Duval	Blue Cypress Park, St. Johns River, Arlington Expressway	Data Analysis	General Sub-Area Study.

Full Project Name	County	Limits	Source	Description/Type
Springfield Sub-Area Study	Duval	I-95, US 1, Tallyrand Avenue, Bay Street/Water Street	Data Analysis	General Sub-Area Study.
Sunbeam Sub-Area Study	Duval	I-295, San Jose, Baymeadows, US 1	Data Analysis	General Sub-Area Study.
Panama Park Sub-Area Study	Duval	MLK Pkwy, I-95, St. Johns River	Data Analysis	General Sub-Area Study.
Trout River Sub-Area Study	Duval	Trout River, New Kings Road, Trout River Boulevard	Data Analysis	General Sub-Area Study.
UNF/St. Johns Town Center Sub-Area Study	Duval	JTB, Southside Blvd, Kernan Blvd	TAC	General Sub-Area Study.
West Jacksonville Sub-Area Study	Duval	Old Kings Road, Edgewood Avenue, Beaver Street	Data Analysis	General Sub-Area Study.
SR 200 Corridor Study	Nassau	Plummer Creek to Piney Island Drive	2013 Plan	General Sub-Area Study from 2013 plan.
Bike/Ped Connectivity to St. Augustine Study	St. Johns	Holmes, Lewis Speedway, US 1	Data Analysis	Connectivity Study from the surrounding area to downtown St. Augustine.
Downtown St. Augustine Neighborhood Connectivity Study	St. Johns	SR 16 to Lincolnville (S Street)	TAC	Connectivity Study to identify alternative routes through the neighborhoods adjacent to downtown St. Augustine.
SJC NW Sector Bike/Ped Master Plan	St. Johns	SJC NW Sector	TAC	Bike/Ped Master Plan for the NW Sector Overlay.
St. Augustine Beach Sub-Area Study	St. Johns	St. Augustine Beach City Limits	TAC	General Sub-Area Study.
US 1 Bike/Ped Safety and Connectivity Study	St. Johns	SR 206 to SR 207	Data Analysis	Bike/Ped Safety Study and neighborhood connectivity.

Figure 5-2 Future Sub-Area Studies, Region

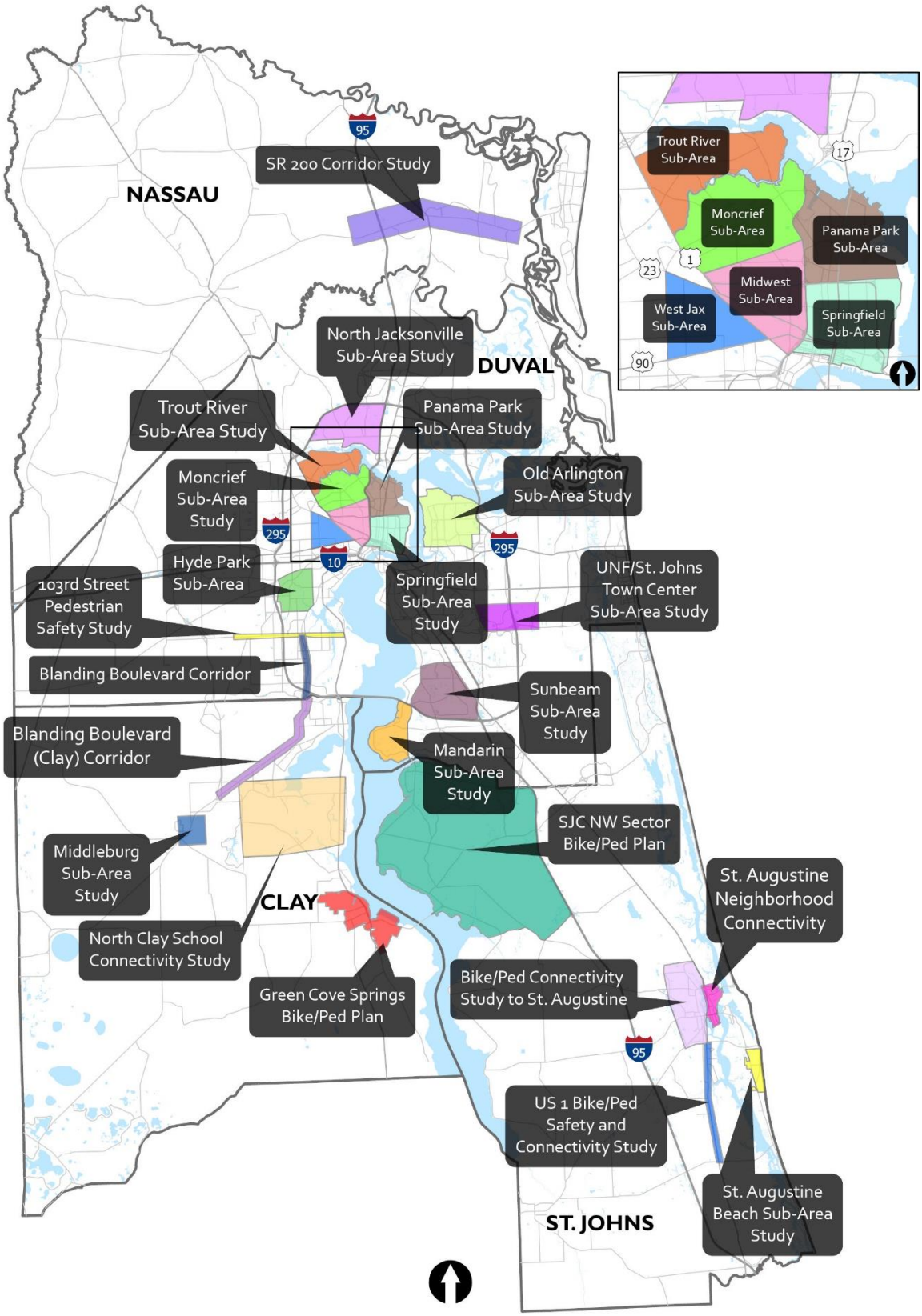
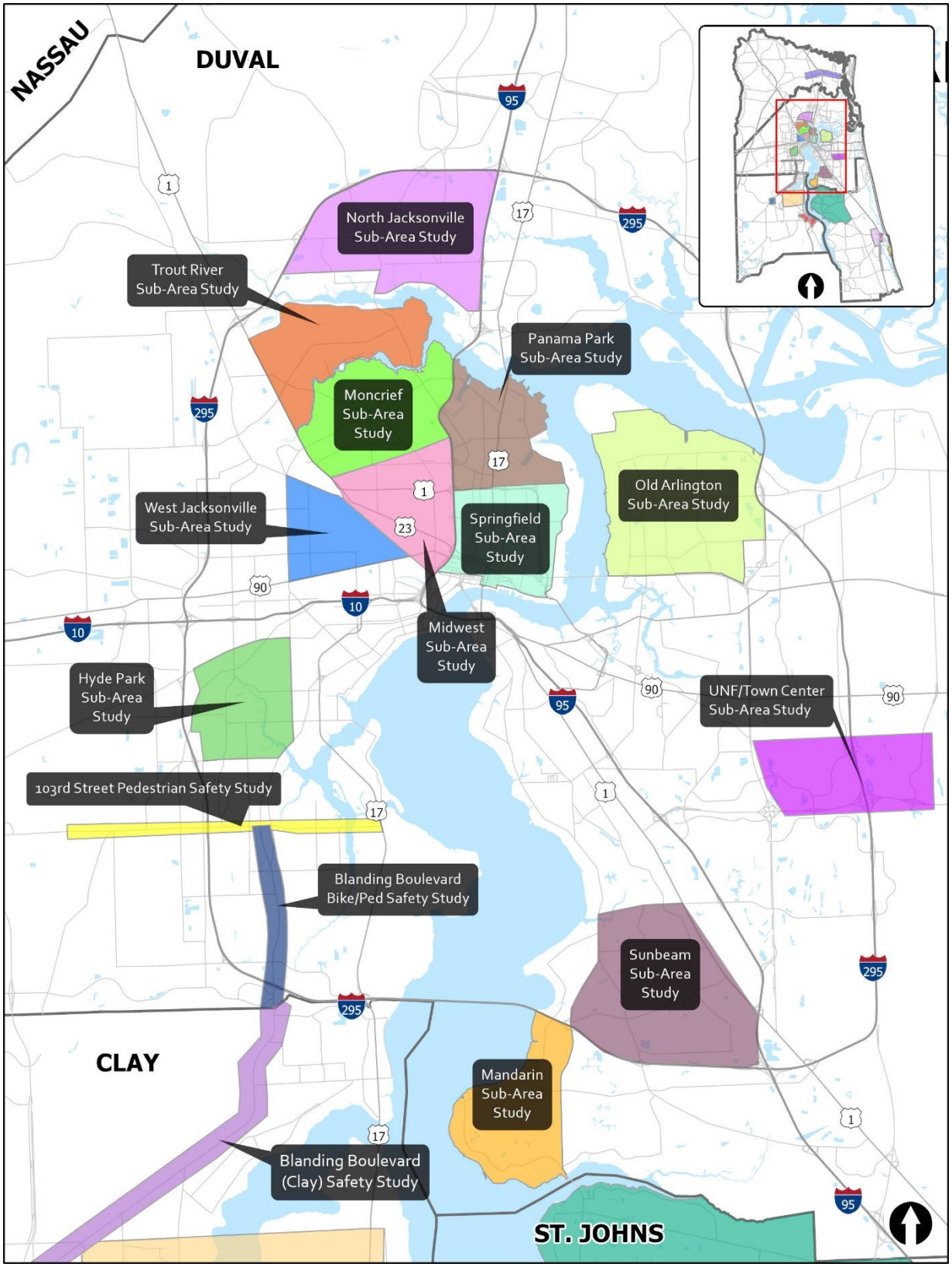


