SMART REGIONS PLAN
AN ECRC 2.0 INITIATIVE

SMART REGIONS PLAN

FLORIDA-ALABAMA TPO

AUGUST 2025

PRINT VERSION

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF FIGURES (CONTINUED)

LIST OF MAPS

LIST OF TABLES

List of Acronyms

AFC - Alternative Fuel Corridor
ATIS - Advanced Traveler Information System
CCTV - Closed Circuit Television Camera
DMS - Dynamic Message Signs
ECAT - Escambia County Area Transit
ECRC - Emerald Coast Regional Council
FDOT - Florida Department of Transportation
FEMA - Federal Emergency Management Agency
FHWA - Federal Highway Administration
FL511 - Florida 511 System
HRSA - Health Resources and Services Administration
IIJA - Infrastructure Investment and Jobs Act
IRS - Internal Revenue Service
ITS - Intelligent Transportation System
LiDAR - Light Detection and Ranging
MVMT - Million Vehicle Miles Traveled
NEVI - National Electric Vehicle Infrastructure
NHTSA - National Highway Traffic Safety Administration
PHB - Pedestrian Hybrid Beacon
PPA - Pittsburgh Parking Authority
RCS - Resilient Corridor Studies
RITIS - Regional Integrated Transportation Information System
RRFB - Rectangular Rapid Flashing Beacon
RWIS - Road Weather Information Systems
SDOT - Seattle Department of Transportation
SFMTA - San Francisco Municipal Transportation Agency
SLZ - Smart Loading Zone
SS4A - Safe Streets for All
SUN Trail - Shared-Use Non-motorized Trail
TMC - Traffic Management Center
TNC - Transportation Network Companies
TPO - Transportation Planning Organization
UAS - Unmanned Aerial System
USDA - US Department of Agriculture
USDOT - US Department of Transportation
VDS - Vehicle Detection Systems
VRU - Vulnerable Road Users

Executive Summary

The Florida-Alabama Transportation Planning Organization's (TPO) vision is to leverage smart technologies to enhance the quality of life of residents and visitors. This Smart Regions Plan focuses on the following use cases to leverage information technologies to enhance the quality of life:

- Making highways and streets safer
  - Bicyclist and pedestrian safety
    - Trails
    - Beach access
  - Road safety
    - Off-road warning systems
- Reducing congestion
  - Alleviate bottlenecks
    - Scenario-based planning
    - Signal optimization
    - Traveler information systems
  - Parking management
    - Traveler information systems
    - Making investments that support economic sustainability
    - Access to military and federal-related jobs
    - Support tourism experience
- Creating economic opportunity for underserved communities
  - Investment in areas of persistent poverty
  - Workforce development
- Building more resilient infrastructure
  - Emergency preparedness
  - Sea-level rise
- Saving resources through energy efficiency
  - Congestion reduction
  - EV charging
- Enhancing the effectiveness of government services

Within the Florida-Alabama TPO Region, this Smart Regions Plan focuses on identifying smart technologies that meet specific project needs that were identified through data analysis and stakeholder coordination. The focus is on proposing technologies that will meet these goals on a focused network selected based on the frequency of fatalities and serious injuries.

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CHAPTER 1

INTRODUCTION

Introduction

The Florida-Alabama Transportation Planning Organization's (TPO) vision is to leverage smart technologies to enhance the quality of life of residents and visitors.

1.1 Growth within the Region

The population of the region within the Florida-Alabama TPO is expected to grow by 27% by the year 2050 as summarized in **Table 1**. This population growth will place a demand on infrastructure that cannot be met through construction funding alone. Leveraging smart technologies will allow federal, state, and local governments to maximize the benefits provided through public services to save lives, improve mobility, and enhance the quality of life for all residents.

TABLE 1: POPULATION FORECASTS

TPO	County	2022 Population	2050 Medium Growth Scenario	Change	Percent Change
Florida-Alabama	Escambia	329,583	376,700	47,117	14%
	Santa Rosa	196,834	278,000	81,166	41%
Total		526,417	654,700	128,283	27%

Source: Florida Estimates of Population: 2022, Bureau of Economic and Business Research at the University of Florida. Retrieved 8/10/24.

The Florida-Alabama TPO boundary does not include the entire counties in its boundaries. This plan includes the rural areas and adjacent counties to address regional safety needs and includes specific strategies for rural areas.

1.2 Purpose

To meet these needs, the Florida-Alabama TPO's vision is to leverage smart technologies to enhance the quality of life of residents and visitors. This report's purpose is to outline a roadmap for the deployment of smart region technologies and to identify a set of strategies and tactics to be implemented.

1.3 What is a Smart Region?

A Smart Region integrates and coordinates smart cities by using digital technologies to improve the lives of its citizens, businesses, and sustainability. Smart cities use sensors, video cameras, and other inputs to collect data and provide feedback to citizens and city operators. This feedback helps citizens and operators make informed decisions and improve the quality of life. Technologies to collect data—including real-time data—are central to smart city initiatives and the benefits they promise. Data-driven insights will help local governments improve urban planning and the deployment of city services to enhance safety, mobility, economic growth, and access to under resourced communities, resilient infrastructure, and energy efficiency.

1.4 The Emerald Coast 7-Layer Cake

The ECRC has launched a series of interrelated plans to modernize the region's transportation system, likened to a 7-layer cake. Each layer of this initiative incorporates strategies and projects designed to enhance the system's safety, intelligence, and efficiency, ultimately benefiting the surrounding communities. The layers of the cake and their correlating plans are shown in **Figure 1** below.

FIGURE 1: ECRC 7-LAYER CAKE INITIATIVE

Central to these efforts is safety. The Safety Action Plan outlines comprehensive analyses and strategies aimed at achieving zero fatalities and serious injuries on our roadways. Complementing this, the Smart Regions Master Plan integrates advanced technologies to improve safety and the overall quality of life within our communities.

In parallel, the Data Analytics project is developing a platform to analyze data from smart technologies at the regional Transportation Management Center (TMC), enhancing our ability to respond to traffic conditions in real-time. The Congestion Elimination Plan will build on the information outlined in the Smart Regions Plan to identify strategies to alleviate traffic congestion and intersection bottlenecks.

These planning efforts are seamlessly integrated with the long-range transportation plans within the Florida-Alabama TPO region. The expansion of broadband and fiber networks, coupled with the development of the regional TMC, brings the intelligent technologies envisioned in these initiatives to life, creating a transportation system that is not only safe and efficient but also sustainable and multimodal.

1.5 Organization and Focus of this Plan

Because a smart region can encompass so many possible futures, this plan is focused on mobility in the Florida-Alabama TPO region and how it can enhance safety, mobility, and the quality of life of its citizens and visitors to the region. The different sections of this plan are briefly described below.

- **Current Situation** summarizes the existing communications and smart transportation infrastructure in the region.
- **Constructing Communications Infrastructure** lists the priorities established through prior studies to construct communications networks.
- **Making Highways and Streets Safer** identifies strategies, tactics, and potential locations for the implementation of technologies to enhance safety.
- **Reducing Congestion** details the causes of congestion in the Florida-Alabama TPO region and proposes strategies, tactics, and potential locations for implementation of congestion management technologies.
- **Sustaining the Economy** describes the major economic drivers within the Florida-Alabama TPO region and strategies and tactics to better serve major generators and provide greater opportunities for under-resourced communities.
- **Building More Resilient Infrastructure** delineates the priority assets in the state transportation network and proposes strategies and tactics to provide a more resilient transportation network.
- **Enhancing Energy Efficiency and Diversity** outlines opportunities to support the adoption of electric vehicles and provide charging for those traveling from outside the region to charge when visiting.
- **Leveraging Big Data** discusses the role of big data in the context of this plan and how it will be leveraged to enhance decision-making and real-time operations.
- **Supporting Disaster Recovery** designates opportunities to leverage technology to improve emergency evacuation and recovery efforts.
- **Bringing it All Together** provides a summary of the recommendations for additional evaluation and engineering to implement these strategies across the Florida-Alabama TPO region.

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CHAPTER 2

CURRENT SITUATION

Current Situation

2.1 Communications Backbone

The communication network is the foundation of all Smart Region technologies. The existing infrastructure within the region is built around the fiber optic networks constructed to provide traveler information and incident management services. Known networks include:

- I-10 and I-110 have full coverage of fiber optic backbone, Closed Circuit Television Camera (CCTV), Vehicle Detection Systems (VDS), and Dynamic Message Signs (DMS).
- SR-281 has a fiber optic backbone that goes from US 90 to I-10
- US 98 from I-110 to South Approach of Pensacola Bay Bridge (General Daniel "Chappie" James Jr. Bridge)
- SR 95/US 29/Pensacola Boulevard from 9 1/2 Mile Road to Diamond Dairy Road
- US 90A/SR 10/Nine Mile Road from Pine Forest Road to Palafox Street
- SR 296/Brent Lane/Bayou Boulevard from US 29/Palafox Street to 12th Avenue
- SR 95/US 29/Palafox Street from SR 296/Brent Lane to Texar Drive
- SR 295/Fairfield Drive from Texar Drive to 12th Avenue
- US 90/Cervantes Street from A Street to 17th Avenue
- SR 281/Avalon Boulevard from Carroll Road to I-10 (then a wireless jump to US 90)
- US 90/SR 10 from Pea Ridge Connector to Willing Street (wireless radio link to fiber located at Avalon Boulevard and Carroll Road)
- Palafox Street from Maxwell Street to US 90/Cervantes Street (wireless radio link to fiber at Cervantes Street at Palafox Street)

2.2 ITS Field Devices

A summary of the existing ITS devices within the region are provided in **Map 1**. This infrastructure consists of CCTV, VDS, and DMS. There is full CCTV coverage of I-10 within the study area which is shown because of the density of the devices in the corridor.

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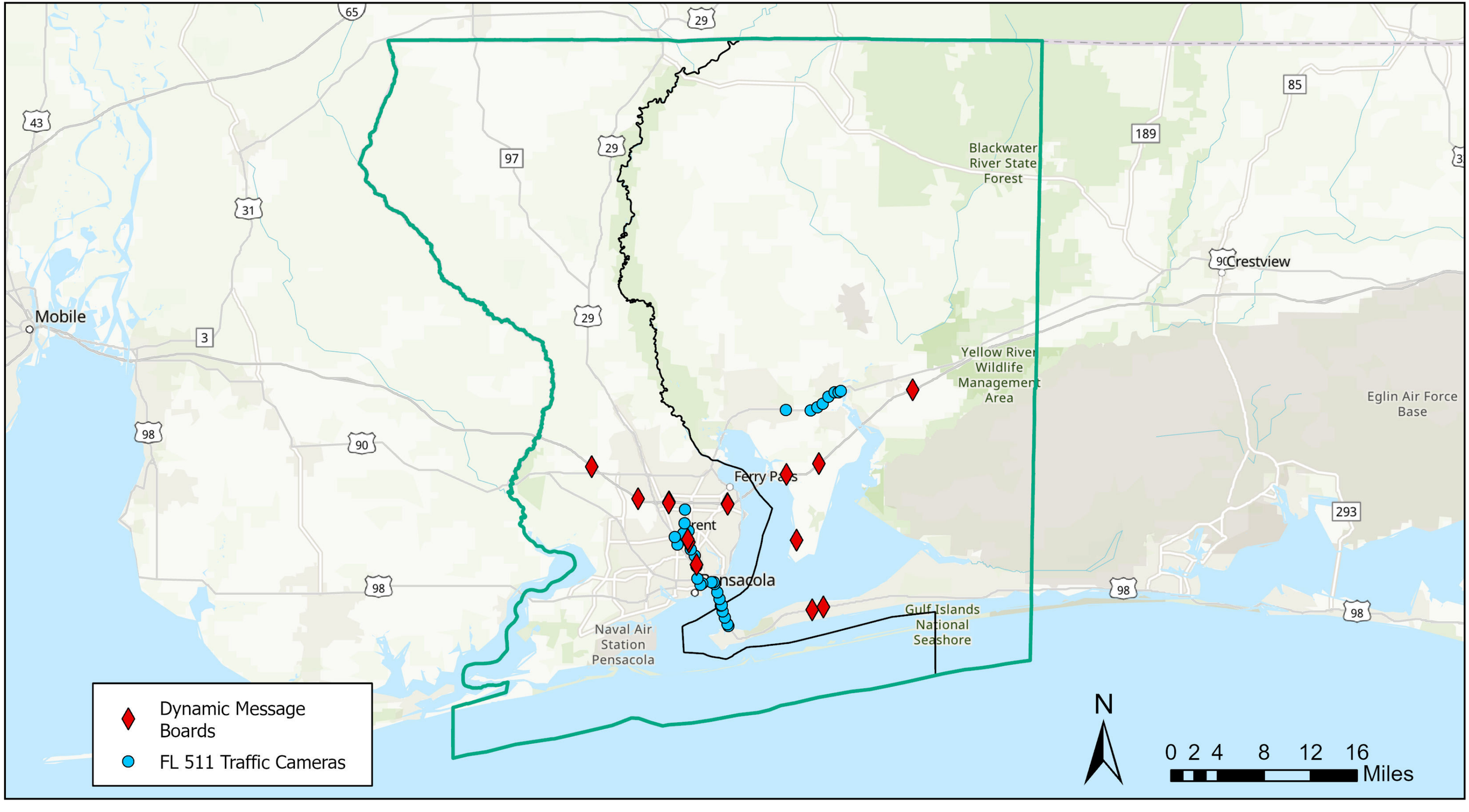
MAP 1: EXISTING ITS



2.3 Traveler Information Systems

Traveler information systems communicate to users based on web-based software and applications. Providing access to Wi-Fi services is now near ubiquitous and is an essential part of smart regions.

Florida 511

The Florida Department of Transportation's (FDOT) Florida 511 (FL511) Advanced Traveler Information System (ATIS) provides real-time traffic information, including up to three routes to choose from, travel times for requested routes, congestion, construction, lane closures, severe weather and emergency evacuation information on Florida interstate highways, toll roads including Florida's Turnpike, and many other major metropolitan roadways. The resource is available 24 hours a day on the web at www.FL511.com and on the mobile application for Apple and Android devices. The website is available in English and Spanish. Drivers can follow any of the statewide, regional, or roadway-specific Twitter feeds (#FL511), such as @FL511_Northeast, @FL511_I10 and @FL511_ I95. Also, 511 is available on Facebook, @FL511, and on Instagram, @Florida_511. Full video coverage is available on I-10. Where video coverage is available on other corridors is shown in **Map 1**.

Private Traveler Information Services

Other private traveler information services are actively used within the region such as Google Maps/ Waze and in-vehicle navigation systems such as Tom-Tom. These information providers rely on data collected by FDOT and disseminated through 511, social media posts (as reported in Waze), and data collected on the location and speed of travelers through cell phones and Bluetooth devices.

Roadside Traveler Information

Roadside traveler information is primarily conveyed to users via DMS that rely on fiber optic networks, point-to-point wireless networks, or private cellular networks. The known DMS that exist in the region are shown above in **Map 1**.

2.4 Safe Streets for All Demonstration Grant

The Florida-Alabama TPO was recently awarded a Safe Streets for All (SS4A) grant to focus on ITS safety improvements along Fairfield Drive from Mobile Highway to Texar Drive and Pensacola Boulevard from W Street to Brent Lane. The corridors are shown in **Map 2**.

The improvements to be considered include:

- Speed Warning and Enforcement via Variable Message Signs
- Wrong Way Vehicle Detection and Warning
- Queue Warnings
- Road Weather Motorist Alert and Warning Systems
- Connected Vehicle System Monitoring and Management
- Connected Vehicle Traffic Signal System
- Transit Signal Priority
- Emergency Vehicle Preemption
- Artificial Intelligence Traffic Analysis Software

Fairfield Drive and Pensacola Boulevard were identified in the safety analysis of the Safety Action Plan as Priority Segments due to their high crash rates per 100 million vehicle miles traveled (MVMT) and Vulnerable Road User fatalities.

The Florida-Alabama TPO and Escambia County are currently designing the fiber network along these corridors. The construction funding for the fiber network is being proposed as the match element for this application.

MAP 2: SAFE STREETS FOR ALL GRANT CORRIDORS

CHAPTER 3

CONSTRUCTING COMMUNICATIONS INFRASTRUCTURE

Constructing Communications Infrastructure

Prior studies were conducted to identify and prioritize the need for communications infrastructure within the region. **Table 2** summarizes the needs for fiber optic connectivity within the region. A total of 53.3 miles of fiber network are identified to connect the existing backbones and create an integrated transportation management system.

TABLE 2: FIBER NETWORK NEEDS

Priority	Corridor	From	To	Approximate Length (mi.)
1	SR 95 Pensacola Boulevard	W Street	Brent Lane, Beverly Parkway	1.7
2	Fairfield Drive	Mobile Highway	Texar Drive	2.8
3	US-98 Gulf Breeze Parkway	South approach of General Daniel "Chappie" James Jr. Bridge	Gondolier Boulevard and Kelton Boulevard	4.4
4	Mobile Highway	Pine Forest Road	Fairfield Drive	3.3
5	Saufley Field Road, Michigan Avenue, Beverly Parkway, and Brent Lane	Mobile Highway	SR 95 Pensacola Boulevard	3.6
6	US-98 Gulf Breeze Parkway	Tiger Point Boulevard	Sunrise Drive	7.2
7	US-98 Gulf Breeze Parkway and Navarre Parkway	Sunrise Drive	Rosewood Drive	8.2
8	Davis Highway	Brent Lane	Scenic Highway	5.2
9	SR 95 Pensacola Boulevard	Kingsfield Road	9 & Half Mile Road	2.1
10	US-90	Scenic Highway	Pea Ridge Connector	8.1
11	US-90	Avalon Boulevard	Ward Basin Road	3.9
12	Palafox Street	Texar Drive	Main Street	2.7
Total				53.3

Source: ECRC

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CHAPTER 4

MAKING HIGHWAYS AND STREETS SAFER

Making Highways and Streets Safer

4.1 Safety Action Plan

A Safety Action Plan has been completed as a more detailed assessment of crash histories, strategies, and tactics. This portion of the Smart Regions Plan evaluated technologies that can be used to enhance safety. The Safety Action Plan and the Smart Regions Plan were prepared concurrently to ensure consistency across different initiatives.

4.2 Safety Trends

Safety analyses for the Florida-Alabama TPO region were conducted as part of the Safety Action Plan. Crash analysis included all crashes in the region from 2019 to 2023. **Table 3** and **Table 4** depict the total crash trends by each county in the Florida-Alabama TPO region. **Figure 2** illustrates the region-wide crash type trends.

TABLE 3: TOTAL CRASH TRENDS BY COUNTY, 2019-2023

TPO	County	2019	2020	2021	2022	2023	Total
Florida-Alabama	Escambia	9,835	8,385	9,543	9,168	8,778	45,709
	Santa Rosa	2,980	2,918	3,353	3,231	3,194	15,676
Total		12,815	11,303	12,896	12,399	11,972	61,385

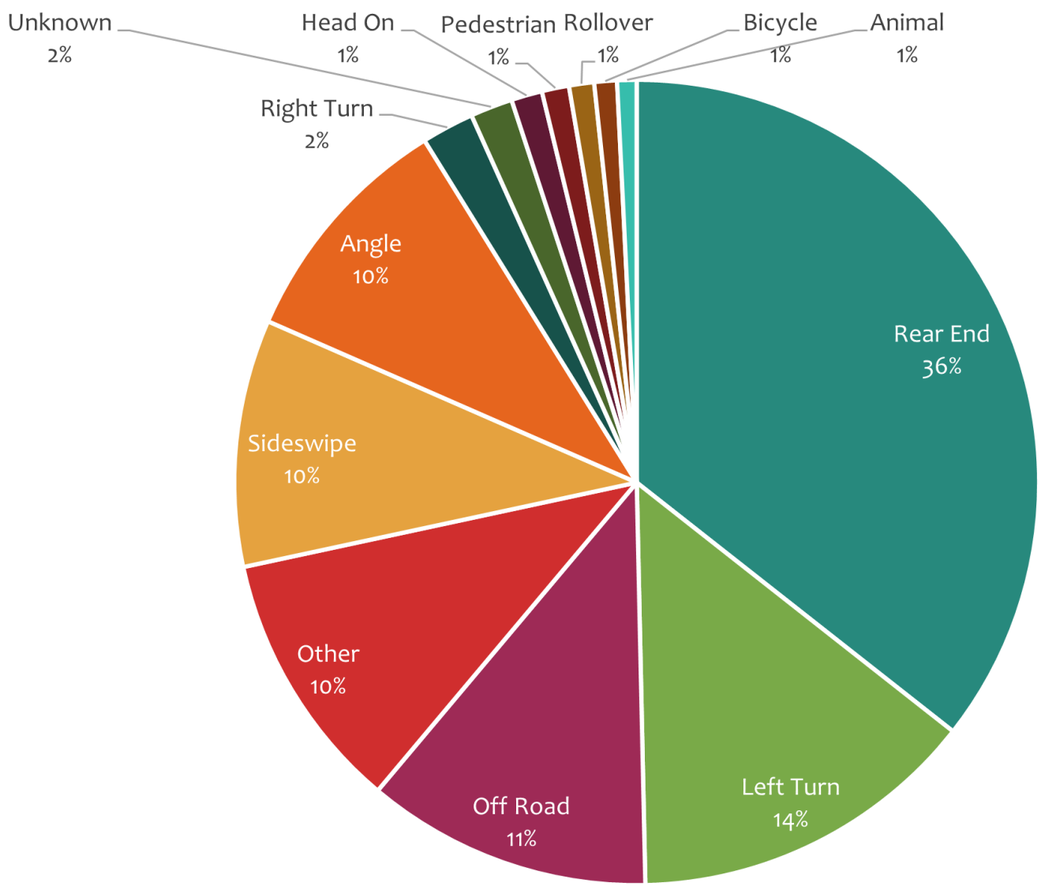
Source: Signal4Analytics. Retrieved 8/21/24.

TABLE 4: CRASH SEVERITY TRENDS BY COUNTY, 2019-2023

TPO	County	Crash Severity				
		Fatality	Serious Injury	Injury	No Injury	Total
Florida-Alabama	Escambia	292	922	12,121	32,374	45,709
	Santa Rosa	100	356	4,091	11,129	15,676
Total		392	1,278	16,212	43,503	61,385

Source: Signal4Analytics. Retrieved 8/21/24.

FIGURE 2: REGION-WIDE CRASH TYPES, 2019-2023



Source: Signal4Analytics. Retrieved 8/21/24.

4.3 Vulnerable Road Users

Trends

The safety of bicyclists and pedestrians is a primary consideration in the design of all roadways. Crashes were filtered for Vulnerable Road Users (VRUs), including bicyclists, pedestrians, and motorcyclists. **Table 5** shows the total number of bicycle and pedestrian crashes within the Florida-Alabama TPO region from 2019 to 2023, while **Table 6** and **Table 7** show the bicycle and pedestrian fatalities.

The National Highway Traffic Safety Administration (NHTSA) estimates 2.26 pedestrian fatalities per 100,000 residents nationally (2022) and 0.50 bicycle fatalities per 100,000 residents nationally (2021). As shown in **Table 6** and **Table 7**, both national average estimates are far exceeded in the Florida-Alabama TPO region, which exhibits 3.61 pedestrian fatalities per 100,000 residents and 0.84 bicyclist fatalities per 100,000 residents. It is important to note that the crash rates per resident do not account for extra vehicles and non-motorists on the roadway networks due to tourism.

TABLE 5: BICYCLE AND PEDESTRIAN CRASH HISTORY, 2019-2023 5-YEAR AVERAGE

County	Residents	Bicycle Crashes	Bicycle Crashes per 100,000 Residents	Pedestrian Crashes	Pedestrian Crashes per 100,000 Residents
Escambia	321,905	91	28.27	137	42.56
Santa Rosa	188,000	21	11.17	23	12.23
Total	509,905	112	19.72	160	27.40

Source: US Census Bureau Total Population (2020), Signal4Analytics Crash Data (2019-2023). Retrieved 6/16/24.

TABLE 6: BICYCLE FATALITIES, 2019-2023 5-YEAR AVERAGE

County	Bicycle Fatalities					
	2019	2020	2021	2022	2023	Average per 100,000 Residents
Escambia	5	2	6	3	4	1.24
Santa Rosa	1	2	0	1	0	0.43
Total	6	4	6	4	4	0.84

Source: US Census Bureau Total Population (2020), Signal4Analytics Crash Data (2019-2023). Retrieved 6/16/24.

TABLE 7: PEDESTRIAN FATALITIES, 2019-2023 5-YEAR AVERAGE

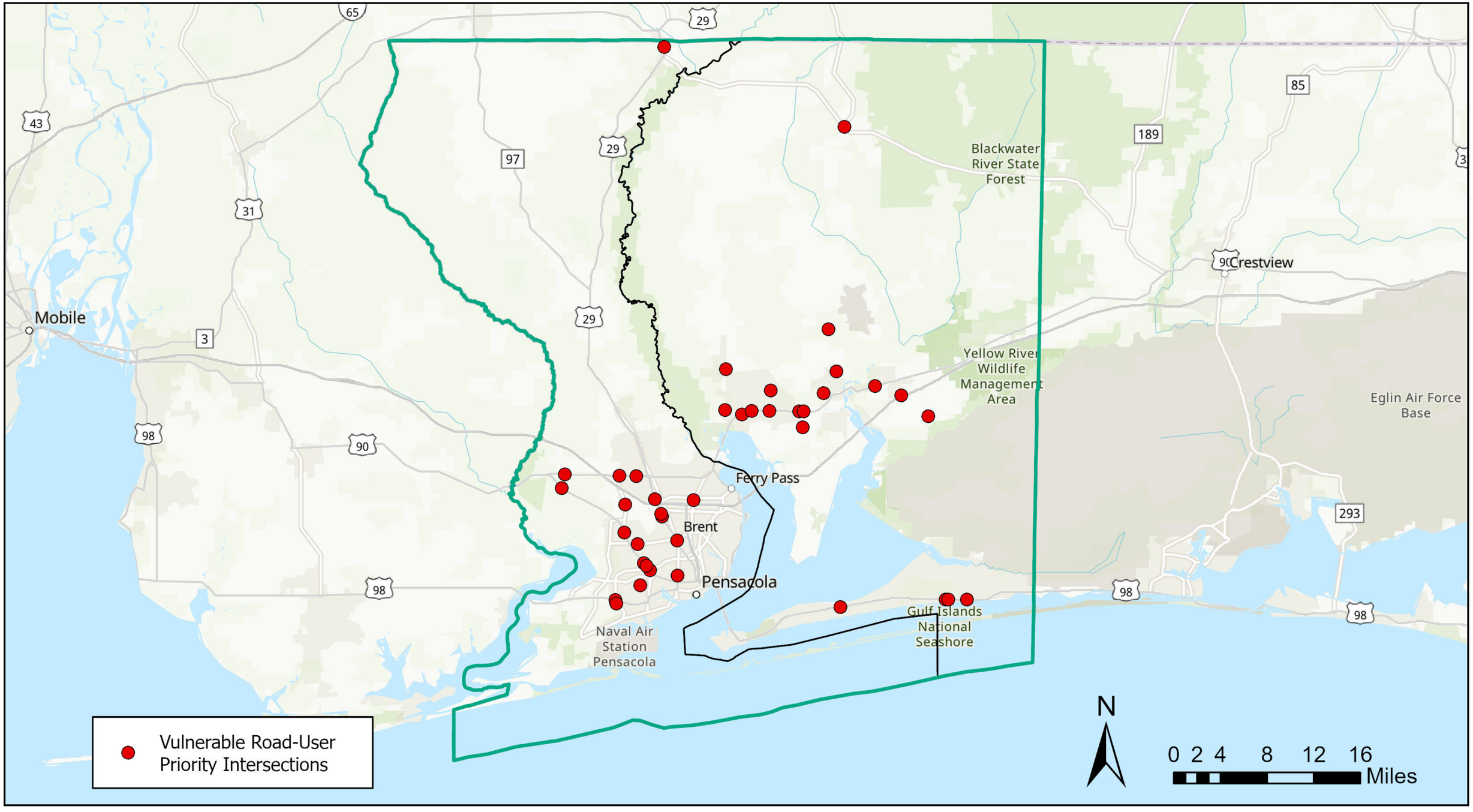
County	Pedestrian Fatalities					
	2019	2020	2021	2022	2023	Average per 100,000 Residents
Escambia	17	18	25	14	20	5.84
Santa Rosa	4	1	4	2	2	1.38
Total	21	19	29	16	22	3.61

Source: US Census Bureau Total Population (2020), Signal4Analytics Crash Data (2019-2023). Retrieved 6/16/24.

Crashes on Roads

Map 3 shows the priority intersections for VRU crashes throughout the Florida-Alabama TPO region.

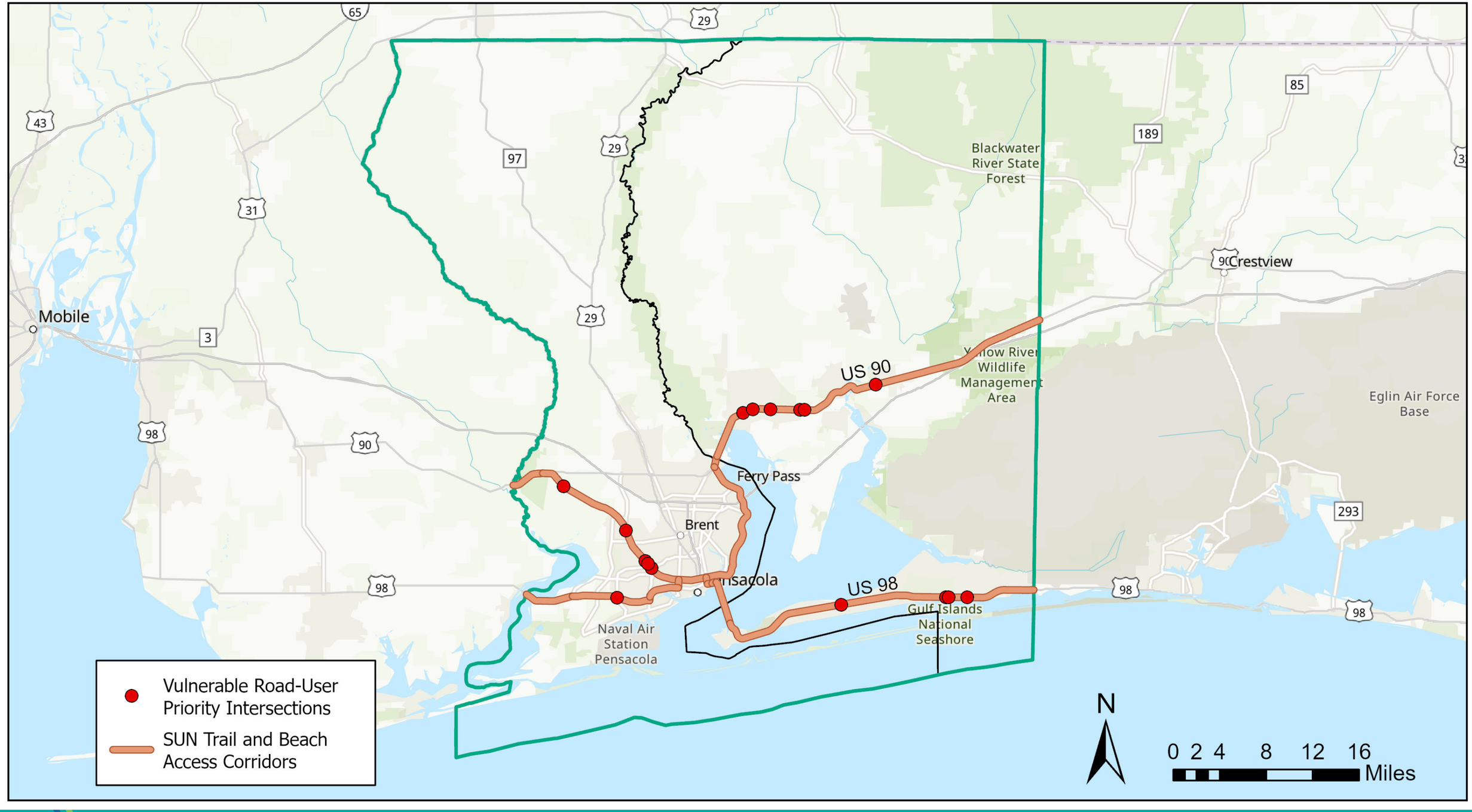
MAP 3: VRU PRIORITY INTERSECTIONS



Crashes along SUN Trail and at Beach Access

A special emphasis was placed on high VRU crash locations within proximity to the Shared-Use Non-motorized (SUN) Trail or to beach access locations. The SUN Trail network and the beach access locations were overlayed on the high VRU crash locations map to identify the locations in which VRU's are currently at a high risk. **Map 4** shows the priority hot spots for VRU crashes near the SUN Trail or beach access locations.

MAP 4: VRU PRIORITY INTERSECTIONS NEAR SUN TRAIL AND BEACH ACCESS LOCATIONS



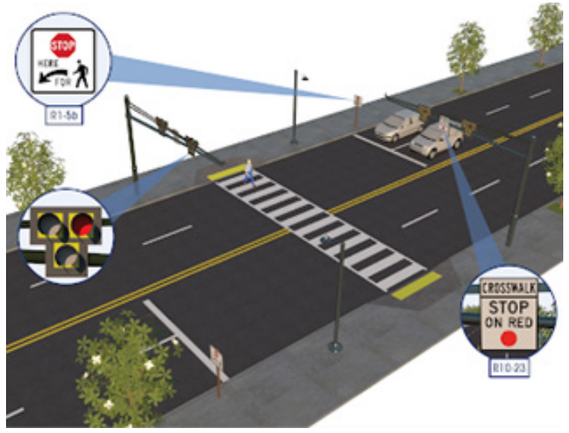
Strategies and Tactics

The VRU hot spots near the SUN Trail and beach access locations were further analyzed to determine the locations most in need of safety upgrades. Smart technology strategies and tactics that can address these needs include the following.

Pedestrian Hybrid Beacon

Pedestrian hybrid beacons provide a new technology to enhance protected crossings and promote safety. Overhead beacons stop mainline vehicular traffic while pedestrian signals give the right of way to pedestrians. These can be located at intersections that are currently signalized or at the mid-block. **Figure 3** shows examples of pedestrian hybrid beacons.

FIGURE 3: PEDESTRIAN HYBRID BEACON



In-Pavement Crosswalk Lighting

In-pavement crosswalk lighting can alert drivers of pedestrians up to 1,000 feet in advance of a crosswalk and are particularly effective in severe weather conditions and at night when pedestrian visibility is reduced. Examples in Marco Island, Florida and Papillion, Nebraska are shown in **Figure 4** and **Figure 5**.