Figure 5-3 Future Sub-Area Studies, Duval County



Other Studies

Throughout the study process, other studies were identified that should be included in recommendations but could not necessarily be mapped either due to their scale or scope. These studies are listed and described in **Table 5-3.**

Table 5-3 Other Studies List

Project Name	Location	Source	Description
Education and Outreach Program	Regional	TAC	Develop an education and outreach program for bicycles, pedestrians, and motorists. This should include targeted safety campaigns, helmet fittings, bike rodeos, etc.
Micromobility Study	TBD	AAG	Investigate the roles of micromobility including the use of personal escooters and ebikes along with the bikeshare/scootershare systems. Define how these modes impact the current transportation network, what guidance can be provided for facilitating this type of transportation, and what kind of infrastructure improvements are needed.
Promote Existing Facilities and Wayfinding	Regional	TAC	Develop a plan to promote the existing bicycle and pedestrian facilities within the region to spread awareness of existing regional assets. Also, enhance wayfinding and signage for major trail systems within the region.
Trail Utility Corridor Study	TBD	TAC	Study on existing utility corridor easements and the opportunity to use them for trails.

Utility corridor in Clay County. Source: Project Team.

5.2 Future Studies Evaluation

For comparison purposes, the identified trail studies and sub-area studies were scored using an evaluation matrix which compiled the various data points from the spatial planning analysis. The 'other studies' were not included in this evaluation due to their differing scales and scopes. The results of this evaluation are to guide prioritization of the studies as well as highlight the studies that are most aligned with the goals and objectives of this master plan. This evaluation also provides insight to the pros and cons of each study area location.

The evaluation matrix included ten categories with three to four criteria each. Each criterion was assigned a score between 0 and 5. Two of the categories (Trail Connection and FGTS Trail) were utilized only on the trail studies. The scoring criteria is displayed in **Table 5-4**.

Each sub-area study and trail study were then spatially evaluated using the scoring criteria as a guide. A score for each category was tabulated based on the scoring matrix and then calculated for the project as a whole to yield the project total score.

The final total scores for each project are displayed region-wide and by county in **Tables 5-5 through 5-7**. The scores by category are displayed in **Tables 5-8 and 5-9**. The study prioritization is included in **Section 6.1**. The higher scoring projects should generally be the higher priority projects for future study.

The criteria and assigned score are not intended to be exact metric, but represents a general measure for comparing the studies. For example, the census and EJScreen data is displayed by census block group (CBG) in which a study area may cover only portions of a CBG. Therefore, the score was assigned based on the majority of the CBG data within the spatially defined project area.

Table 5-4 Scoring Criteria

Category	Criteria	Score	Description	Data Source
Bike Crashes	2+ Fatalities	5	Number of fatalities involving a bicycle	Signal 4 Analytics (S4) crashes from 2018-2022 https://signal4analytics.com/
	1 Fatality	3		
	0 Fatalities	0		
Ped Crashes	10+ Fatalities	5	Number of fatalities involving a pedestrian	Signal 4 Analytics (S4) crashes from 2018-2022 https://signal4analytics.com/
	5 to 9 Fatalities	3		
	1 to 4 Fatalities	2		
	0 Fatalities	0		
EJScreen	High	5	Majority of the CBGs are more than 80th percentile	US EPA's EJScreen Tool Demographic Index https://www.epa.gov/ejscreen
	Medium	3	Majority of the CBG between 50th and 80th percentile	
	Low	0	Majority of the CBGs less than 50th percentile	
Employment Density	High	5	5 or more employees/acre	Civilian Employed Aged 16 years and Over; ACS 2017-2021 obtained from FGDL
	Medium	3	Between 3 and 5 employees/acre	
	Low	0	Between 0 and 2 employees/acre	
Population Density	High	5	More than 5 persons/acre	Persons per acre; ACS 2017-2021 obtained from FGDL
	Medium	3	Between 1 and 3 persons/acre	
	Low	0	Less than 1 person/acre	
Student Population	High	5	More than 40%	Percentage of students of total population; ACS 2017-2021 obtained from FGDL
	Medium	3	Between 20% and 40%	
	Low	0	Less than 20%	
Zero Car Households	High	5	More than 25%	Households with zero vehicles available; ACS 2017-2021 obtained from FGDL
	Medium	3	Between 10 and 25%	
	Low	0	Less than 10%	
2013 Priority	Yes	5	Recommended priority study or regional route from the 2013 plan	*Figure 11. Recommended Study and Route Locations*, 2013 Bike/Ped Plan
	No	0		
Trail Connection*	2+ Existing	5	Number of existing trail connections	Regional Multi-Use Trail Master Plan shapefile
	1 Existing	3		
	Programmed	0		
FGTS Trail*	Priority	5	FGTS Priority Trail	FGTS Priority and Opportunity Network shapefiles, 2019-2023
	Opportunity	3	FGTS Opportunity Trail	
	None	0	Not on the FGTS	

** Category only used for trail study evaluation*

Table 5-5 Sub-Area Study Total Scores

Project	County	Total Score
Midwest Sub-Area Study	Duval	31
Springfield Sub-Area Study	Duval	31
North Jacksonville Sub-Area Study	Duval	29
Trout River Sub-Area Study	Duval	29
Old Arlington Sub-Area Study	Duval	28
Panama Park Sub-Area Study	Duval	26
103rd Street Pedestrian Safety Study	Duval	24
Moncrief Sub-Area Study	Duval	23
West Jacksonville Sub-Area Study	Duval	23
Hyde Park Sub-Area Study	Duval	21
Blanding Boulevard Bike/Ped Safety Study	Clay	19
UNF/St. Johns Town Center Sub-Area Study	Duval	19
Blanding Boulevard Pedestrian Safety Study	Duval	18
Sunbeam Sub-Area Study	Duval	18
Middleburg Sub-Area Study	Clay	16
Downtown St. Augustine Neighborhood Connectivity	St. Johns	14
North Clay School Connectivity Study	Clay	13
SJC NW Sector Bike/Ped Master Plan	St. Johns	13
Bike/Ped Connectivity to St. Augustine Study	St. Johns	11
US 1 Bike/Ped Safety and Connectivity Study	St. Johns	11
St. Augustine Beach Sub-Area Study	St. Johns	9
SR 200 Corridor Study	Nassau	8
Mandarin Sub-Area Study	Duval	5
Green Cove Springs Bike/Ped Master Plan	Clay	3

Table 5-6 Trail Study Total Scores

Project	Total Score
Core to Coast Loop (South)	40
Black Creek Trail to NAS Jax	33
Bartram Trail to Nocatee Trail	31
Cecil Trail to Baldwin	28
SR 21 to Green Cove Springs	10
Nassau County to Baldwin Trail	9
River Scenic Bike Loop - St. Johns	6
River Scenic Bike Loop - Clay	3

Table 5-7 Sub-Area Total Study Scores by County

Project	County	Total Score
Blanding Boulevard Bike/Ped Safety Study	Clay	19
Middleburg Sub-Area Study	Clay	16
North Clay School Connectivity Study	Clay	13
Green Cove Springs Bike/Ped Master Plan	Clay	3
Midwest Sub-Area Study	Duval	31
Springfield Sub-Area Study	Duval	31
North Jacksonville Sub-Area Study	Duval	29
Trout River Sub-Area Study	Duval	29
Old Arlington Sub-Area Study	Duval	28
Panama Park Sub-Area Study	Duval	26
103rd Street Pedestrian Safety Study	Duval	24
Moncrief Sub-Area Study	Duval	23
West Jacksonville Sub-Area Study	Duval	23
Hyde Park Sub-Area Study	Duval	21
UNF/St. Johns Town Center Sub-Area Study	Duval	19
Blanding Boulevard Pedestrian Safety Study	Duval	18
Sunbeam Sub-Area Study	Duval	18
Mandarin Sub-Area Study	Duval	5
SR 200 Corridor Study	Nassau	8
Downtown St. Augustine Neighborhood Connectivity	St. Johns	14
SJC NW Sector Bike/Ped Master Plan	St. Johns	13
Bike/Ped Connectivity to St. Augustine Study	St. Johns	11
US 1 Bike/Ped Safety and Connectivity Study	St. Johns	11
St. Augustine Beach Sub-Area Study	St. Johns	9

Table 5-8 Sub-Area Scores by Category

County	Project	Bike Fatality	Ped Fatality	EJScreen	Employment	Population	Students	Zero Car	2013 Study	Project Total
Clay	Blanding Boulevard Bike/Ped Safety Study	5	5	3	3	3	0	0	0	19
	Green Cove Springs Bike/Ped Master Plan	0	0	0	0	0	3	0	0	3
	Middleburg Sub-Area Study	3	2	0	0	0	3	3	5	16
	North Clay School Connectivity Study	0	2	0	3	3	5	0	0	13
Duval	103rd Street Pedestrian Safety Study	3	5	3	5	5	3	0	0	24
	Blanding Boulevard Pedestrian Safety Study	0	3	3	3	3	3	3	0	18
	Hyde Park Sub-Area Study	3	2	3	5	5	0	3	0	21
	Mandarin Sub-Area Study	0	2	0	0	3	0	0	0	5
	Midwest Sub-Area Study	3	5	5	5	5	3	5	0	31
	Moncrief Sub-Area Study	0	5	5	3	5	0	5	0	23
	North Jacksonville Sub-Area Study	5	5	5	3	3	5	3	0	29
	Old Arlington Sub-Area Study	5	5	3	5	5	5	0	0	28
	Panama Park Sub-Area Study	0	5	5	3	5	3	5	0	26
	Springfield Sub-Area Study	3	5	5	5	5	3	5	0	31
	Sunbeam Sub-Area Study	3	2	0	5	5	3	0	0	18
	Trout River Sub-Area Study	5	5	5	3	5	3	3	0	29
	UNF/St. Johns Town Center Sub-Area Study	0	2	3	3	3	5	3	0	19
	West Jacksonville Sub-Area Study	0	2	5	3	5	3	5	0	23
Nassau	SR 200 Corridor Study	0	0	0	0	0	3	0	5	8
St. Johns	Bike/Ped Connectivity to St. Augustine Study	0	2	3	3	3	0	0	0	11
	Downtown St. Augustine Neighborhood	0	2	0	3	3	3	3	0	14
	SJC NW Sector Bike/Ped Master Plan	3	2	0	0	3	5	0	0	13
	St. Augustine Beach Sub-Area Study	0	0	0	3	3	3	0	0	9
	US 1 Bike/Ped Safety and Connectivity Study	0	2	0	3	3	0	3	0	11

Table 5-9 Trail Scores by Category

Project	Bike Fatality	Ped Fatality	EJScreen	Employment	Population	Students	Zero Car	2013 Study	Existing Trail	FGTS	Project Total
Bartram Trail to Nocatee Trail	5	2	0	3	3	5	0	5	5	3	31
Black Creek Trail to NAS Jax	5	2	3	3	3	3	3	5	3	3	33
Cecil Trail to Baldwin	5	2	3	0	0	3	5	0	5	5	28
Core to Coast Loop (South)	5	3	3	5	5	3	3	5	5	3	40
Nassau County to Baldwin Trail	0	0	0	0	0	0	3	0	3	3	9
River Scenic Bike Loop (Clay)	0	0	0	0	0	3	0	0	0	0	3
River Scenic Bike Loop (St. Johns)	0	0	0	0	0	0	0	0	3	3	6
SR 21 to Green Cove Springs	0	0	0	0	0	3	3	0	0	4	10

East Coast Greenway in Elkton. Source: Project Team.

5.3 Policy Recommendations

A list of bicycle and pedestrian-related polices was developed that are recommended to be incorporated into local comprehensive and other planning documents. When developing and updating local plans, these policies should be considered to encourage bicycle and pedestrian infrastructure and increased safety of the region.

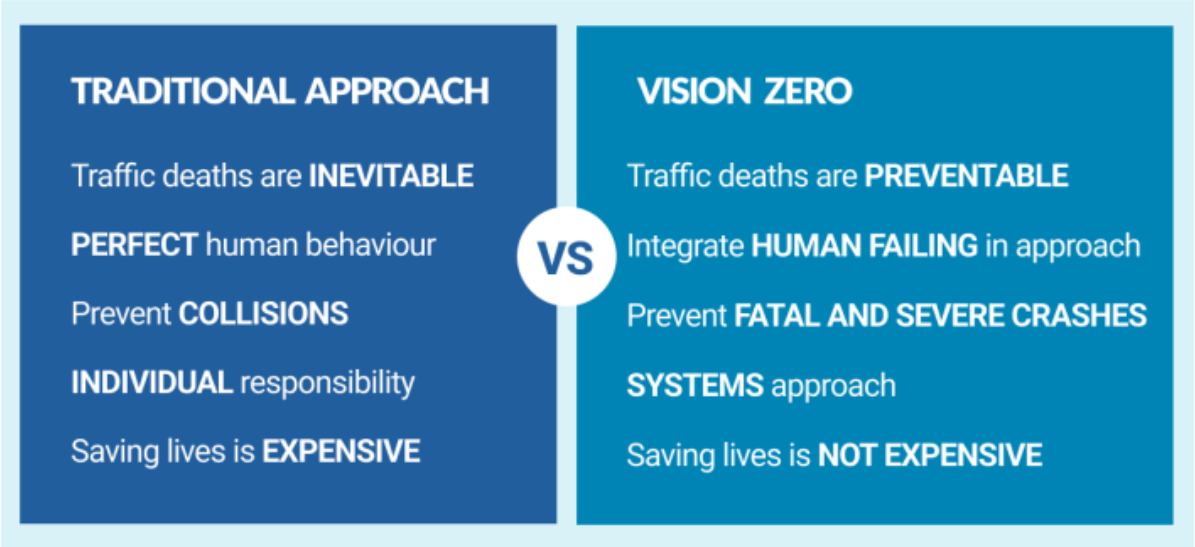
Nine of the polices were detailed in **Section 2.4** as part of the comprehensive plan review element of this master plan. For review, these policies are listed below:

- **Complete Streets Policy:** Complete Street policies promote a multi-modal approach to street design. Multi-modal design promotes walking, bicycling, transit, and automotive use. Adopting a complete streets policy specifies how a community will plan, design, and maintain streets so they are safe for users of all ages and abilities.
- **Enhanced Land Development Regulations (LDRs):** LDRs should ensure that new development provides safer and connected bicycle and pedestrian facilities.
- **Maintenance of Facilities:** Policies that promote maintaining bicycle and pedestrian facilities through cleaning and pavement surface maintenance.
- **Mapping and Data Policy**: A mapping and data policy ensures that local counties and municipalities are maintaining a GIS database of bicycle and pedestrian facilities within their jurisdiction. These maps and data should be readily available and regularly maintained.
- **Public Transportation Policy:** Policies that promote connecting public transportation stops to the bicycle and pedestrian network.
- **Regional Collaboration:** Regional collaboration for improved safety within the bicycle and pedestrian network.
- **Resurfacing to Expand Existing Network**: Resurfacing as an opportunity to re-stripe and add bicycle lanes expand the bicycle and pedestrian network.
- **Safety:** Safety policies emphasized public engagement to encourage safe practices and safe access to facilities. Include an annual analysis of crash data provides insight regarding bicycle and pedestrian safety as well as identifies problem safety areas to be addressed within the network.
- **Trails Policy:** Includes provisions to expand the existing trails network within the jurisdictions analyzed.

In addition to the policies listed above, the following policies are recommended:

- **Education and Encouragement Policy**: Policies which encourage increased safety and awareness of the legal rights of bicycles, pedestrians, and motorists. Each group needs to be aware of their own legal rights of each other's presence and the safety precautions that should be taken.

- **Safe Routes to School Policy**: Policies that are consistent with the guidance from the *Safe Routes to School National Partnership* to promote safety education among school-aged children as well as bicycle and pedestrian infrastructure near schools.
- **Bicycle and Pedestrian Count Program Policy**: Developing a bicycle and pedestrian count program quantifies the increases in non-motorized traffic for all trip purposes. These can be organized through FDOT/FDEP programs or performed by groups of volunteers or advocacy groups.
- **Implementation Monitoring Policy (Performance Measures)**: Some local governments monitor current and new bicycle and pedestrian facilities by maintaining an annual scorecard. These scorecards are comprised of performance measures such as miles of different types of bike lanes, miles of ADA compliant sidewalks, bicycle and pedestrian counts, etc. Whereas some existing performance measures, such as FDOT's *Source Book*, only measures the mileage of roadways that include bicycle and pedestrian facility without specifying which type of facility. A refined performance measuring policy will help monitor and properly guide the progress of safety and infrastructure goals.
- **Vision Zero Policy**: Vision Zero is a global strategy with the purpose of eliminating all traffic fatalities and severe injuries while increasing safe, healthy, and equitable mobility for all. Vision Zero plans and policies have been adopted and implemented in cities throughout Florida. The image below represents the Vision Zero program perspective.



Source: www.visionzeronetwork.org

Communities that have not included these policies within their comprehensive plans are recommended to include them to promote connectivity and safety of their bicycle and pedestrian network and fulfill the goals and objectives of this master plan.

5.4 Design Guidelines

Bicycle and pedestrian design guidelines were created for this report to act as a guide for implementation and selection of bicycle and pedestrian facilities. These guidelines were developed using NACTO's *Urban Street Design Guide, Urban Bikeway Design Guide,* and *FDOT Design Manual* (FDM) with an emphasis on designing for users of all ages and abilities.

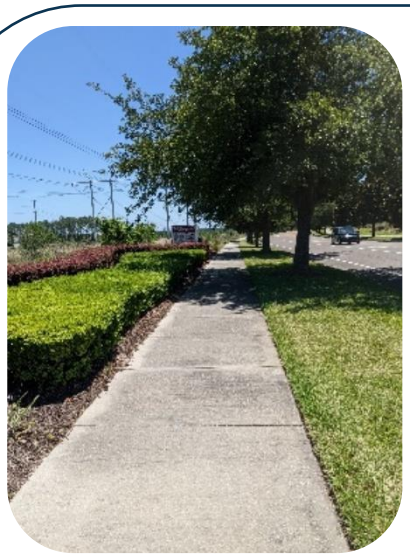
The guidelines provide a recommended facility type based on context such as vehicle speeds and volumes as well as operational uses and potential bicycle stress.

The types of facilities covered in this guide are: sidewalks, conventional bike lanes, buffered bike lanes, protected bike lanes, shared-use paths and shared streets. Each of these facilities are described in this section. Additionally, a facility selection matrix is provided.

Protected bike lane in Daytona. Source: Project Team.

Types of Facilities

The six facility types included in these design guidelines are described in this section.



Sidewalks

Benefits: Sidewalks enhances connectivity and promotes walking as well as serve as public spaces and are considered the "front steps to the city".

Recommended Width: 5-7 feet in residential; 8-12 feet in downtown or commercial areas. When directly adjacent to moving traffic, 2 feet should be added to the absolute minimum clear path width. Sidewalks of minimum dimensions directly adjacent to the roadway should be avoided

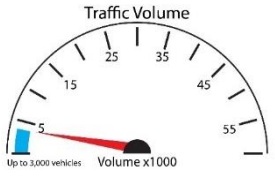
Recommended Locations: Both sides of all streets in urban areas. For rural or more suburban roads, it may be advantageous to build a shared-use path adjacent to main roadway as a substitute.

Other Recommended Design Features: Pedestrian-scale lighting, benches/seating, shade/street trees, eye-level facades and store fronts.

More information on sidewalk design: https://nacto.org/publication/urban-street-design-guide/street-design-elements/sidewalks/

Conventional Bike Lanes

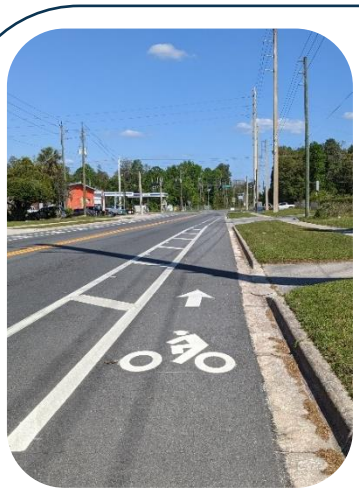
Benefits: Creates separation between bikes and vehicles, increases bike confidence on busy streets, increases predictability of bikes and vehicles, increases total capacity of streets carrying bikes and vehicles, and visually reminds vehicles of bikes' right to the street.