FIGURE 4: IN-PAVEMENT CROSSWALK LIGHTING IN MARCO ISLAND

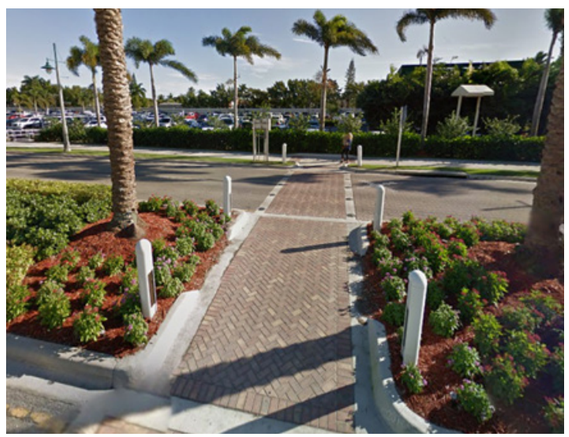


FIGURE 5: IN-PAVEMENT CROSSWALK LIGHTING IN PAPILLION

Connected Vehicle to Vulnerable Road Users System

Vulnerable road users can be identified using applications in phones that emulate connected vehicle roadside units and on-board units to notify drivers of their presence in crosswalks or in bicycle lanes. This is an emerging technology and as connected vehicle market penetration and roadway network coverage of connected vehicle technologies grow, this strategy has the potential to reduce crashes that cause fatalities and serious injuries.

FIGURE 6: RRFB IN ST. PETERSBURG

Rectangular Rapid Flashing Beacon (RRFB)

The application of RRFB in St. Petersburg, Florida, seen in **Figure 6** found that motorists yielded to pedestrians 81% of the time when approaching a crossing with a two-beacon RRFB system, compared to just 18% of the time prior to RRFB installation (FHWA, 2008). Compliance increased to 88% at crossings with a four-beacon system.

Automated Detection Systems

Bicycle Loop Detector

Loop detectors are considered a low cost, reliable strategy to support bicyclists' safety at intersections by alerting the signal controller of bicycle crossing demand. They afford bicyclists the ease of a hands-free, passive solution, in contrast to push buttons which require users to reach over to activate. They can also provide count data. A variety of loop detection technologies are available, offering flexibility to meet application context, as seen in **Figure 7**. In addition to presence detection at intersections, loop detectors may be utilized for advance detection as bicycles approach an intersection.

FIGURE 7: BICYCLE LOOP DETECTION

Type D Loop in Huntsville, Alabama (left): Type Q Loop in San Luis Obispo, California (middle): Parallelogram Loop Detector in Portland, Oregon (right).

Bicycle Video Detection

At intersections where installation of loop detection is hindered, video detection is another option. Advances in camera technology and image processing allow for reliable detection accuracy. While existing video-based detection systems can have bicycle detection capabilities added, the City of Austin has installed bicycle specific video cameras for greater accuracy.

Microwave/Radar Detection

For signalized intersections where loop detection and video detection installation are not practical or are problematic, microwave radar detection is an alternative option. Microwave radar detection may be utilized for both presence and advance detection. They are also capable of collecting counts and speed data. In addition to signalized intersections, microwave detection can be utilized at roadway crossings for trails, as seen in **Figure 8**.

FIGURE 8: MICROWAVE DETECTION ALONG RAZORBACK GREENWAY TRAIL IN ARKANSAS

Bicycle Detection Confirmation System

While bicycle detection improves safety, detectors can fail to detect bicyclists if the bicycle is not positioned in the correct stopping location. Delayed detection not only lowers the bicycling experience, but can lead to increased risk-taking behavior, such as signal non-compliance. The application of detection confirmation systems provides cyclists with feedback to confirm they are being detected at an intersection.

The systems applied in Portland, Oregon, as seen in **Figure 9** found 81% of cyclists indicated the device improved their waiting experience, which can potentially lead to greater signal compliance. As of 2019, the City of Portland had 19 intersections equipped with blue feedback lights. As of 2020, other cities using a confirmation light include Austin, Texas, Santa Clarita, California, Santa Monica, California, Seattle, Washington, Denver, Colorado, Salem, Oregon, Eugene, Oregon, and Corvallis, Oregon among others.

FIGURE 9: DETECTION CONFIRMATION SYSTEM IN PORTLAND

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Candidate Projects for Vulnerable Road Users

Table 8 shows candidates recommended for VRU safety upgrades and the applicability of each potential countermeasure to the selected locations.

TABLE 8: CANDIDATE LOCATIONS FOR VULNERABLE ROAD USER DEPLOYMENTS

County	Location	Category	Pedestrian Hybrid Beacon	Connected Vehicle to Vulnerable Road Users	In-Pavement Crosswalk Lighting	Rectangular Rapid Flashing Beacon (RRFB)	Automated Detection System
Escambia	SR-10 9 Mile Road at Beulah Road	Unfunded Gap SUN Trail		●			●
Escambia	SR-10 9 Mile Road at SR-297 Pine Forest Road	Unfunded Gap SUN Trail		●			●
Escambia	SR-10 9 Mile Road at Bowman Avenue	Unfunded Gap SUN Trail	●	●	●		
Santa Rosa	Hamilton Bridge Road at Oakleaf Drive	Unfunded Gap SUN Trail		●	●	●	
Santa Rosa	Hamilton Bridge Road at Cora Street	Unfunded Gap SUN Trail		●	●	●	

4.4 Safe Speeds

Speeding was involved in 13% of the region-wide fatal and serious-injury crashes from 2019 to 2023. **Table 9** and **Table 10** show speeding and aggressive driving crash trends by county throughout the region. **Table 11** and **Table 12** summarize the top locations for total speeding and aggressive crashes and crash rates, respectively. These locations are shown on **Map 5** and **Map 6**.

TABLE 9: SPEEDING CRASH TRENDS, 2019-2023

TPO	County	Speeding-Related Crash Severity				
		Fatality	Serious Injury	Injury	No Injury	Total
Florida-Alabama	Escambia	24	28	253	476	781
	Santa Rosa	6	20	126	263	415
Total		30	48	379	739	1,196

Source: Signal4Analytics. Retrieved 6/15/24.

TABLE 10: AGGRESSIVE DRIVING CRASH TRENDS, 2019-2023

TPO	County	Aggressive Driving-Related Crash Severity				
		Fatality	Serious Injury	Injury	No Injury	Total
Florida-Alabama	Escambia	32	56	419	679	1,186
	Santa Rosa	9	32	171	349	561
Total		41	88	590	1,028	1,747

Source: Signal4Analytics. Retrieved 6/15/24.

TABLE 11: TOP SPEEDING OR AGGRESSIVE DRIVING CRASH LOCATIONS BY TOTAL CRASHES

County	Roadway	From	To	Speeding or Aggressive Crashes	Speeding or Aggressive Crashes per 1,000 AADT
Escambia	I-110 to I-10 WB On Ramp	I-110	I-10	44	2.1
Escambia	I-110 to I-10 EB On Ramp	I-110	I-10	42	3.2
Escambia	I-10	SR-297	US-29	32	0.5

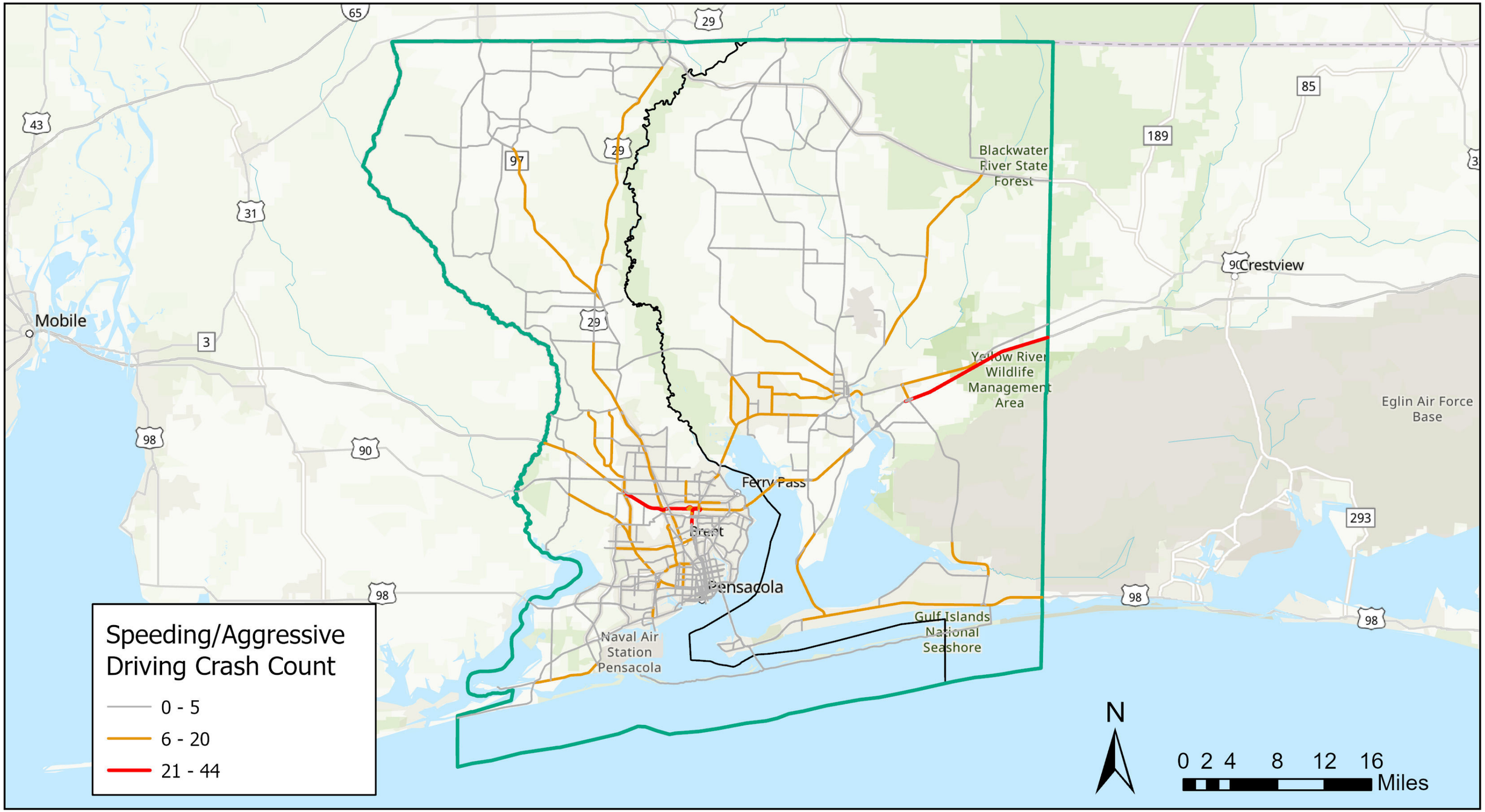
Source: Signal4Analytics. Retrieved 6/15/24.

TABLE 12: TOP SPEEDING OR AGGRESSIVE DRIVING CRASH LOCATIONS BY CRASH RATE

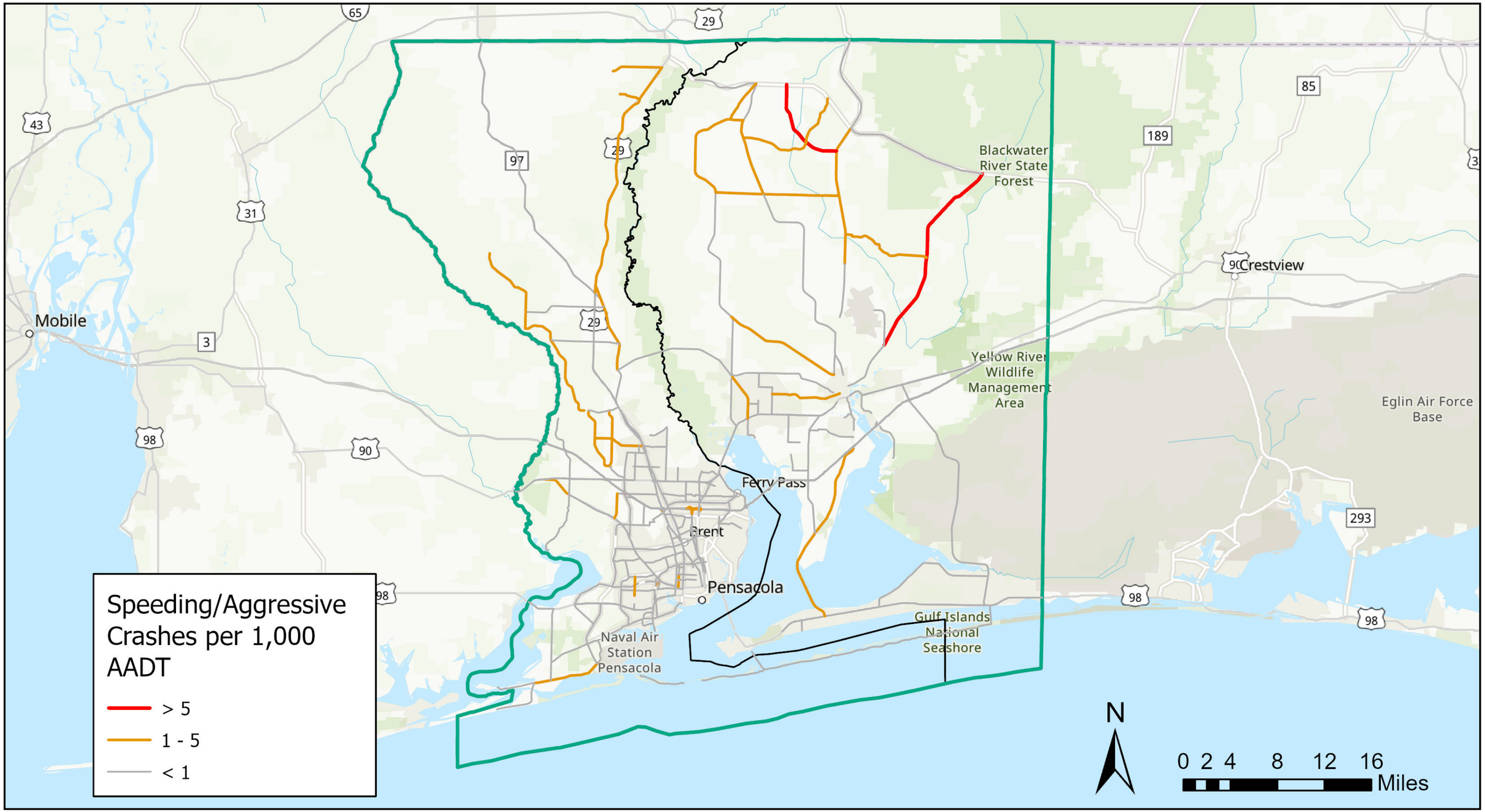
County	Roadway	From	To	Speeding or Aggressive Crashes	Speeding or Aggressive Crashes per 1,000 AADT
Santa Rosa	SR-399	SR-4	SR-87	3	6.0

Source: Signal4Analytics. Retrieved 6/15/24.

MAP 5: AGGRESSIVE AND SPEEDING CRASH HOT SPOTS - TOTAL CRASHES



MAP 6: AGGRESSIVE AND SPEEDING CRASH HOT SPOTS - CRASH RATES

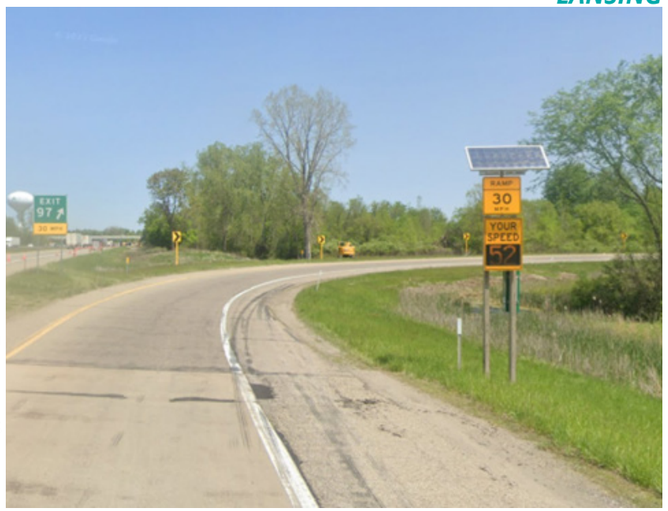


Strategies and Tactics

The following sections offer instances where some of the potential countermeasures to reduce speeding and run off road crashes have been successfully applied.

Dynamic Speed Feedback Sign

FIGURE 10: DYNAMIC SPEED FEEDBACK SIGN WEST OF LANSING



Dynamic speed feedback signs have been successfully implemented in a variety of settings, from work zones to school zones. The Michigan Department of Transportation has determined dynamic speed feedback signs to be effective at reducing speeds as vehicles approach horizontal curves on freeway ramps.

At the critical westbound I-96 to southbound US-127 system interchange west of Lansing, Michigan, seen in **Figure 10**, this strategy was applied at a ramp with an advisory speed of 30 mph off a mainline speed limit of 70 mph. During a 14-month examination period after installation of this sign, the effects on driver behavior were found to be sustained over time. In a study with five other interchange applications across Michigan's capital region, it was found that the countermeasure lowered speeds by 1.5 mph to 4.0 mph on average.

FIGURE 11: DYNAMIC CURVE WARNING SYSTEM ALONG PENNSYLVANIA TURNPIKE

Dynamic Curve Warning System

Dynamic curve warning systems have been widely applied to reduce run off road crashes due to drivers failing to traverse sharp curves at a safe speed. The countermeasure led to a reduction in the frequency of crashes when applied at a curve along the Pennsylvania Turnpike, seen in **Figure 11**, which was previously identified to be a high crash location (penndot.pa.gov).