Recommended Width: 5 feet when adjacent to on-street parking or when parking in the bike lane is a concern; 6 feet when adjacent to curb; 7-8 feet when adjacent to guardrail or other barrier.

Recommended Locations: Along roadways with less than 3,000 Annual Average Daily Traffic (AADT) with a posted speed of 25 mph or higher, and/or streets with high transit volume.

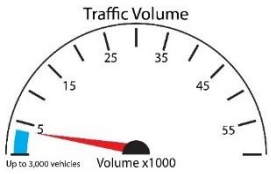
More information on conventional bike lane design: https://nacto.org/publication/urban-bikeway-design-guide/bike-lanes/conventional-bike-lanes/



Buffered Bike Lanes

Benefits: Creates greater distance between vehicles and bikes, provides space for passing other bikes, provides greater space for bikes without being mistaken for travel lane or parking lane, provides increased perception of safety for bicycle users.

Recommended Width: Same as conventional bike lanes (5-8 feet). Buffer shall have 2 solid white lines. Dashing the buffer is preferred for clarity. If buffer is 3 feet or wider, buffer area shall have interior chevron markings



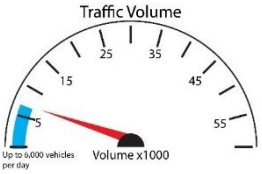
Recommended Locations: Anywhere a typical bike lane is considered, streets with high travel speeds, high volume, and/or high truck traffic, streets with extra lanes or extra lane width.

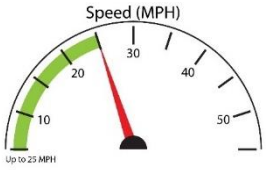
More information on conventional bike lane design: https://nacto.org/publication/urban-bikeway-design-guide/bike-lanes/buffered-bike-lanes/

Protected Bike Lanes

Benefits: Dedicates and protects consistently exclusive, designated bicycling space; is attractive for bicyclists of all levels and ages; improves organization of street; prevents double parking; increases comfort and safety for people walking, biking, and driving; has a low implementation cost.

Recommended Width: Same as bike lane requirements (5-8 feet). If adjacent to a parking lane, physical delineators (e.g. tubulars, armadillos) can be utilized.





Recommended Locations: Roadways with vehicle speeds more than 25 mph where the daily traffic is less than 6,000 vpd; where there is more than 1 travel lane per direction; where curbside conflicts are expected; on high-stress streets; streets with high bicycle volumes.

More information on protected bike lane design: https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/separate-bicyclists-speed-volume-high/

https://nacto.org/publication/urban-bikeway-design-guide/cycle-tracks/one-way-protected-cycle-tracks/

Shared Use Paths

Benefits: Separates bicycles and pedestrians completely from motor-vehicle traffic; provides a continuous biking and walking corridor; serves as a spine for biking and walking networks.

Recommended Width: 10 – 14 feet (FDM) with a 2 - 4 foot clear area on both sides of path.

Recommended Locations: Shared Use Paths (SUPs) are designed for most street-types and can be applied to local, collector, or arterial functionally classified roadways. They work best when connected to an on-street network that meets the same high benchmark of rider comfort and design that connects destinations. Speed and traffic volume varies.

More information on protected bike lane design: https://www.fdot.gov/docs/default-source/roadway/fdm/current/2018FDM224SharedUsePaths.pdf

Shared Street

Benefits: Meets the needs of adjacent residents while functioning as a shared space for recreation, socialization, and leisure

Recommended Improvements: Textured or pervious pavements reinforce pedestrian-priority nature of the street; street furniture, bollards, benches, bicycle parking; shared street signage. Based on ROW, 3-5 foot clear path may be provided protected from traffic. For narrower ROW, this is discouraged.

Recommended Locations: Low volume and low speed streets (less than 10 mph) in residential areas.

More information on shared streets: https://nacto.org/publication/urban-street-design-guide/streets/residential-shared-street/

Facility Selection Matrix

The facility selection matrix in **Table 5-10** provides guidance in choosing which facility would be best suited for various types of roadway facilities and context. This matrix was adapted from NACTO's *Contextual Guidance for Selecting All Ages & Abilities Bikeways* chart.

Table 5-10 Facility Selection Matrix

Roadway Context				Facility Type
Target Speed	**Target Volume (ADT)**	**Number of Lanes**	**Other Considerations**	
Any		Any	High curbside activity, frequent buses, congestion, or turning conflicts	**Protected Bike Lane**
< 10 mph	n/a	No centerline or single lane one-way	Pedestrians share the roadway	**Shared Street**
≤ 25 mph	≤ 1,500 – 3,000	Single lane each direction or single lane one-way	Low curbside activity or low congestion pressure	**Any Bike Lane Type**
	≤ 3,000 – 6,000			**Buffered or Protected Bike Lane**
	< 6,000			**Protected Bike Lane**
	Any	Multiple lanes per direction		
> 26 mph	Any	Any	Low curbside activity or low congestion pressure	**Protected Bike Lane**
High speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		Any	High Pedestrian Volume	**Bike Path with Separate Walkway or Protected Bike Lane**
			Low Pedestrian Volume	**Shared Use Path or Protected Bike Lane**

Section 6.0 Implementation Strategy

6.0 Implementation Strategy

The implementation strategy provides a general roadmap to guide the execution of this master plan. The implementation strategy is divided into two sections: Study Prioritization and Potential Funding Sources. The purpose of this strategy is to provide a suggested method of implementation. However, the actual application of any of these plans and policies will be based on additional context-sensitive factors such as funding, project and improvement momentum, local priorities, planned improvements, other studies, etc. Ultimately, the implementation of bicycle and pedestrian improvements oftentimes take a creative approach based on a variety of elements. This section provides an example of what a potential approach may be.

6.1 Study Prioritization

The study prioritization was determined based in combination of the studies evaluation score, TAC and AAG input, geography, and other qualitative location-specific factors. Consistent with the format of the 2013 master plan, the studies were grouped into three priority zones based on identified need. A **Priority 1** study ranks higher (red signifying urgent) than a **Priority 2** (yellow signifying medium urgency) or **Priority 3** (green signifying less urgent**)** study. Implementing these studies is not limited to the TPO. These studies can be implemented by any municipality or agency as funding or interest arise. Collaboration among local agencies is key to future study implementation.

The prioritization of the studies is divided between subarea studies (**Figure 6-1** and **Table 6-1**) and trail studies (**Figure 6-2** and **Table 6-2**). There are two studies in these lists that are already funded by the TPO for FY 2023/2024: Moncrief Road Corridor Study and the Core 2 Coast Loop (South). Although these became programmed studies during this master plan update, they remain in the project lists to be documented as recommended/completed in future bicycle/pedestrian master plan updates.

Bicycle on a sidewalk in St. Johns County. Source: Project Team.