FIGURE 12: RRFB IN ST. PETERSBURG

In-Pavement Lights Through Curve

The addition of in-pavement lights can mitigate lane delineation, especially as drivers traverse curves in low light conditions or adverse weather. The Colorado Department of Transportation implemented in-pavement lights along the lane lines and shoulder of a segment of I-70, seen in **Figure 12**. The state estimates the initial installation of the countermeasure reduced crashes by approximately 35% for "property damage only" crashes and 50% for injury crashes (codot.gov).

Variable Speed Limits

Dynamic signs that change the speed limit based on prevailing information on the roadway, including traffic speed, volumes, weather, and road surface conditions have proven effective in many corridor applications. **Figure 13** shows a variable speed limit sign.

FIGURE 13: VARIABLE SPEED LIMIT SIGN

Candidate Projects for Speed Management System Deployment

Table 13 shows locations based on a history of speeding and aggressive driving crashes where speed management strategies may be appropriate.

TABLE 13: CANDIDATE LOCATIONS FOR SPEED MANAGEMENT SYSTEM DEPLOYMENTS

County	Roadway	From	To	Dynamic Speed Feedback Signs	Dynamic Curve Warning Systems	In-Pavement Lighting Through Curves	Variable Speed Limits
Escambia	I-110 to I-10 WB On Ramp	I-110	I-10		●	●	●
Escambia	I-110 to I-10 EB On Ramp	I-110	I-10		●	●	●
Escambia	I-10	SR-297	US-29		●	●	●
Santa Rosa	SR-4	CR-399	SR-87	●	●		

CHAPTER 5

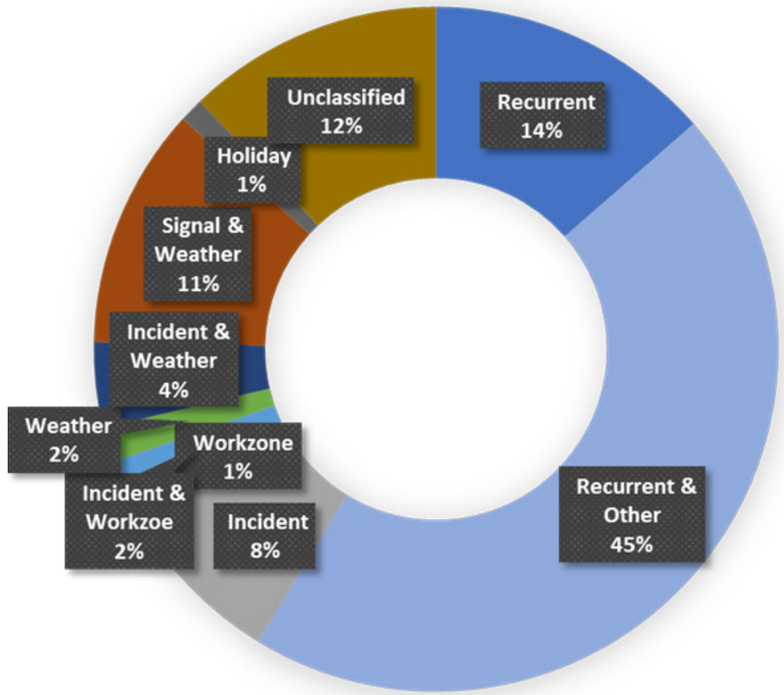
REDUCING CONGESTION

Reducing Congestion

5.1 Sources of Congestion

Figure 14 shows the causes of congestion for the Florida-Alabama TPO region.

FIGURE 14: FLORIDA-ALABAMA TPO CAUSES OF CONGESTION



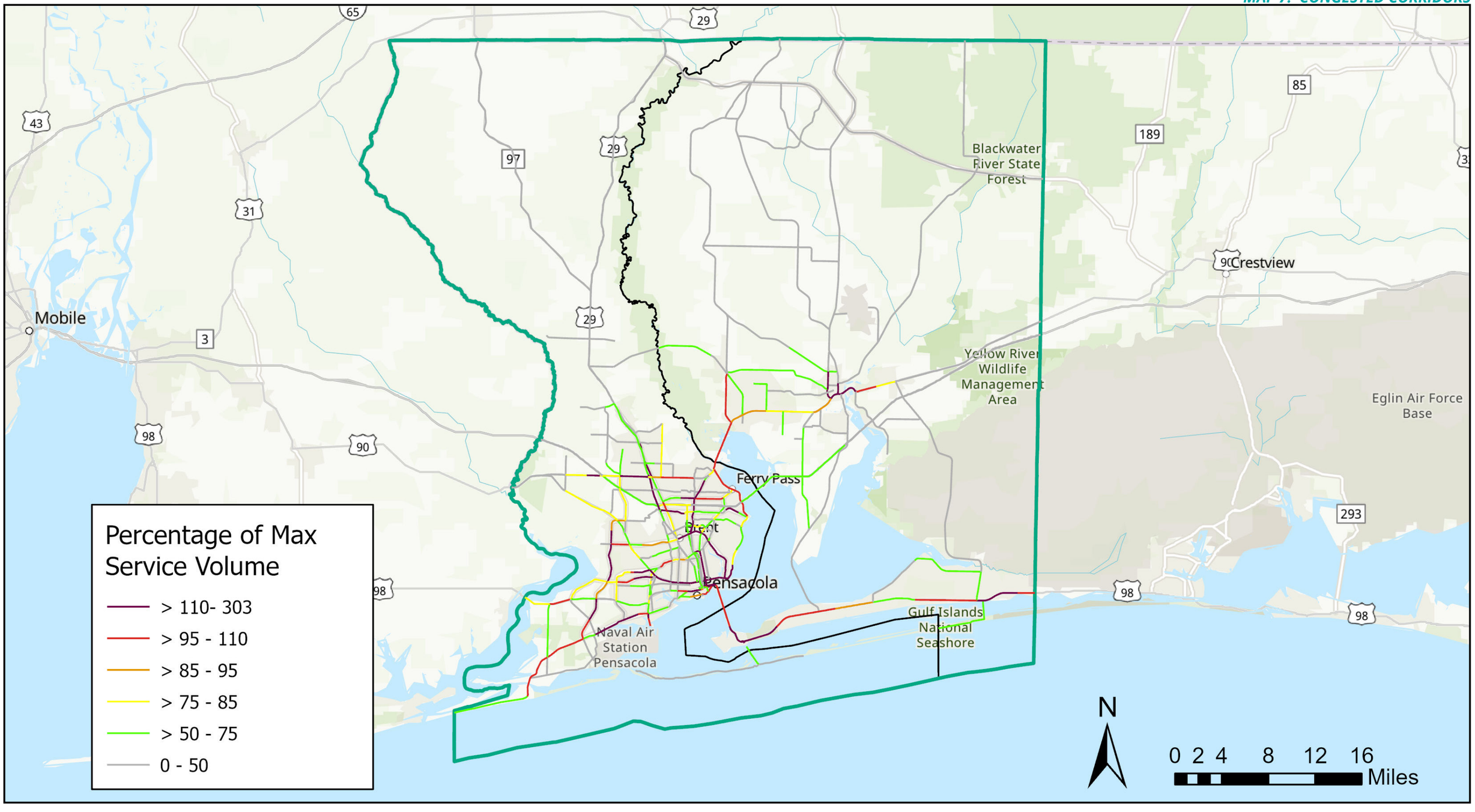
Source: RITIS Causes of Congestion Report

5.2 Capacity Constraints

Volume to Capacity

Map 7 shows the congested corridors based on the volumes counted divided by the estimated capacity or the percent maximum source volume per day in 2023, obtained from the FDOT District 3 Level of Service Tool. Level of Service measures the quality of roadway service and how efficiently traffic moves on that road.

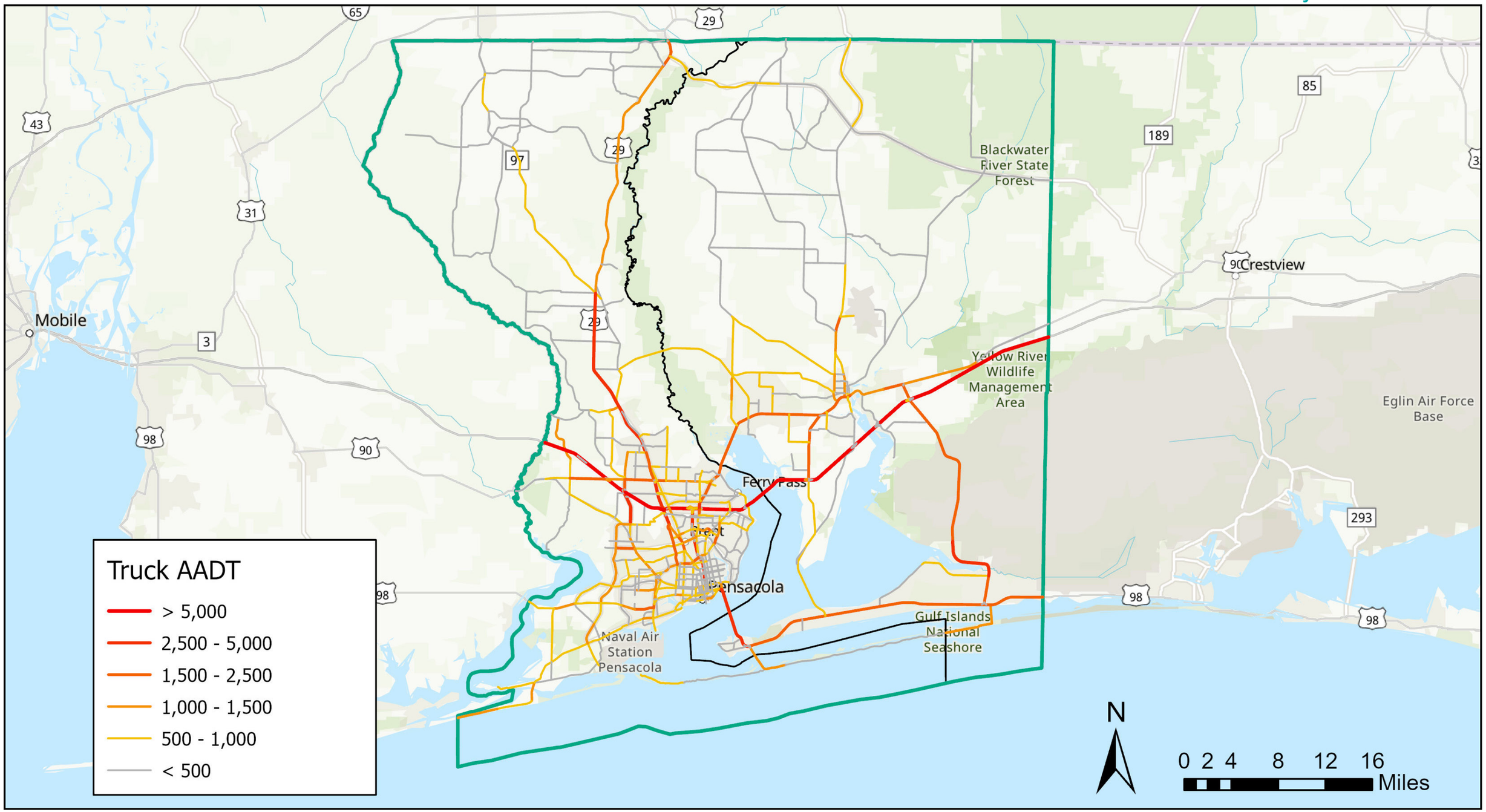
MAP 7: CONGESTED CORRIDORS



Major Freight Corridors

Map 8 shows the major freight corridors throughout the region based on the average volume of heavy vehicles (more than 2 axles) per day in 2023.

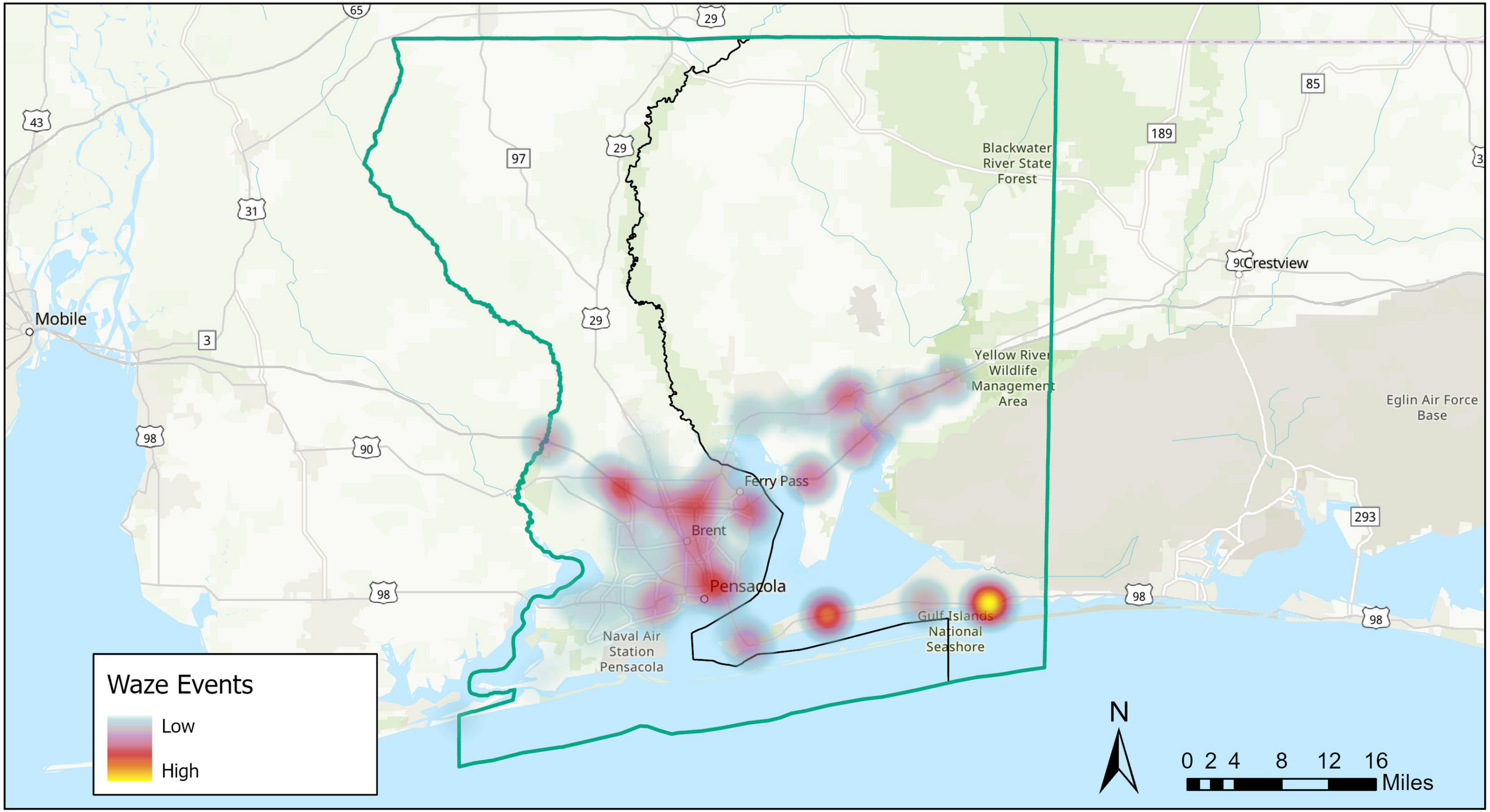
MAP 8: MAJOR FREIGHT CORRIDORS



Events

Delays caused by crashes and other events, such as lane closures, are commonly reported by travelers in Waze, an app used for driving directions, live traffic updates, and road condition updates. Delays are also caused by events such as construction or debris on the road. **Map 9** shows the hot spots for events reported on Waze in 2023.

MAP 9: WAZE EVENTS



5.3 System Bottlenecks

The Regional Integrated Transportation Information System (RITIS) bottleneck tool, developed by the FHWA, was used to identify and rank the major roadway bottlenecks in 2023. The bottleneck ranking system organized the data based on total delay and includes the percent of capacity and events. The top region-wide bottleneck intersections are summarized in **Table 14**. 15% of the total delay in the region is experienced at these 5 locations.

Map 10 shows the congested corridors as identified previously combined with the bottleneck locations weighted by total delay.

TABLE 14: TOP INTERSECTION BOTTLENECK LOCATIONS

County	Major Road	Minor Road
Escambia	Pine Forest Road	I-10
Escambia	SR-291	SR-290/E Olive Road
Escambia	9th Avenue	Langley Avenue and Tippin Avenue
Santa Rosa	SR-30/US-98	CR-399 Navarre Beach Causeway
Santa Rosa	SR-30/US-98	SR-281

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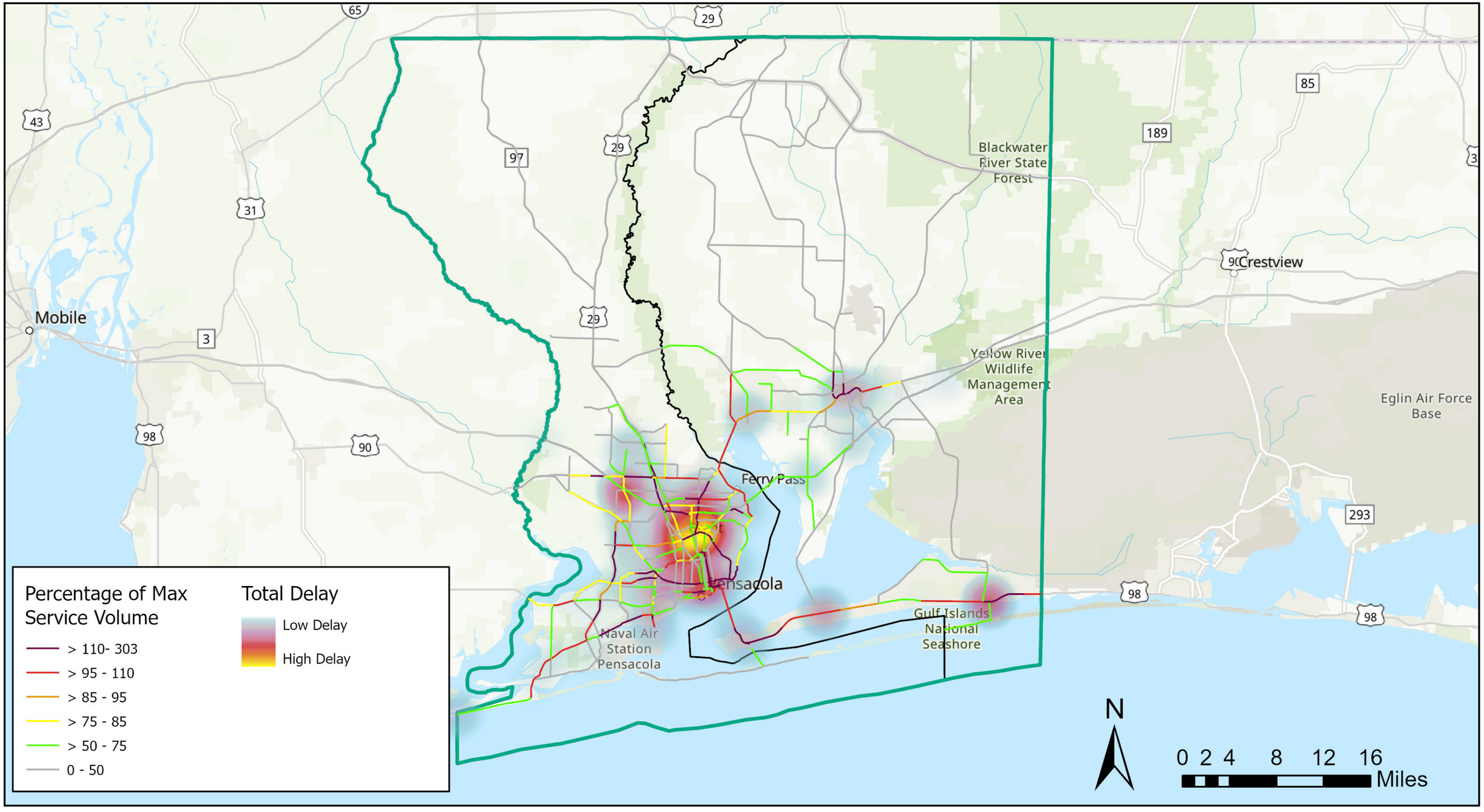
MAP 10: RECURRING CONGESTION AND BOTTLENECKS



5.4 Growth in Demand

Over time the demand on corridors changes and the facilities summarized in **Table 15** experienced the greatest change in volume between 2019 and 2023.

TABLE 15: TOP TOTAL AADT INCREASES 2019-2023

County	Road	Limits	Increase in AADT
Escambia	I-10	SR-291 to US-90	13,000
Santa Rosa	SR-87	Vonnie Tolbert Road to E Bay Boulevard	8,500
Escambia	US-29	SR-184 to SR-297	7,500
Escambia	Pensacola Beach Road	Fort Pickens Road to Pensacola Beach Toll Bridge	6,500
Escambia	Pensacola Beach Road	Pensacola Beach Toll Bridge to US-98	6,500
Santa Rosa	I-10	SR-87 to Santa Rosa/Okaloosa County Line	5,500
Escambia	I-10	US-90 to SR-297	5,260

5.5 Parking and Special Events

Map 11 displays the existing inventory of public beach access parking lots in the Florida-Alabama TPO region. The largest special events held annually in the region are Mardi Gras in downtown Pensacola and the Pensacola Beach Air Show. **Figure 15** shows the parking inventory in downtown Pensacola for the Mardi Gras event.

Managing delay to provide effective parking management for recurring congestion during the seasonal peaks and during special events has the potential to reduce congestion within the region.

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MAP 11: PUBLIC BEACH ACCESS PARKING LOTS

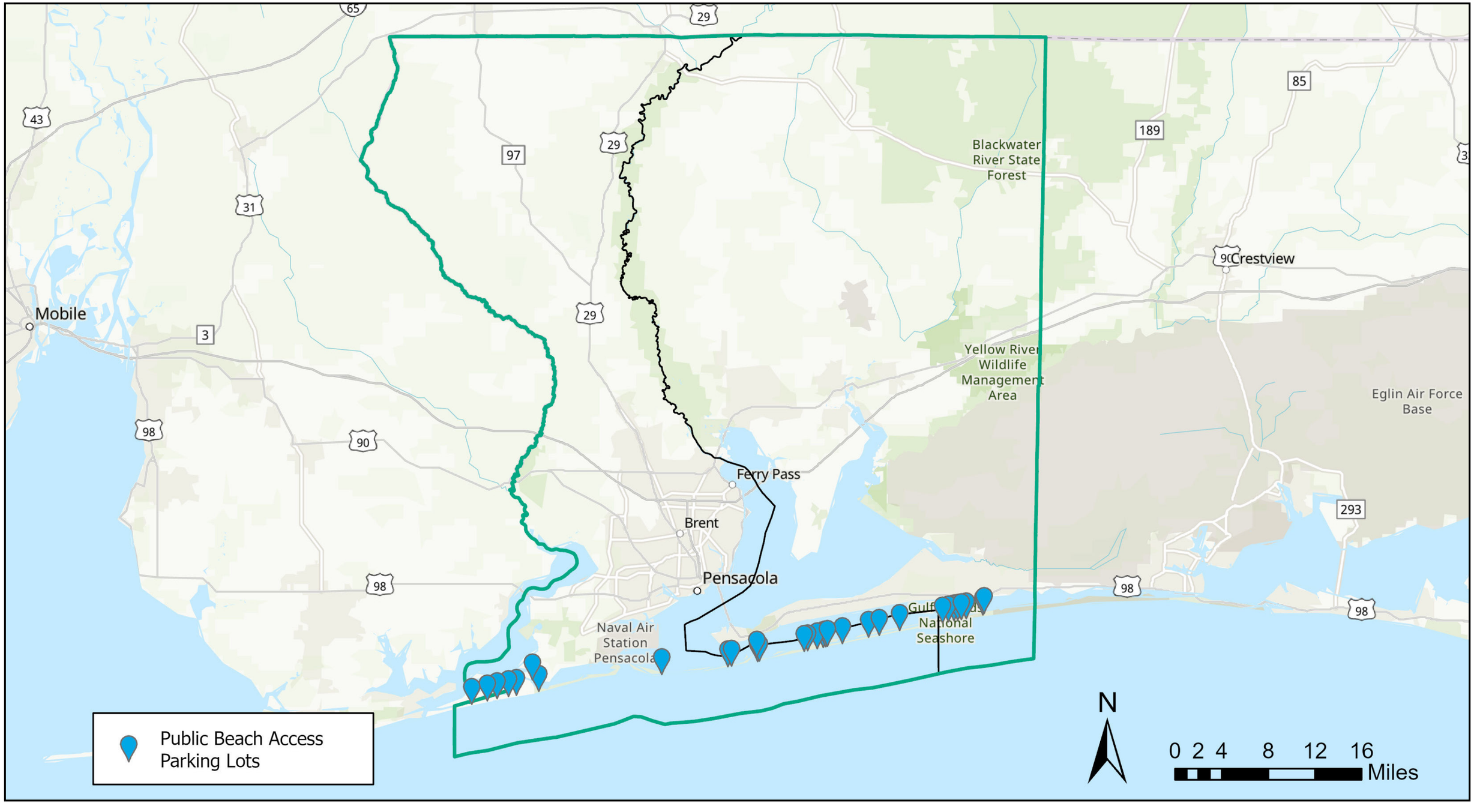
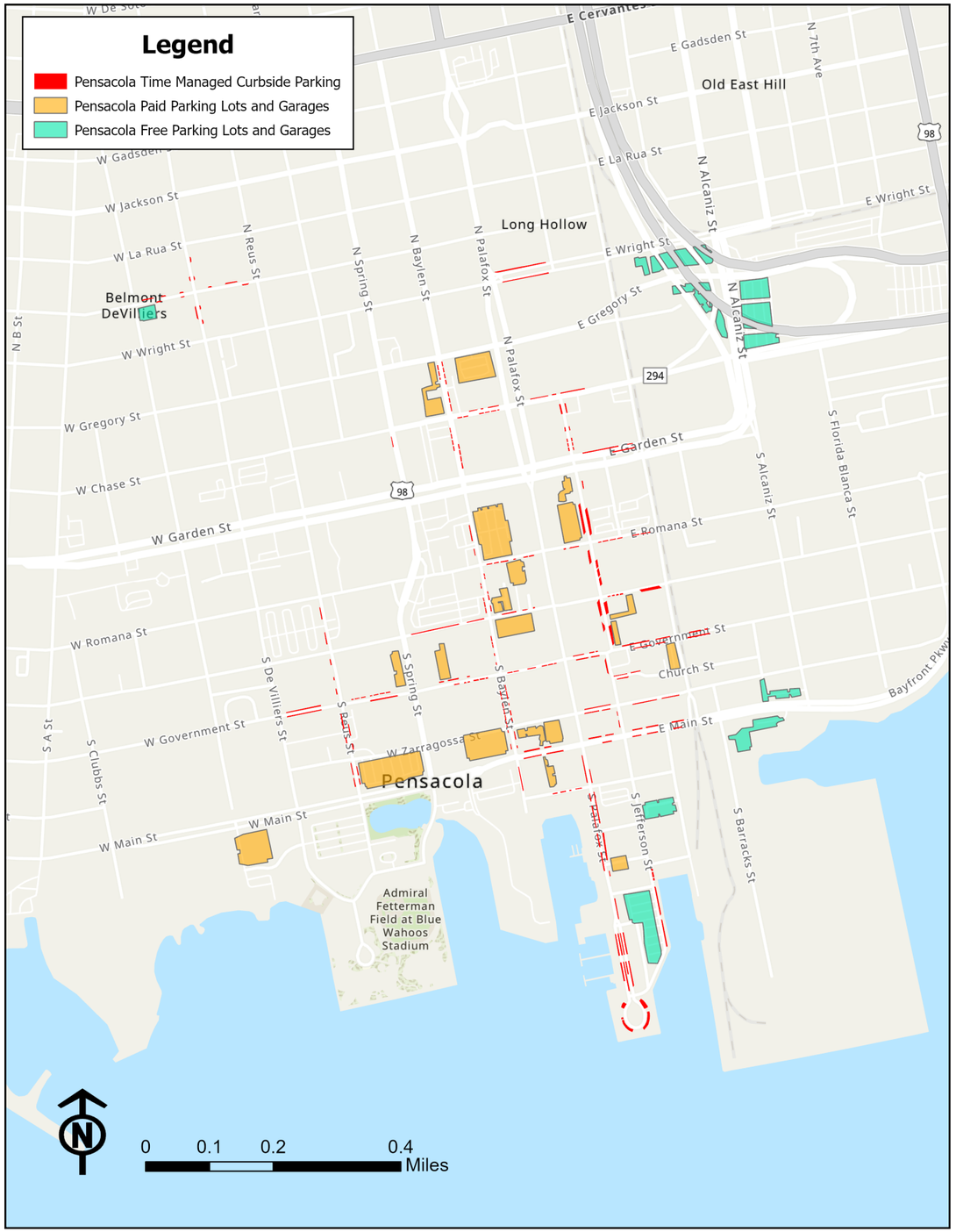


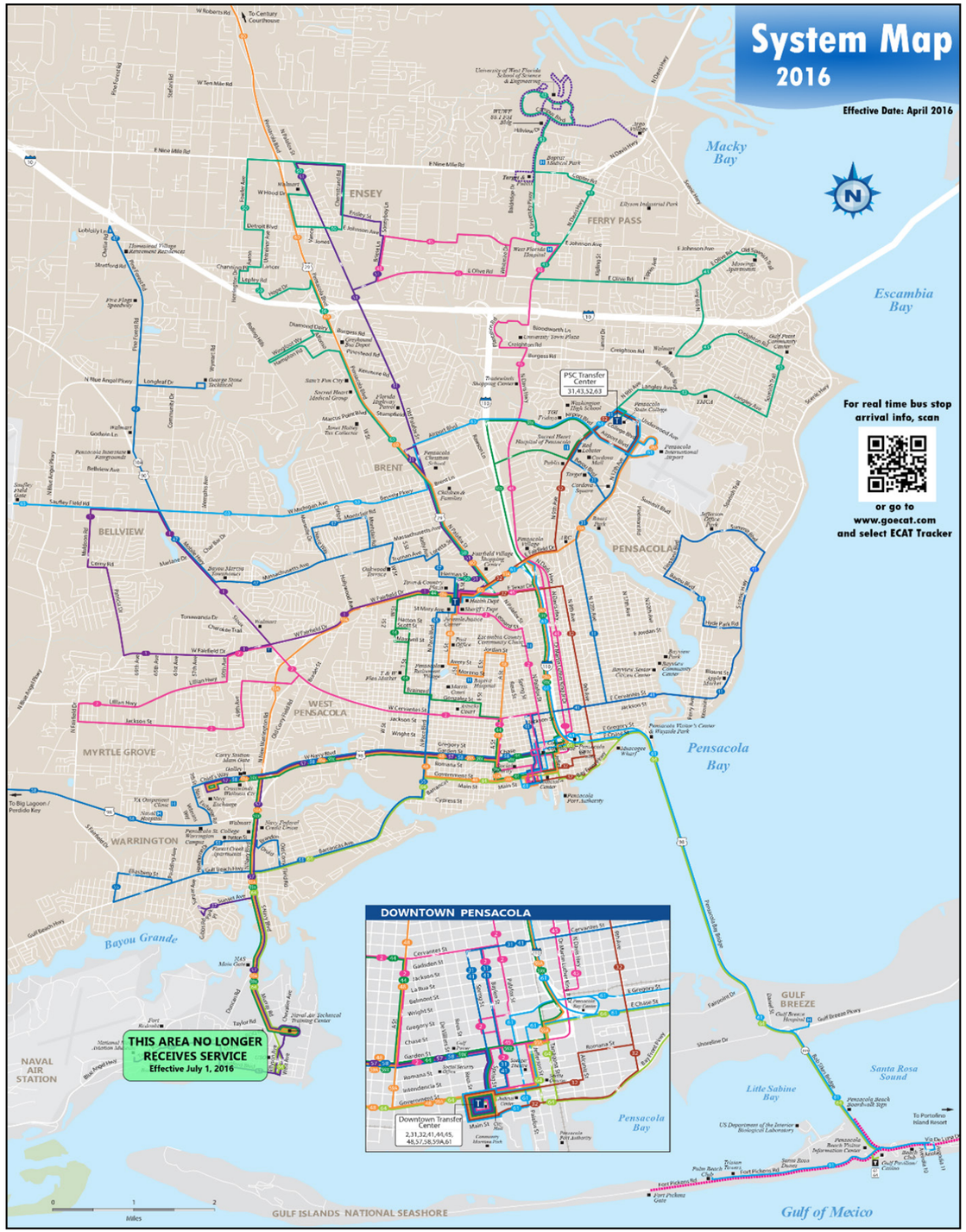
FIGURE 15: DOWNTOWN PENSACOLA MARDI GRAS PARKING



5.6 Transit Services

Fixed-route transit services are provided in the Pensacola area. The system map for Escambia County's public transit system, Escambia County Area Transit (ECAT), is shown in **Figure 16**. Park and Ride lots for carpool or vanpool are provided throughout the region and are managed by RideOn Commuter Services. These Park and Ride lots are shown in **Map 12**.