Figure 6-1 Sub-Area Study Priorities

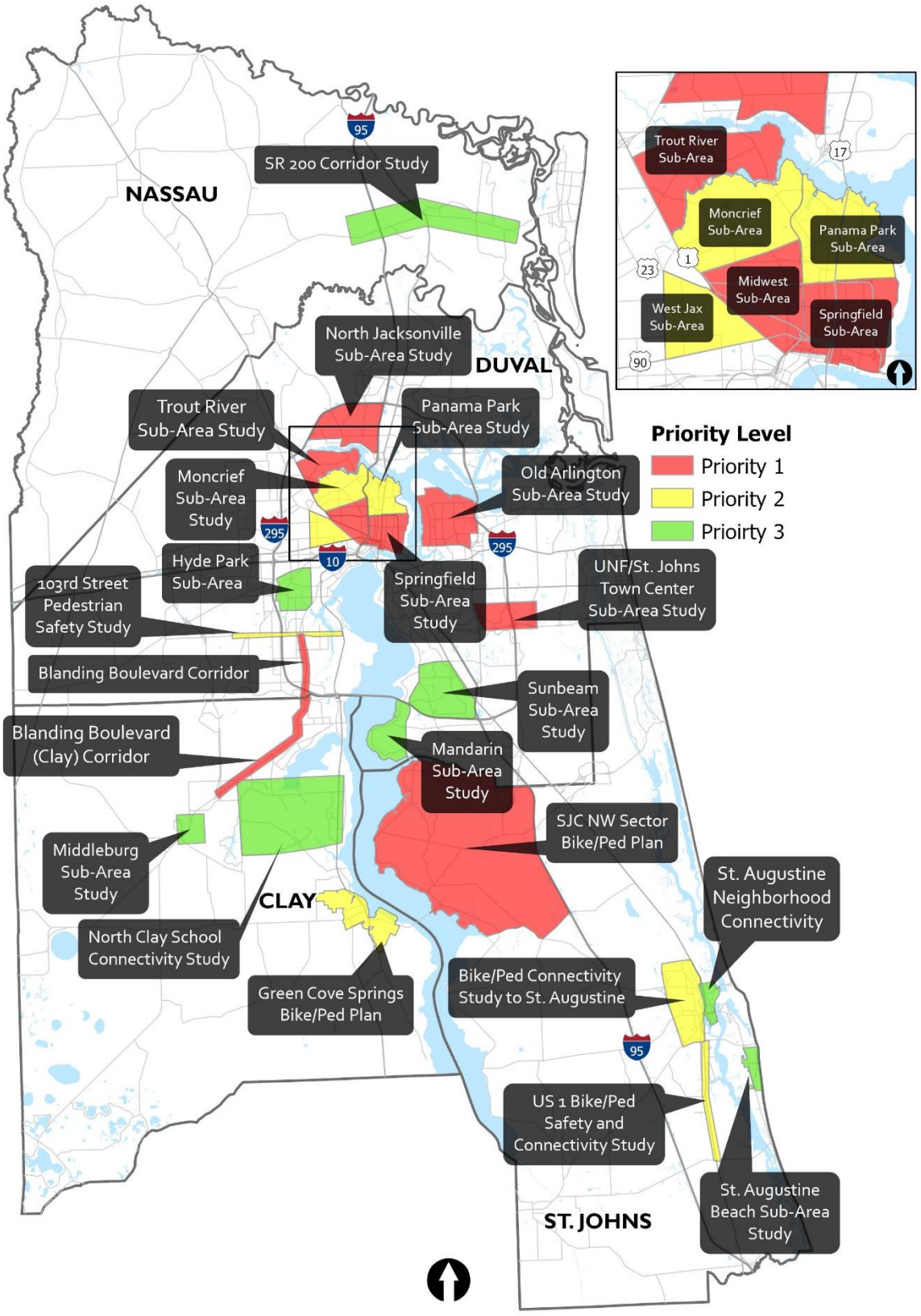


Figure 6-2 Trail Study Priorities

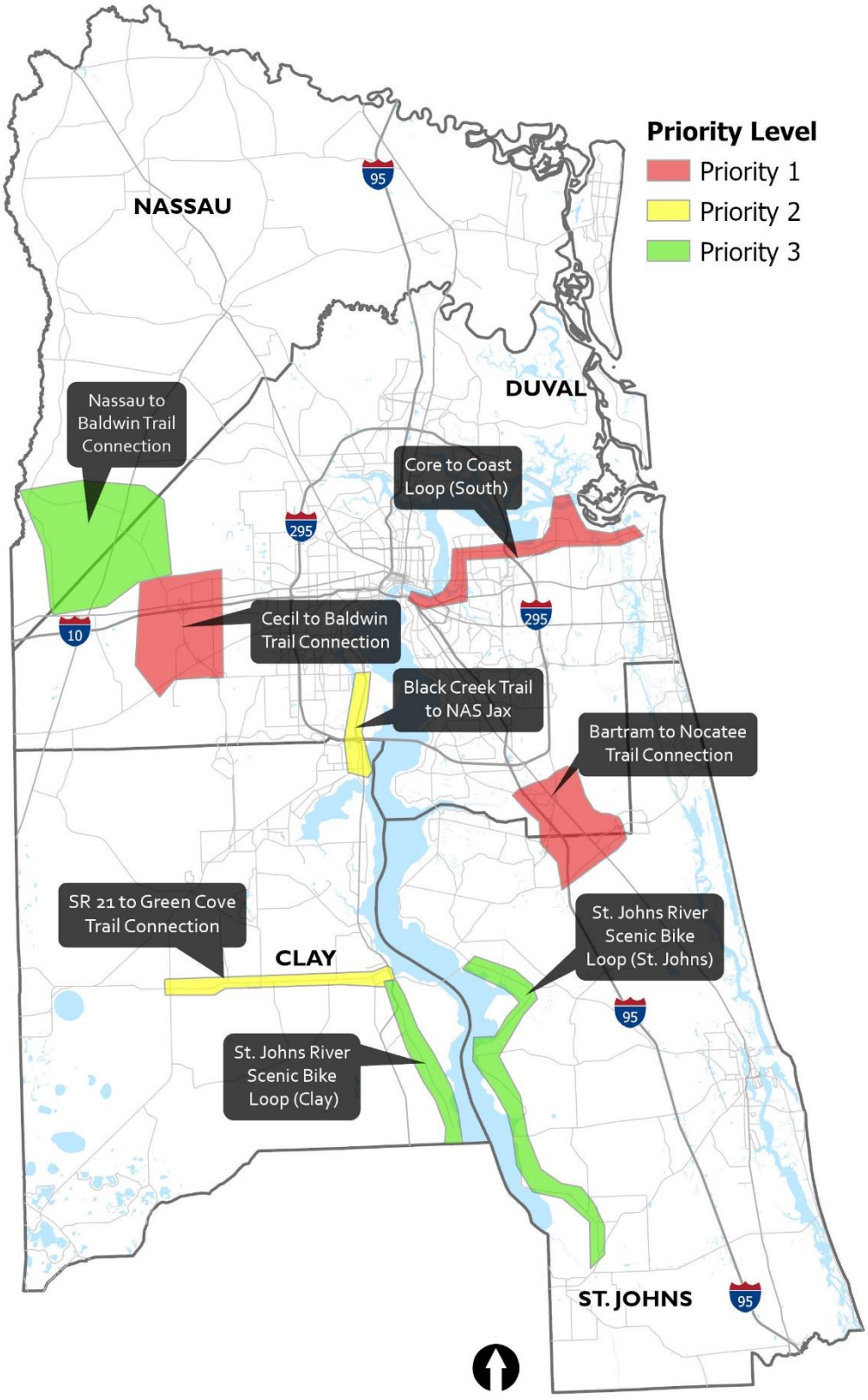


Table 6-1 Sub-Area Study Priorities

Project	County	Evaluation Score	Priority
Midwest Sub-Area Study	Duval	31	1
Springfield Sub-Area Study	Duval	31	1
North Jacksonville Sub-Area Study	Duval	29	1
Trout River Sub-Area Study	Duval	29	1
Old Arlington Sub-Area Study	Duval	28	1
Panama Park Sub-Area Study	Duval	26	1
103rd Street Pedestrian Safety Study	Duval	24	1
Moncrief Sub-Area Study	Duval	23	2
West Jacksonville Sub-Area Study	Duval	23	2
Hyde Park Sub-Area Study	Duval	21	2
Blanding Boulevard Bike/Ped Safety Study (Clay)	Clay	19	1
UNF/St. Johns Town Center Sub-Area Study	Duval	19	2
Blanding Boulevard Bike/Ped Safety Study (Duval)	Duval	18	3
Sunbeam Sub-Area Study	Duval	18	3
Middleburg Sub-Area Study	Clay	16	2
Downtown St. Augustine Neighborhood Connectivity	St. Johns	14	1
North Clay School Connectivity Study	Clay	13	3
SJC NW Sector Bike/Ped Master Plan	St. Johns	13	2
Bike/Ped Connectivity to St. Augustine Study	St. Johns	11	2
US 1 Bike/Ped Safety and Connectivity Study	St. Johns	11	3
St. Augustine Beach Sub-Area Study	St. Johns	9	3
SR 200 Corridor Study	Nassau	8	3
Mandarin Sub-Area Study	Duval	5	3
Green Cove Springs Bike/Ped Master Plan	Clay	3	3