FIGURE 16: ESCAMBIA COUNTY AREA TRANSIT SYSTEM MAP



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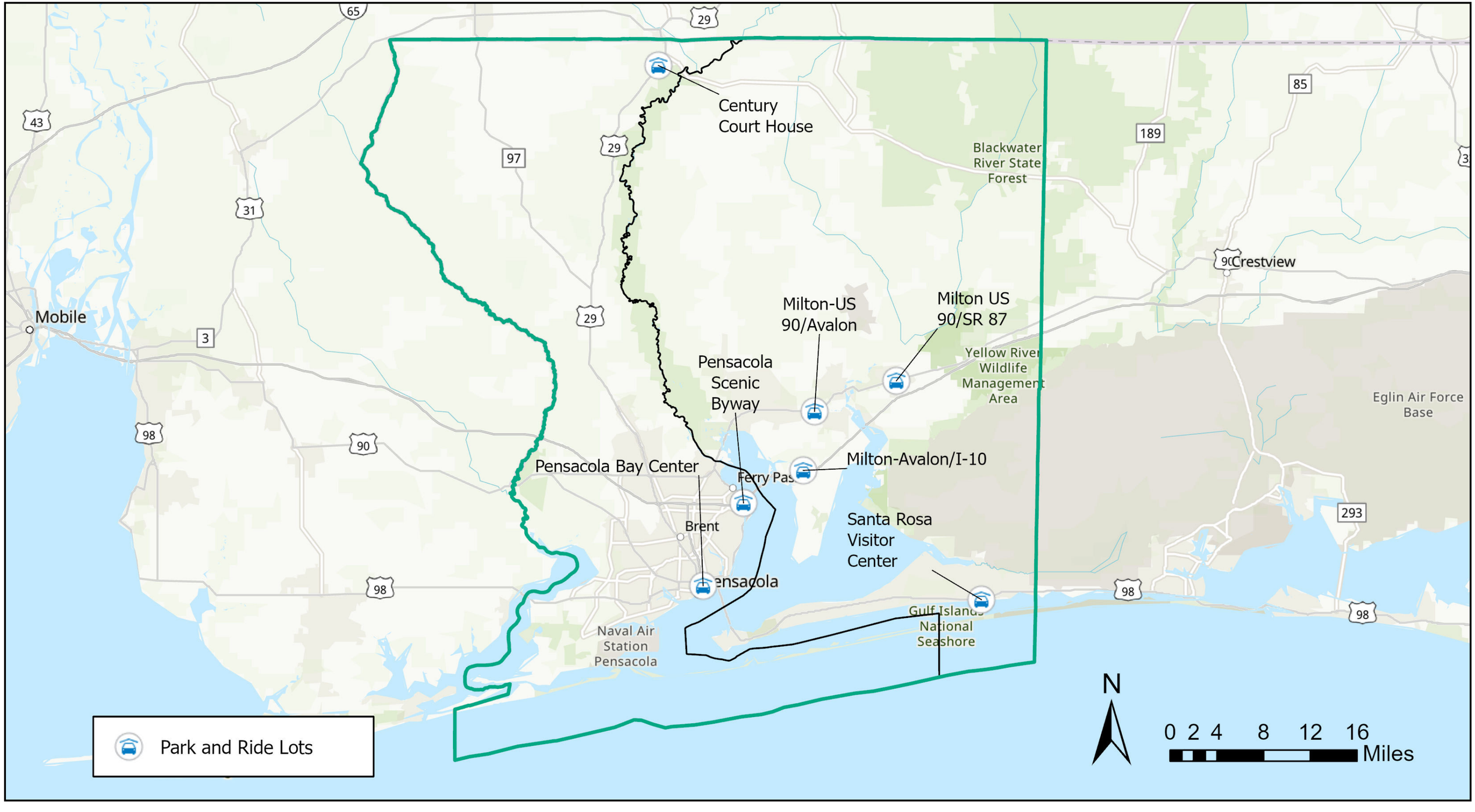
MAP 12: RIDE-ON PARK AND RIDE LOTS



5.7 Strategies and Tactics

Surveillance and Incident Management Systems

FIGURE 17: DMS ON I-10

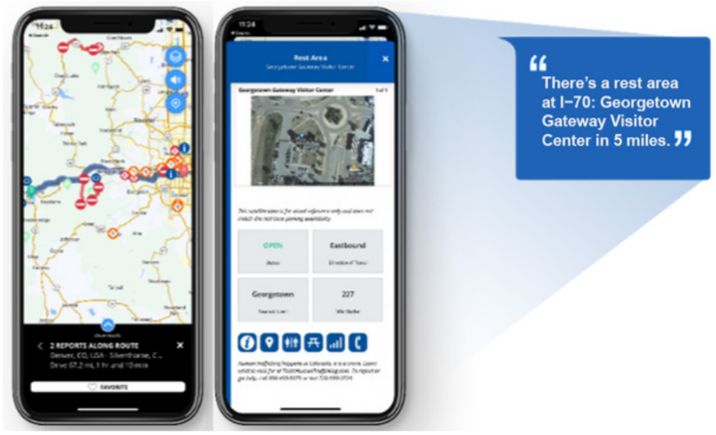
Surveillance and incident detection and management systems consist of one or some combination of: roving tow or service vehicles, video, incident teams, traffic detectors, changeable message signs, closed circuit television surveillance, a communication system, and central computer control. A system of detectors connected to the central computer allows monitoring of conditions throughout the freeway system. Pertinent driver information is provided through the dynamic message sign system and radio traffic reports to alert drivers to congested conditions and allows diversion to alternate routes if necessary. **Figure 17** shows a DMS on I-10.

Advanced Traveler Information Systems

Traveler information systems inform drivers on current roadway conditions – including delays, incidents, weather-related messages, travel times, emergency alerts, and alternative routes. Providing this information to drivers before and during trips allows them to make more effective travel decisions about changing routes, modes, departure times, or even destinations. More informed drivers result in more efficiently utilized roadway capacity. This means less gridlock and better traffic flow.

Travel information is generated by sensors reporting to a traffic management center or through private entities using data from in-vehicle location devices, or from smart phones communicating location and speed. This information is then disseminated via traditional broadband media, internet, mobile devices, or roadside messaging. Personalized travel messages and alerts enable individuals to get trip-specific information on demand, or have it pushed to them via email or text message subscription services.

FIGURE 18: COTRIP PLANNER APP

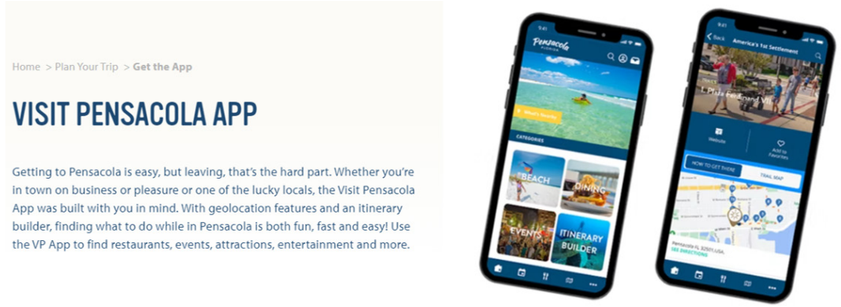


Advanced Traveler Information Systems leverage congestion information and parking availability information collected in the strategies identified above and then use dynamic message signs or other means to disseminate the availability information to travelers. Providing advance information to travelers can allow them to reroute their trip to avoid congestion. Providing advance information on parking availability has the potential to reduce delay from vehicle circulation to find parking. Also, these systems combined with transit shuttle or other service will allow drivers to avoid congested areas.

When combined with geofencing, messages can be “pushed” to travelers through apps with customized messages on parking. For example, “Parking at all public beach access locations near Grayton Beach are full. Consider using the Grayton Beach Tram that has parking near the Shops of Grayton.” Colorado has a similar app in their Trip Planner app as shown in **Figure 18**.

This service could be implemented using a public-private partnership where the parking availability is provided to private apps such as the Visit Pensacola app to support better parking management as shown on **Figure 19** which also provides geolocated information on the beaches, dinning, and special events.

FIGURE 19: VISIT PENSACOLA APP

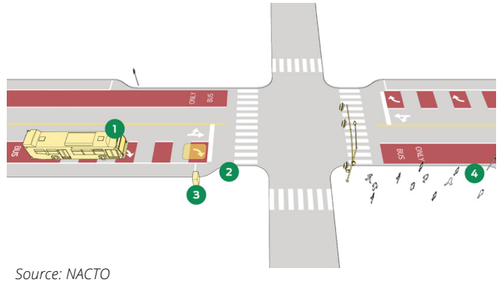


Active Traffic Management Systems

FIGURE 20: ACTIVE TRAFFIC MANAGEMENT SYSTEM

Active management systems regulate or direct traffic along arterial roads, employing traffic detectors, traffic signals, and various means of communicating information to travelers. These systems use information collected by traffic surveillance devices to smooth the flow of traffic along travel corridors. They also disseminate important information about travel conditions to travelers via technology such as DMS or highway advisory radio. Arterial management may include the following strategies: incident detection with service patrols, roving tow vehicles, motorist information systems, and incident teams; intersection surveillance and monitoring using loop detectors, interconnected signal systems, and video monitoring of intersections; parking control and management; integration of freeway and arterial management programs; and traffic surveillance and metering. An active traffic management system is shown in **Figure 20**.

FIGURE 21: TRANSIT SIGNAL PRIORITY



Source: NACTO

Transit Signal Priority

Transit signal priority and transit signal preemption, shown in Figure 21, are standard traffic controller features that transfer normal signal operations to a special control mode to facilitate the passage of buses and emergency vehicles by prohibiting conflicting traffic flow. The primary objective is to improve intersection safety. For emergency vehicle services, an equally important objective is faster response times. Transit signal priority can be best implemented on traffic signals near railway crossings or on corridors with heavy transit use or designated express bus or bus rapid transit routes.

Dynamic Detours

FIGURE 22: DYNAMIC DETOUR SYSTEM

Source: IMSA

A dynamic detour is the concept of detouring traffic in real time based on real time traffic information. A major part of the dynamic detour system is the ITS component that collects real-time traffic information from the road network and disseminates information to travelers to help them make informed decisions on selecting an alternate route or continuing the original route. Detour routes are a common feature of the highway system. Many detours are planned in conjunction with work zones or special events, but the roadway used for the detour may not be able to accommodate the additional traffic without prior improvements. Improvements to detour routes are intended to improve the capacity of corridors. A dynamic detour system is shown in **Figure 22**.

Queue Warning Systems

A queue warning system's basic principle is to inform travelers of the presence of downstream stop-and-go traffic (based on real-time traffic detection) using warning signs and flashing lights. Drivers can anticipate an upcoming situation of emergency breaking and slow down, avoid erratic behavior, and reduce queuing-related collisions, as shown in **Figure 23**. Dynamic message signs show a symbol or word when stop-and-go traffic is near. Speed harmonization and lane control signals that provide incident management capabilities can be combined with queue warning. The system can be automated or controlled by a traffic management center operator. Work zones also benefit from queue warning with portable dynamic message sign units placed upstream of expected queue points.

Source: Qlynx Technologies

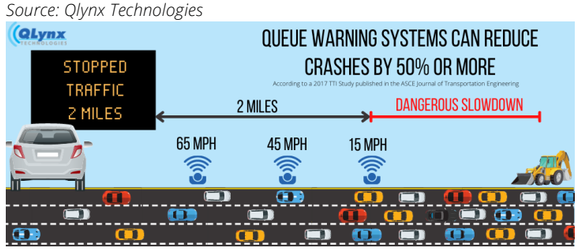


FIGURE 23: QUEUE WARNING SYSTEM

Parking and Curb Management

In recent years, a variety of innovations have been deployed across cities seeking to improve parking management using smart, data-based solutions. The following sections offer examples of successful technology deployments supporting parking management.

Performance-Based Dynamic Parking Pricing

The Seattle Department of Transportation (SDOT) has been dynamically setting rates for on-street parking (**Figure 24**) and hours of operations seasonally based on collected parking occupancy and availability data since 2010. The city examines the latest parking data to predict parking demand and adjusts ahead of seasonal price changes. With the goal of having one to two parking spaces available along each block in the city at any time, the result of the program has led to improved parking availability (seattle.gov).

FIGURE 24: ON-STREET PAID PARKING IN SEATTLE

The San Francisco Municipal Transportation Agency (SFMTA) has been dynamically changing parking rates through SFpark, a similar dynamic pricing program, since it was piloted in 2011. To gather on-street parking occupancy and availability, the program originally installed wireless in-ground parking sensors, as seen in **Figure 25**, that detect vehicle arrival and departure. Since 2018, the city has relied on smart meters that transmit payment data to inform parking demand instead of sensors. The program additionally gathers off-street parking data from parking garages owned by the city, adjusting garage pricing as well. From the pilot phase alone, the city reported improved parking availability, increased ease in finding a parking space, and decreased vehicle miles traveled from reported parking search times (sfmta.com). The city continues to see success in balancing parking demand since it expanded demand-responsive pricing citywide since 2018.

Arlington County in Virginia began collecting parking data in November 2023 through its Performance Parking Pilot program, installing approximately 4,500 in-pavement sensors in on-street parking spaces, like those used during the SFpark pilot. The county has seen minimal impact to parking behavior through two quarters of pricing changes, but has developed a stronger, data-based understanding of parking demand and payment compliance across the county.

FIGURE 25: STREET PARKING OCCUPANCY SENSORS (SAN FRANCISCO AND ARLINGTON COUNTY)

FIGURE 26: COMMERCIAL LOADING ZONE SIGN IN MIAMI

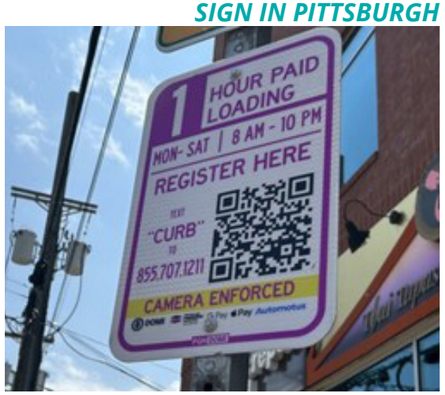
Smart Loading Zones: GPS-Based

Growing parking demand in Miami's commercial districts has led to increased cases of illegal parking in loading zones (**Figure 26**). In response, the Miami Parking Authority's Digital Smart Zone program allows enrolled commercial vehicles to park in paid parking areas without having to pay the meter or using an app. Instead, payments are calculated using GPS captured by an operator's existing on-board telematics device and the operator is invoiced quarterly. This allows commercial fleet operators seamless access to the curb, saving them time and allowing them to avoid parking tickets. The success of the program led it to be recognized by International Parking & Mobility Institute as an Honorable Mention in its 2024 awards for Innovation & Technology.

Smart Loading Zones: License Plate Reading

The Pittsburgh Parking Authority (PPA) implemented a similar smart loading zone solution to improve loading zone availability and reduce double parking by increasing parking turnover and decreasing the amount of time vehicles spend idling. The Pittsburg Smart Loading Zone (SLZ) program automatically bills drivers who park into designated loading zones by utilizing innovative digital cameras capable of license plate reading technology. The pilot initially installed SLZ technology at 20 zones within five neighborhoods across the city, an example of which is seen in **Figure 27**. The city has reported significant results, including a decrease of average park duration by nearly 25%, a decrease of average double-parking duration by 40%, and a turnover increase of nearly 25% (engage.pittsburghpa.gov). The number of double-parking events has been reduced month over month, by upwards of 30%.

FIGURE 27: SMART LOADING ZONE SIGN IN PITTSBURGH

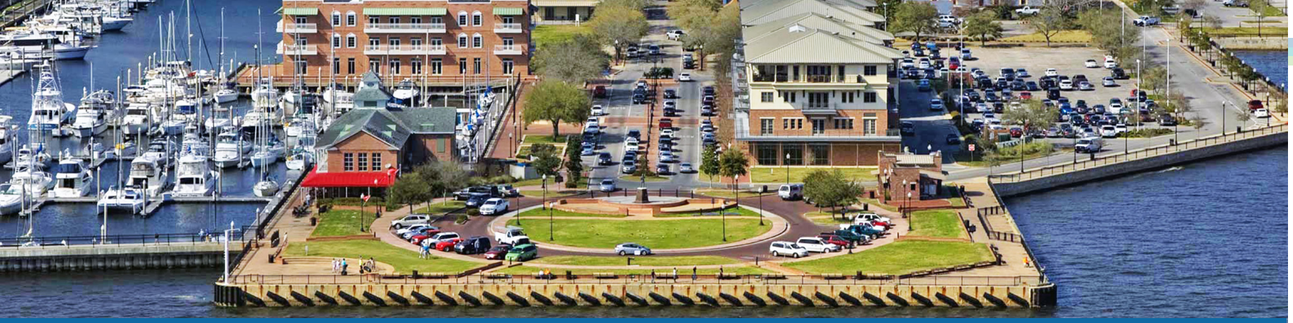


Candidate Projects for Congestion Management

Table 16 shows locations that are candidates for congestion management strategies.

TABLE 16: CANDIDATE LOCATIONS FOR CONGESTION MANAGEMENT

County	Road	From	To	Bottleneck Location	Surveillance and Incident Management	Advanced Traveler Information Systems	Transit Signal Priority	Dynamic Detours	Queue Warning Systems	Parking and Curb Management Strategies
Escambia	SR-291	SR-30/US-98 Cervantes Street	SR-10/US-90 Scenic Highway	SR-290 E Olive Road	●	●	●	●	●	●
Santa Rosa/ Okaloosa	Live Oak	SR-281 (Santa Rosa County)	SR-393 Mary Esther Blvd (Okaloosa)	Wynnehaven Beach	●	●			●	●
				CR-399 Navarre Beach Causeway	●	●			●	●
				SR-281	●	●			●	●



CHAPTER 6

SUSTAINING THE ECONOMY

Sustaining the Economy

Smart region strategies are an essential element in the economic competitiveness of a region to provide reliable and efficient mobility to employment centers, along fright corridors, and access for workforce development.

6.1 Military Installations

The Department of Defense is the largest direct employer in the region. Each of the installations identified in **Table 17** represent the largest employers in the county.

Origin-destination analysis was completed for the major military base in the region. The difference in origin trips and AADTs from 2019 to 2023 for the base is illustrated in the following figures. For the origin trips, Replica Origin-Destination data was extracted for each census block group in the study area. The data estimates the number of trips started in each block group and ended in the block group containing the point of interest. The time periods used in this comparison are Fall 2019 and Fall 2023. **Map 13** illustrates the changes in origin trips and AADTs. **Map 14** shows the roadway segments with the greatest change in AADT.