Table 6-2 Trail Study Priorities

Project	Priority
Core to Coast Loop (South)	1
Bartram Trail to Nocatee Trail	1
Cecil Trail to Baldwin	1
Black Creek Trail to NAS Jax	2
SR 21 to Green Cove	2
Nassau County to Baldwin Trail	3
River Scenic Bike Loop - St. Johns	3
River Scenic Bike Loop - Clay	3

6.2 Potential Funding Sources

Federal and state governmental agencies provide funding opportunities for bicycle and pedestrian projects through various programs aimed at improving transportation infrastructure, safety, and accessibility. A list of some of the most relevant funding programs is provided in this section.

State Funding Sources

Shared-Use Nonmotorized (SUN) Trail Program: The SUN Trail program provides funding to develop shared-use paths and trails for pedestrians and bicyclists. The program is administered by FDOT and provides up to 80% of the total project cost. The SUN Trail network includes a combination of existing, planned, and conceptual multiple-use trails; it is a refined version of the Florida Greenways and Trails System (FGTS) Plan's Land Trails Priority and Opportunity Networks. The FGTS is developed and overseen by the Florida Department of Environmental Protection. *Not all trails in this plan are within the SUN Trail network*.

Safe Routes to School (SRTS) Program: The SRTS program provides funding for projects that encourage children to walk or bike to school safely. The program is administered by FDOT and provides up to 100% of the total project cost. The concept is to increase the number of children who walk or bicycle to school by funding projects that remove the barriers currently preventing them from doing so.

Recreational Trails Program (RTP): The RTP provides funding to develop and maintain recreational trails, including pedestrian and bicycle trails. The program is administered by the Florida Department of Environmental Protection (FDEP) and provides up to 80% of the total project cost. The maximum permissible request for non-motorized single-use is $400,000. The maximum permissible request for non-motorized diverse-use is $500,000. The maximum permissible request for motorized projects is $1 million. Match requirements apply.

Florida Job Growth Grant Fund: The Florida Job Growth Grant Fund provides funding for infrastructure projects that promote economic development and create jobs, including bicycle and pedestrian projects. The program is administered by the Florida Department of Economic Opportunity (FDEO) and provides up to 50% of the total project cost.

Federal Funding Sources

Surface Transportation Block Grant Program (STBG): The STBG provides flexible funding for many transportation projects, including bicycle and pedestrian facilities. The FAST Act eliminates the MAP-21 Transportation Alternatives Program (TAP) and replaces it with a set-aside of Surface Transportation Block Grant (STBG) program funding for transportation alternatives (TA). These set-aside funds include all projects and activities that were previously eligible under TAP, encompassing many smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, and safe routes to school projects.

Highway Safety Improvement Program (HSIP): The HSIP program provides funding for projects that improve safety on the nation's highways, including bicycle and pedestrian safety. States and local governments can use HSIP funds to implement safety improvements, such as installing crosswalks, improving lighting, and constructing bike lanes.

Bridge Replacement and Rehabilitation Program (HBRRP): The Bipartisan Infrastructure Law (BIL) appropriates $5,500,000,000 for the BFP under the Highway Infrastructure Program for each of the Fiscal Years (FY) 2022 through 2026. Funds are distributed to the States by a statutory formula (after set-asides for FHWA and operations and Tribal transportation facility bridges). Funds are available for pedestrian walkways and bicycle transportation facilities on highway bridges. If a highway bridge deck is replaced or rehabilitated, and bicycles are permitted at each end, then the bridge project must include safe bicycle accommodations.

Transportation Alternatives Set-Aside program (TA): Florida receives funding by contract authority from FHWA through the STBG. Subject to the overall federal-aid obligation limitation, a portion of these allocations are for transportation "alternatives" or "enhancements". FDOT administers this federal funding, now known as the Transportation Alternatives Set-Aside program (TA), through a competitive process. TA funds a variety of smaller-scale transportation projects and activities that expand and integrate accessible nonmotorized travel choices and make them safer, including on- and off-road bicycle and pedestrian facilities, recreational trails, safe routes for non-drivers, safe routes to schools, and accessibility improvements to help achieve ADA compliance.

FHWA Office of Human Environment's Measuring Multimodal Network Connectivity Pilots: Pilot projects using multimodal network connectivity measures for performance-based planning and/or project development are eligible. This project will assist State DOTs, MPOs, and regional transportation planning organizations (RTPOs) in operationalizing multimodal network connectivity measures into a performance-based planning and/or a project development approach.

Each pilot project must meet the following minimum requirements:

1. Identify the performance-based planning or project development context
2. Define the multimodal connectivity analysis method
3. Assemble applicable data
4. Compute performance metrics
5. Package the results for use in decision making

Examples of relevant pilot project activities may include, but are not limited to multimodal connectivity analysis related to: LRTPs, TIPs, Bicycle and pedestrian plans, and corridor analysis.

Surface Transportation Program (STP): The STP is a federal-aid program that provides funding to states and local governments for a variety of surface transportation projects, including those that improve pedestrian and bicycle mobility and safety.

Under the STP program, states are required to set aside a portion of their funding specifically for transportation alternatives, which can include bicycle and pedestrian projects. The transportation alternatives funding can be used to support a wide range of projects, including constructing bike lanes and shared-use paths, installing pedestrian safety features, developing bike-sharing programs, and implementing educational programs for pedestrians and bicycles.

In addition, STP funds can also be used to support larger transportation infrastructure projects that include bicycle and pedestrian components such as constructing bridges or tunnels that include bike and pedestrian lanes or the development of multi-use trails.

FDOT Safety Grants: The FDOT State Safety Office awards subgrants to traffic safety partners that undertake priority area programs and activities to improve traffic safety and reduce crashes, serious injuries, and fatalities. Subgrants may be awarded for assisting in addressing traffic safety deficiencies, expansion of an ongoing activity, or development of a new program.

Subgrants are awarded to state and local safety-related agencies as "seed" money to assist in the development and implementation of programs in traffic safety priority areas. Funding for these subgrants are apportioned to states annually from the National Highway Traffic Safety Administration (NHTSA) according to a formula based on population and road miles.

FDOT Rails to Trails Program: The FDOT Rails to Trails Program is a statewide initiative that seeks to convert abandoned or unused rail corridors into multi-use trails for pedestrians, bicyclists, and other non-motorized users. Through the Rails to Trails Program, FDOT provides funding and technical assistance to local communities and other partners to acquire design, construct, and maintain multi-use trails. The program also works to promote the use of these trails for recreation, commuting, and other purposes.

RAISE Grant Program: The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant program, formerly known as the BUILD grant program, can be a valuable source of funding for bicycle and pedestrian projects, particularly for larger-scale initiatives that may require significant resources and support. RAISE grants are awarded by the USDOT to support a wide range of transportation infrastructure projects, including those that improve pedestrian and bicycle mobility and safety.