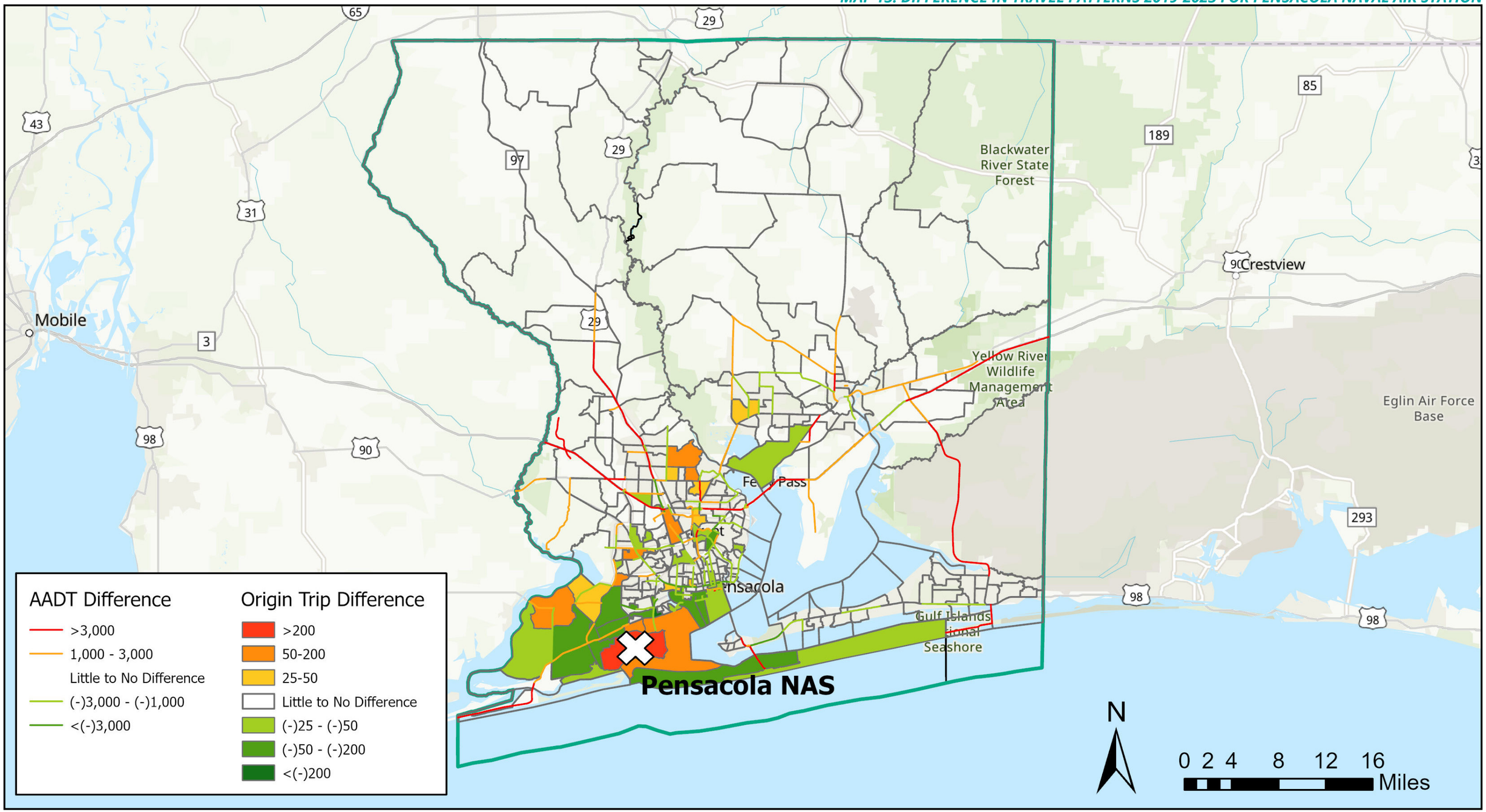
The corridors where traffic management strategies are needed to support access to these installations and potential strategies for implementation are summarized in **Table 18**.

TABLE 17: MILITARY BASE DIRECT EMPLOYMENT

County	Installation	Population Type	Persons	Civilian Labor Force	% Labor Force (Civilian + Military)
Escambia	Pensacola NAS	Military	17,000		
		Civil Service and Contractors	5,000		
	Total	County Total	22,000	153,414	12.9%
Santa Rosa	Whiting Field NAS	Military	2,000		
		Civil Service and Contractors	1,500		
	Total	County Total	3,500	90,152	3.8%

Employment Source: https://installations.militaryonesource.mil/view-all
Percent Labor Force Source: Total /(Civilian Labor Force +Military)

MAP 13: DIFFERENCE IN TRAVEL PATTERNS 2019-2023 FOR PENSACOLA NAVAL AIR STATION



MAP 14: CHANGE IN TRAFFIC VOLUMES ACCESSING BASES 2019-2023

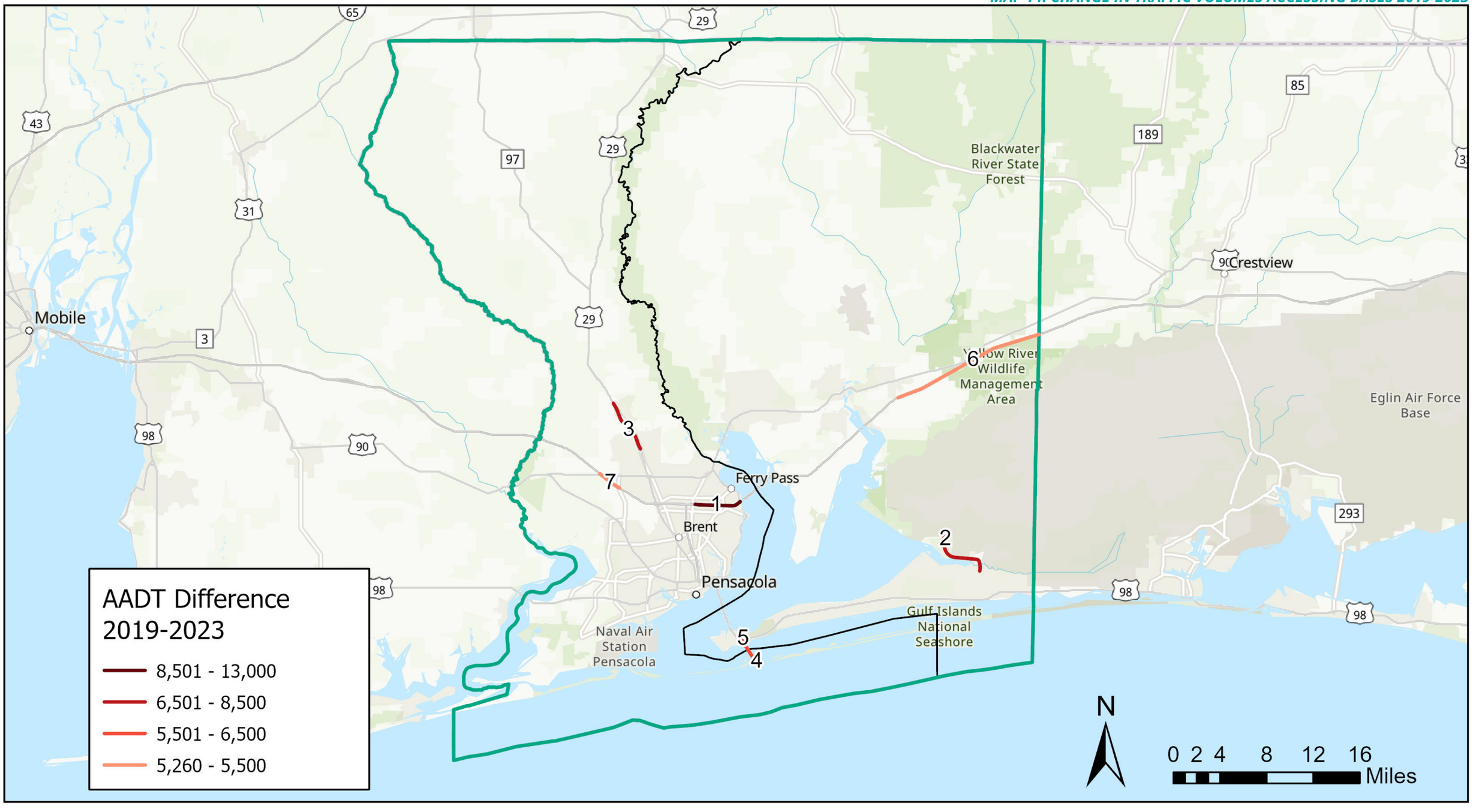


TABLE 18: BASE ACCESS ROADWAYS

Installation	Gate	Access Road	Arterial Traveler Information Systems	Priority Phasing During Quick Response Scenarios
Pensacola NAS	CID Main Gate	SR-292 to Duncan Road Bridge Over Bayou Grande to Taylor Road	●	●
	Saufley Field	SR-292 to Duncan Road Bridge Over Bayou Grande to Taylor Road	●	●
	Main Gate	SR-292 to Duncan Road Bridge Over Bayou Grande to Taylor Road	●	●
	Corry Station	SR-292 to Duncan Road Bridge Over Bayou Grande to Taylor Road	●	●
	West Gate	SR-173 and Gulf Beach Highway	●	●
Whiting Field NAS	East Gate	Langley Street/SR 87A	●	●
	West Gate	Langley Street/SR 87A	●	●

6.2 Private Employment

According to the Florida Chamber of Commerce, the top private employers in each county with 500 or more employees is summarized in **Table 19**.

TABLE 19: TOP PRIVATE EMPLOYERS BY COUNTY WITH 500 OR MORE EMPLOYEES

County	County Rank	Company	Employees	Industry
Escambia	1	Navy Federal Credit Union	9,188	Financial Service Center
	2	Baptist Health Care	5,434	Healthcare
	3	Sacred Heart Health Systems	4,820	Healthcare
	4	University of West Florida	2,447	Education
	5	Pensacola Christian College	1,584	Education
	6	Ascend Performance Materials	1,288	Manufacturing
	7	West Florida Healthcare	1,200	Healthcare
	8	LifeView Group	1,199	Health and Human Services
	9	Innisfree Hotels	750	Hospitality
	10	GE Vernova	700	Manufacturing
Santa Rosa	1	Baptist Healthcare Systems	849	Hospital
	2	Wal-Mart Stores	800	Department Stores
	3	Santa Rosa Medical Center	700	Hospital
	4	Publix	500	Grocery

6.3 Economic Opportunity

From the USDOT's "Ladders of Opportunity" initiative:

> "America's highways, railways, airports, ports, and transit systems help drive our economy. There is a regrettable legacy of aligning and designing transportation projects that separated Americans along economic and even racial lines. At a time when our nation has so much infrastructure to repair and replace, we have a chance to do so in a much more inclusive way that will simultaneously expand economic opportunity and socioeconomic mobility throughout America. The choices we make about future transportation projects, the people they touch and places they connect, will play a role in determining how widely opportunity expands throughout America. Together, we can build a stronger and more connected nation, a healthier economy, and more vibrant communities."

Ladders of Opportunity help connect low-income, cash-based, and/or transit-dependent residents to critical destinations such as health services, grocery stores and jobs.

Opportunity Zones

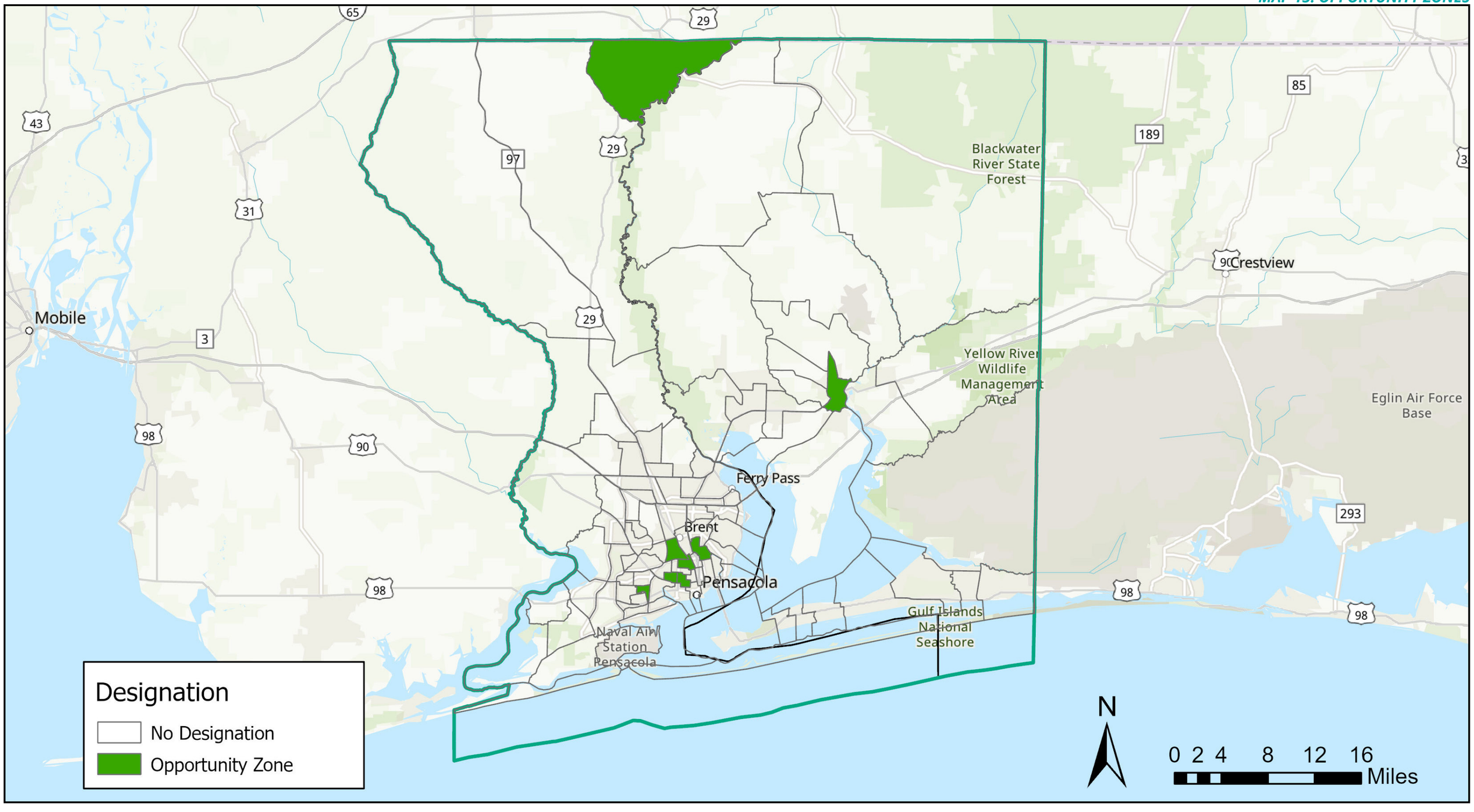
Opportunity zones are census tracts in distressed economic states and whose local government has demonstrated a plan of action on how to use economic investment opportunities, as designated by the Internal Revenue Service (IRS) and United States Department of Transportation (USDOT). **Map 15** shows the census tracts designated as opportunity zones in the region.

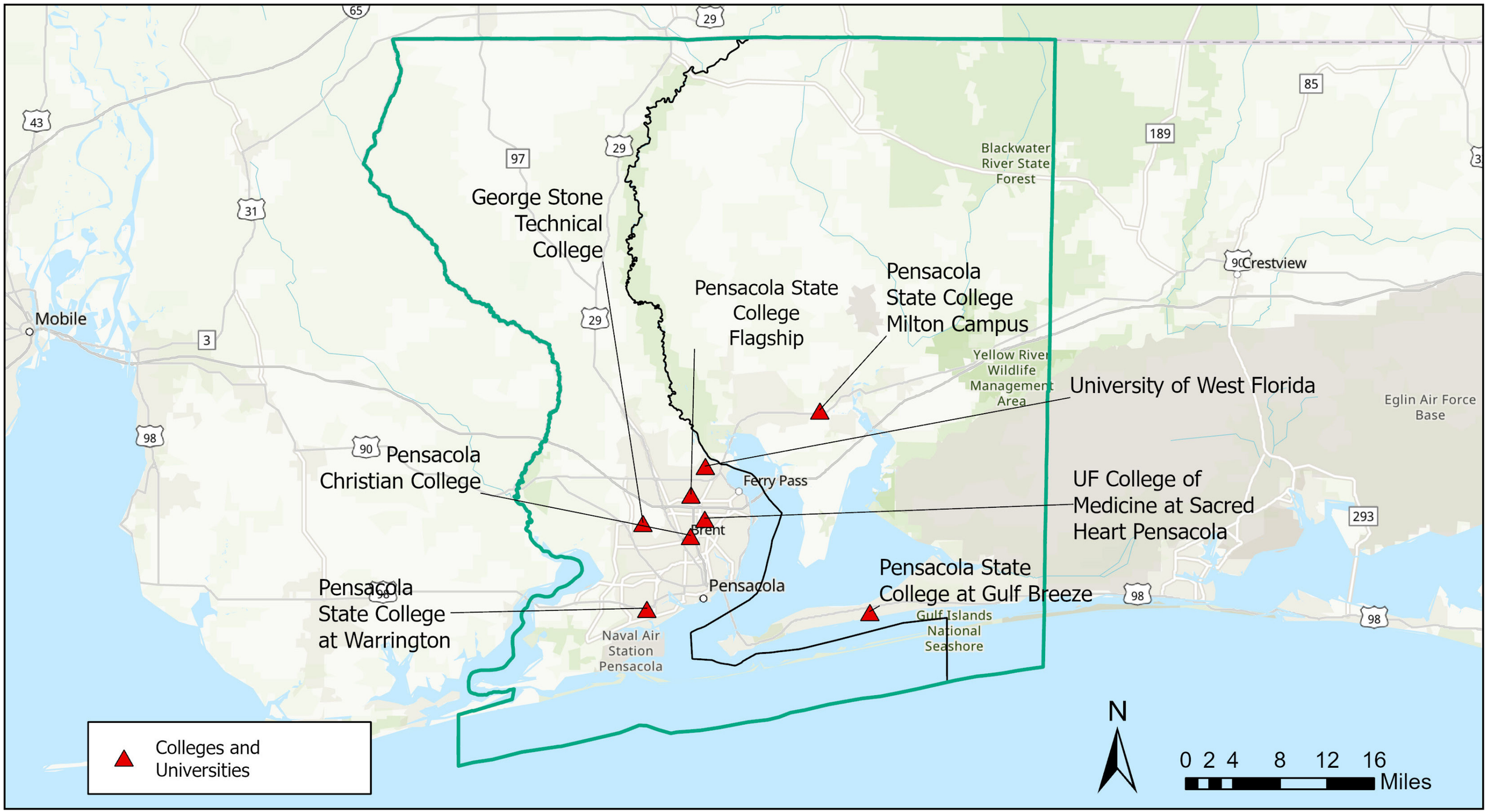
Colleges, Universities, and Workforce Development

Map 16 shows the colleges and universities throughout the region. Providing efficient access to colleges will require a mix of congestion management and transit strategies.