To be eligible for RAISE grant funding, bicycle and pedestrian projects must be part of a larger transportation infrastructure plan that addresses one or more of the following goals: improving safety, reducing congestion, enhancing economic competitiveness, and improving environmental sustainability. The projects must also demonstrate a clear public benefit, and include a cost-sharing component.

Infrastructure for Rebuilding America (INFRA) Grant Program: INFRA grants can be used to fund bicycle and pedestrian projects. The INFRA grant program is administered by the U.S. Department of Transportation and provides funding to support transportation infrastructure projects of national or regional significance.

Bicycle and pedestrian projects may be eligible for INFRA grant funding if they are part of a larger transportation infrastructure plan that addresses one or more of the following goals: improving safety, reducing congestion, enhancing economic competitiveness, and improving environmental sustainability. In addition, the project must demonstrate a clear public benefit, include a cost-sharing component, and align with the INFRA program's funding priorities. INFRA grants typically require a significant cost-sharing component, which may make them more challenging to obtain for smaller-scale bicycle and pedestrian projects.

The AmeriCorps National Civilian Community Corps (NCCC): The NCCC is a federal program that engages young adults in national service projects aimed at addressing community needs across the United States. While the program has a broad focus on service, it does support bicycling in several ways.

Firstly, AmeriCorps NCCC teams often work on projects that involve building or improving trails, greenways, and other bicycle infrastructure. For example, NCCC teams may help construct bike paths, install bike racks, or perform maintenance on existing bike facilities.

Secondly, AmeriCorps NCCC teams may also work with local organizations to promote bicycling and educate the public about bike safety. This can include organizing bike safety workshops, leading bike rides, or distributing information about bike laws and regulations. By raising awareness about bicycling and promoting safe cycling practices, AmeriCorps NCCC teams help to build stronger and more bike-friendly communities.

Private Funding Sources

Private funding can play an important role in supporting bicycle and pedestrian projects, particularly in cases where public funding is limited or not available. Here are some common sources of private funding for bike and pedestrian projects:

Corporate Sponsorship: Many corporations and businesses have programs that support community initiatives and may be willing to sponsor bicycle and pedestrian projects. This could include sponsoring a bike-share program, providing funding for bike lanes or trails, or supporting education and safety programs for pedestrians and cyclists.

Philanthropic Foundations: Philanthropic foundations, such as the Gates Foundation and the Robert Wood Johnson Foundation, often support initiatives related to public health and wellness, including bicycle and pedestrian projects. Non-profit organizations may also be eligible for grants from foundations to support their work in this area.

Crowdfunding: Crowdfunding platforms like Kickstarter and GoFundMe allow individuals and organizations to raise money from the general public to support their projects. This could include funding for bike-share programs, bike lanes, and pedestrian safety initiatives.

Community Donations: Local businesses and individuals may be willing to donate funds to support bicycle and pedestrian projects in their community. Non-profit organizations can work to build partnerships with local businesses and community groups to raise awareness of their projects and solicit donations.

Public-Private Partnerships: Public-private partnerships can also be an effective way to fund bicycle and pedestrian projects. In these arrangements, a private company or group works with a public agency to fund and implement a project. This could include building bike lanes or trails, installing bike racks or signage, or developing educational programs for pedestrians and cyclists.

Private funding can be a valuable resource for bicycle and pedestrian projects, but it's important to note that private funding sources may have specific requirements or expectations regarding how their funds are used. Project sponsors should carefully research potential funding sources and ensure that their proposals align with the priorities and goals of the funding organization.

PeopleForBikes Community Grant Program: The PeopleForBikes Community Grant Program supports bicycle infrastructure projects and targeted initiatives that make it easier and safer for people of all ages and abilities to ride. Most grant funds support bicycle infrastructure projects, such as:

- Bike paths, lanes, trails and bridges
- Bike parks and pump tracks
- End-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage

PeopleForBikes accepts requests for funding up to $10,000. The grant will not require a specific percentage match, but does look at leverage and funding partnerships very carefully. This grant will not consider requests in which funding would amount to 50% or more of the project budget.

Robert Wood Johnson Foundation (RWJF): The RWFJ supports bicycle and pedestrian projects as part of its broader mission to improve health and well-being in the United States. The foundation has a longstanding commitment to promoting active transportation, including biking and walking as a means of improving public health.

RWJF also supports bike and pedestrian projects through its Culture of Health Prize program, which recognizes communities that are taking action to improve health and well-being. Many of the prize-winning communities have implemented innovative bike and pedestrian infrastructure projects, such as complete streets policies, bike share programs, and safe routes to school initiatives.

Furthermore, RWJF may also support bike and pedestrian projects through its community grantmaking programs, such as the Healthy Communities initiative. While the specific focus of these programs may vary from year to year, they often prioritize projects that promote active transportation, access to healthy food, and other elements of a healthy built environment.

Rails-to-Trails Conservancy (RTC): RTC is a nonprofit organization dedicated to creating a nationwide network of trails from former rail lines and connecting corridors. The organization was founded in 1986 and is headquartered in Washington, D.C. The RTC supports organizations and local governments that are implementing projects to build and improve multi-use trails. Under the Doppelt Family Trail Development Fund, RTC will award approximately $85,000 per year, distributed among several qualifying projects, through a competitive process.

The RTC works to repurpose former rail lines and other transportation corridors to create safe and accessible trails for walking, running, bicycling, and other forms of non-motorized transportation. The organization has been instrumental in the creation of thousands of miles of trails across the United States.

In addition to trail development, the RTC advocates for policies and funding at the federal, state, and local levels to support the creation and maintenance of trails. The organization also provides technical assistance and resources to trail builders and advocates.

Overall, these funding opportunities can play a crucial role in supporting bicycle and pedestrian projects in Florida and can help improve mobility, safety, and quality of life in communities across the state.

Section 7.0 Conclusion

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This *Bicycle and Pedestrian Master Plan Update* for the North Florida TPO region was developed as a guiding document that will implement biking and walking infrastructure throughout the region for all ages and abilities.

It is important that future bicycle and pedestrian infrastructure serve all types of users, functions, and destinations. Bicycle and pedestrian investments should encompass both recreational users and destinations (parks, trails, nature) as well as practical users and destinations (work, shopping, visiting friends and family, doctor's appointments, etc.).

For example, the City of Jacksonville was ranked as the third highest area in the country for bicycle fatalities (according to the *League of American Bicyclists*) and sixth highest area in the country for pedestrian fatalities (Smart Growth America, *Dangerous by Design*, 2022). These statistics are a result of the lack of practical facilities located near populated areas such shared use paths, protected bike lanes, and sidewalk networks. Therefore, it is important to consider investing regional planning efforts to improve practical biking and walking infrastructure for the region as well as recreational and biking and walking facilities.

The goals and objectives outlined in this plan provide direction to planning future bicycle and pedestrian infrastructure improvements that will facilitate an equitable, connected, safe, multi-modal network throughout the region.

The study process focused on identifying areas of future study that will impact high population and high employment areas as well as student populations, zero car households, potentially vulnerable populations, and high bicycle and pedestrian crash areas.

The lists of future studies are divided into sub-area studies and trail studies to provide space for practical facilities as well as recreational facilities to be evaluated and prioritized in their own ways.

A set of policy recommendations was provided as a general guide to enhance bicycle and pedestrian-related policies when updating local policies, land development codes, master plans, and comprehensive plans.

Design guidelines and a facility selection matrix was provided to enable the optimal facility type to be selected and designed for various types of roadway facilities and context.

An implementation strategy is provided as a potential approach to execution of the master plan. Implementing the elements of this master plan will create a more livable, sustainable, and equitable community while improving the safety and health for all residents and visitors.

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