- George Stone Technical College
- Pensacola Christian College
- Pensacola State College at Gulf Breeze
- Pensacola State College at Warrington
- Pensacola State College Flagship
- Pensacola State College Milton Campus
- UF College of Medicine at Sacred Heart Peninsula
- University of West Florida Main Campus

MAP 15: OPPORTUNITY ZONES




George Stone Technical College
Pensacola State College Flagship
Pensacola State College Milton Campus
University of West Florida
Pensacola Christian College
UF College of Medicine at Sacred Heart Pensacola
Pensacola State College at Warrington
Pensacola State College at Gulf Breeze
Blackwater River State Forest
Yellow River Wildlife Management Area
Eglin Air Force Base
Gulf Islands National Seashore
Naval Air Station Pensacola
Mobile
Crestview
Ferry Pass
Brent
Pensacola
Colleges and Universities
N
0 2 4 8 12 16
Miles

Underserved Populations

Areas of Persistent Poverty are defined by the USDOT using data from the 2020 Census. **Map 17** shows the Areas of Persistent Poverty throughout the region.

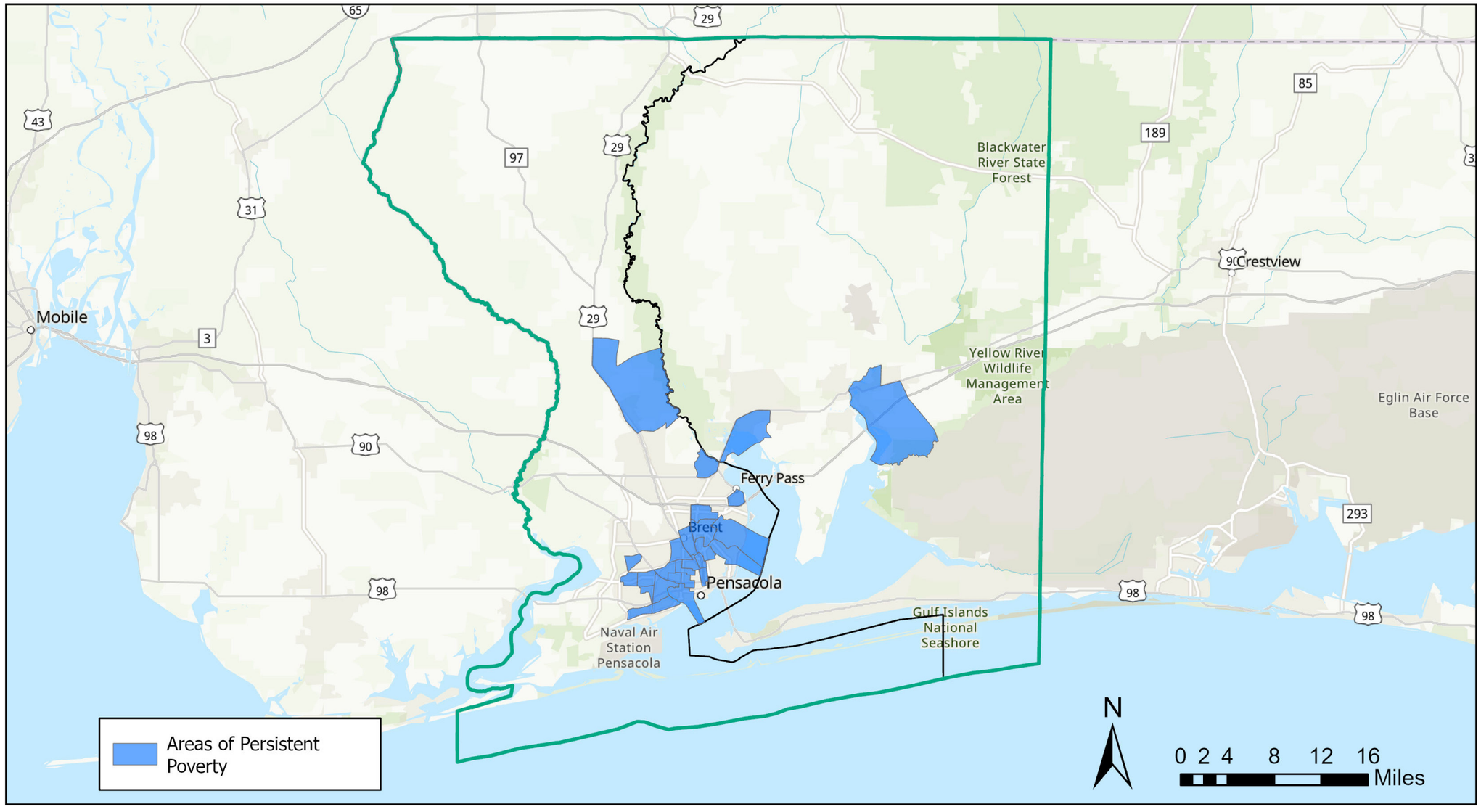
A food desert is a census tract wherein at least 500 people or 1/3 of the total population within the tract lives further than 1 mile (urban) or 10 miles (rural) from the nearest supermarket, as designated by the United States Department of Agriculture (USDA). **Map 18** shows the food deserts within the Florida-Alabama TPO region.

A medically underserved area is a census tract which lacks reasonable access to primary care health services, as designated by the Health Resources and Services Administration (HRSA). **Map 19** shows the medically underserved areas and populations within the region as designated by the HRSA.

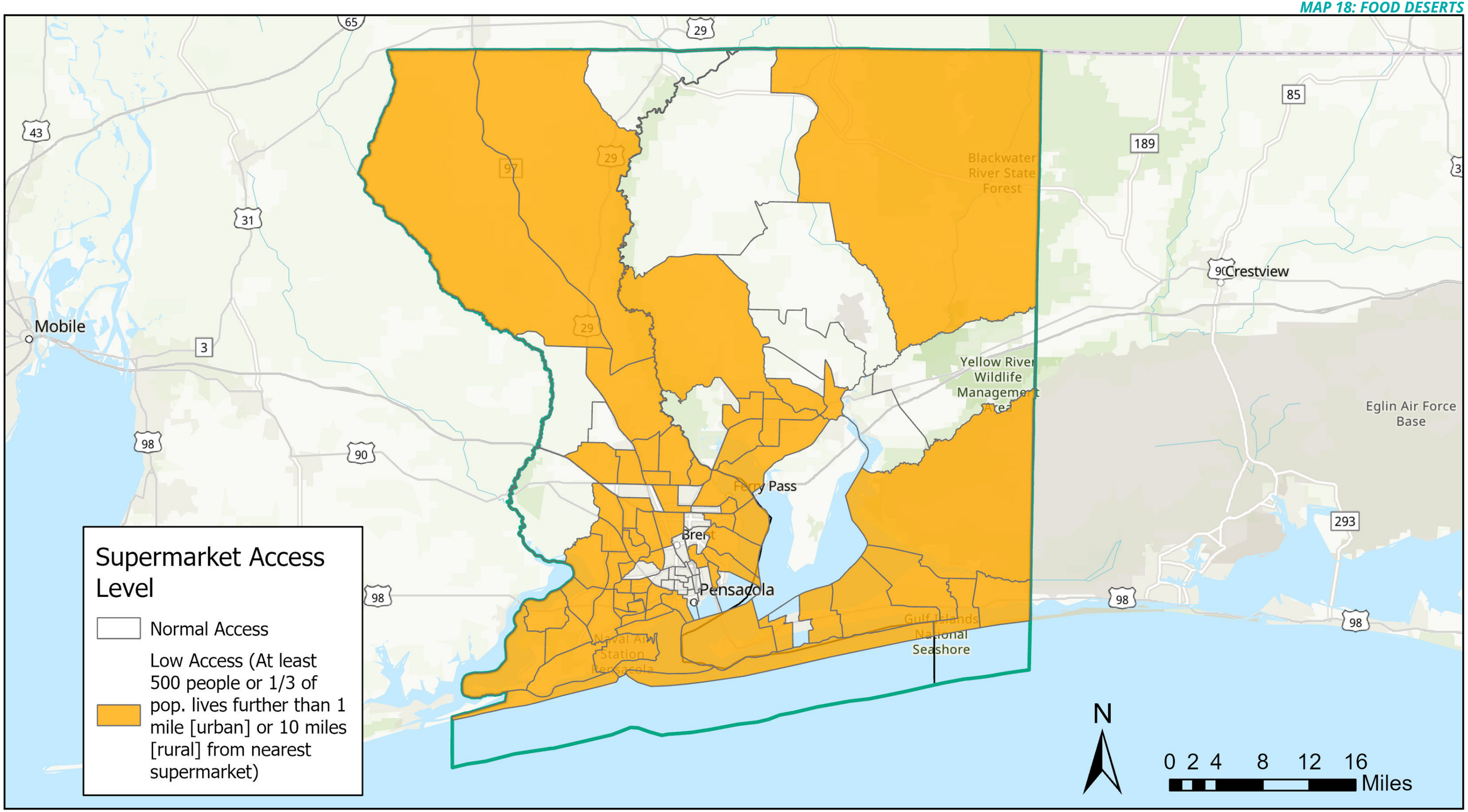
Transportation barriers are the third leading cause of missing a medical appointment for older adults across the country.

—American Hospital Association, 2017

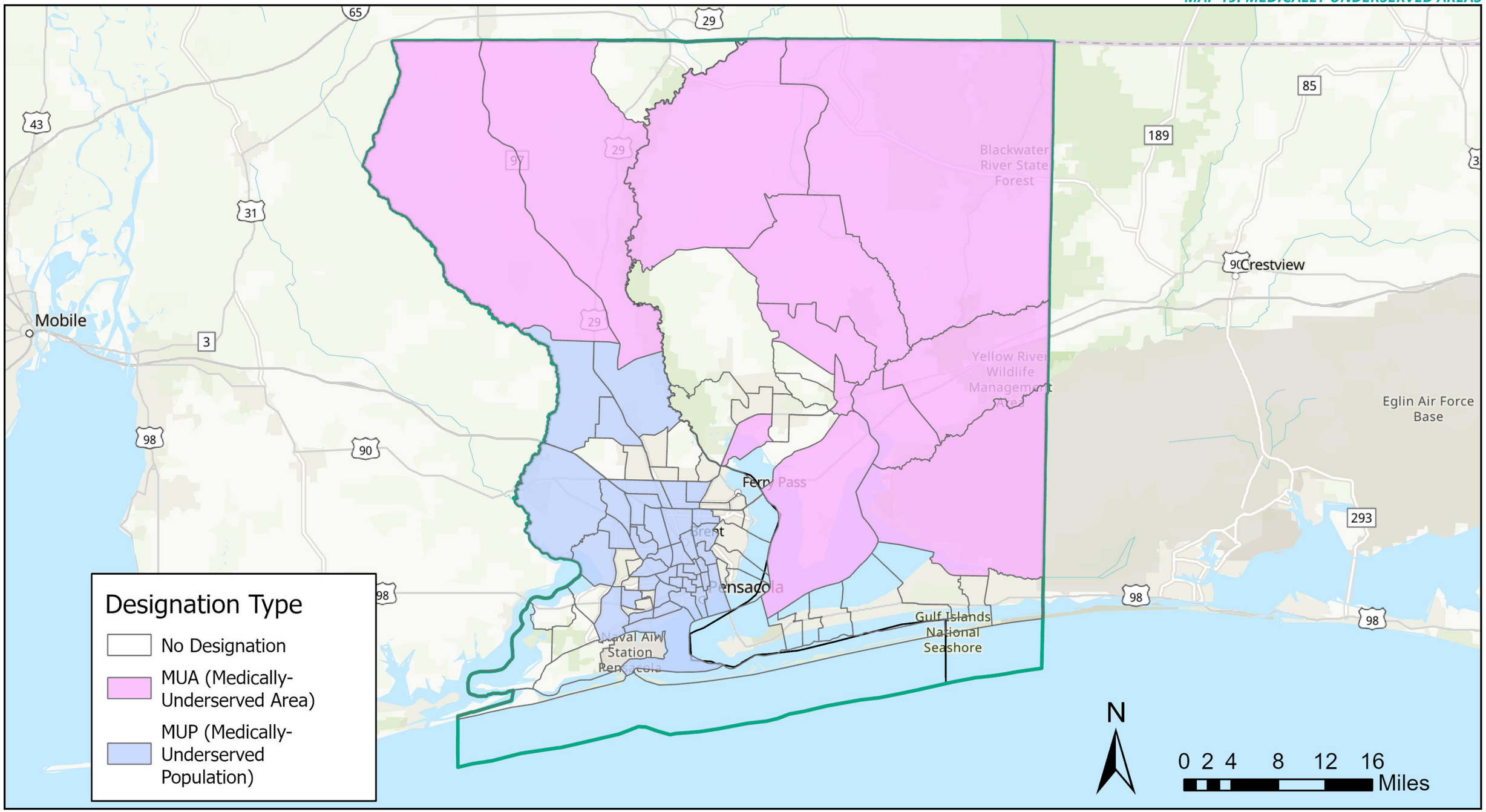
MAP 17: AREAS OF PERSISTENT POVERTY



MAP 18: FOOD DESERTS



MAP 19: MEDICALLY UNDERSERVED AREAS



6.4 Strategies and Tactics

Congestion Mitigation Strategies

Investments in the corridors to provide reliable access to military installations and the major employers in the Emerald Coast follow the same approach to corridors identified in the section titled Reduce Congestion.

Information Technology Solutions

Create a data exchange, targeted dashboards and reporting to assist non-governmental agencies, non-profits, and government agencies with easy access to data, maps, and analytics. This will improve our region's competitiveness for grant opportunities; develop greater synergies between agencies; and support evidence-based decision-making in considering new strategies to address the needs of our community. This data, combined with other stakeholder data in the Integrated Data Exchange, can be used to develop innovative approaches to improve mobility for these communities.

Strategies to Enhance Access

Expand Fixed Route Services

Transit for underserved communities is one way to enhance access for under resourced communities. Each transit agency in the Emerald Coast regularly evaluates their routes and the needs of riders.

Incentivize Shared Vehicles

Evaluate opportunities to provide partnerships and incentives for shared-ownership vehicles such as Zipcar that include insurance, theft protection and financial access for the cash-dependent. These shared-ownership vehicle services may avoid some neighborhoods because of perceptions of crime and low demand. When incentives, additional insurance and cash-dependent access are made available, the demand for these services may increase. These programs offer subscription fees as low as $70 per month plus per hour use fees making infrequent use of vehicles for medical care and shopping more affordable.

Incentivize Ridesharing and Transportation Network Companies (TNC)

Provide incentives to make TNCs (such as Uber and Lyft) more affordable, enhance services in underserved communities, allow cash payments and reduce costs in underserved areas. Several programs exist but are underutilized.

Incentivize Mobility for Remote Care

Continue to partner with local hospitals to provide on-demand transit services to all segments of the disadvantaged and underserved populations for preventative and emergency health care. Several initiatives are ongoing, and the lessons learned from those programs can be used to develop strategies to advance.

Table 20 summarizes the strategies that could be applied to serve these communities.

TABLE 20: STRATEGIES FOR WORKFORCE DEVELOPMENT AND THE UNDERSERVED

Strategy	Invest in Opportunity Zones	Access to Colleges and Universities	Households Living in Poverty	Medically Underserved	Food Insecure
Information Technology Solutions		●	●	●	●
Expand Fixed Route Services	●	●	●	●	●
Incentivize Shared ownership					●
Promote Carpooling	●	●	●		
Incentivize TNCs	●	●	●	●	●
Enhance Multilingual Services	●				
Incentivize Mobility for Remote Care		●	●	●	●
Improve Access to Community Resources	●	●	●		●

CHAPTER 7

BUILDING MORE RESILIENT INFRASTRUCTURE

Building More Resilient Infrastructure

7.1 Resilient Action Plan

An analysis was conducted to examine the exposure of roadway assets within the region to an array of flooding events. Flooding events considered included sea level rise projections for 2040, 2050, 2070, and 2100 for estimated 100 and 500-year flood events, and Category 1 through 5 hurricanes.

Map 20 shows the priorities identified in the FDOT's Resilient Action Plan.

7.2 Strategies and Tactics

Strategies and tactics for using smart technologies to create a more resilient infrastructure include:

Re-evaluating and improving building standards and regulations is one strategy to build more resilient infrastructure to protect its citizens and investors from the negative impacts of sea level rise. New data sources are needed to reflect these changing environments.

- Standards to set new minimum elevations for critical infrastructure such as traffic signal cabinets, sanitary sewer pump stations, and other infrastructure that can be damaged during flooding events.
- Rainfall intensity for storms that occur once every 5-years, 25-years, 50-years, or 100-years that are used in designing roads and ponds.

To develop the data needed to address these challenges, Road Weather Information Systems (RWIS) can be used to collect data on flooding events and provide engineers and planners with better information to assess design decisions.

Traveler information systems can also be used to identify when high winds occur. When wind bursts of 35 MPH or higher occur, high profile vehicles such as tractor-trailers are at-risk for being overturned. Locating weather sensors or working with other agencies to provide advance notification will result in safer travel.

MAP 20: RESILIENT ACTION PLAN STATE ROADWAYS AND BRIDGES

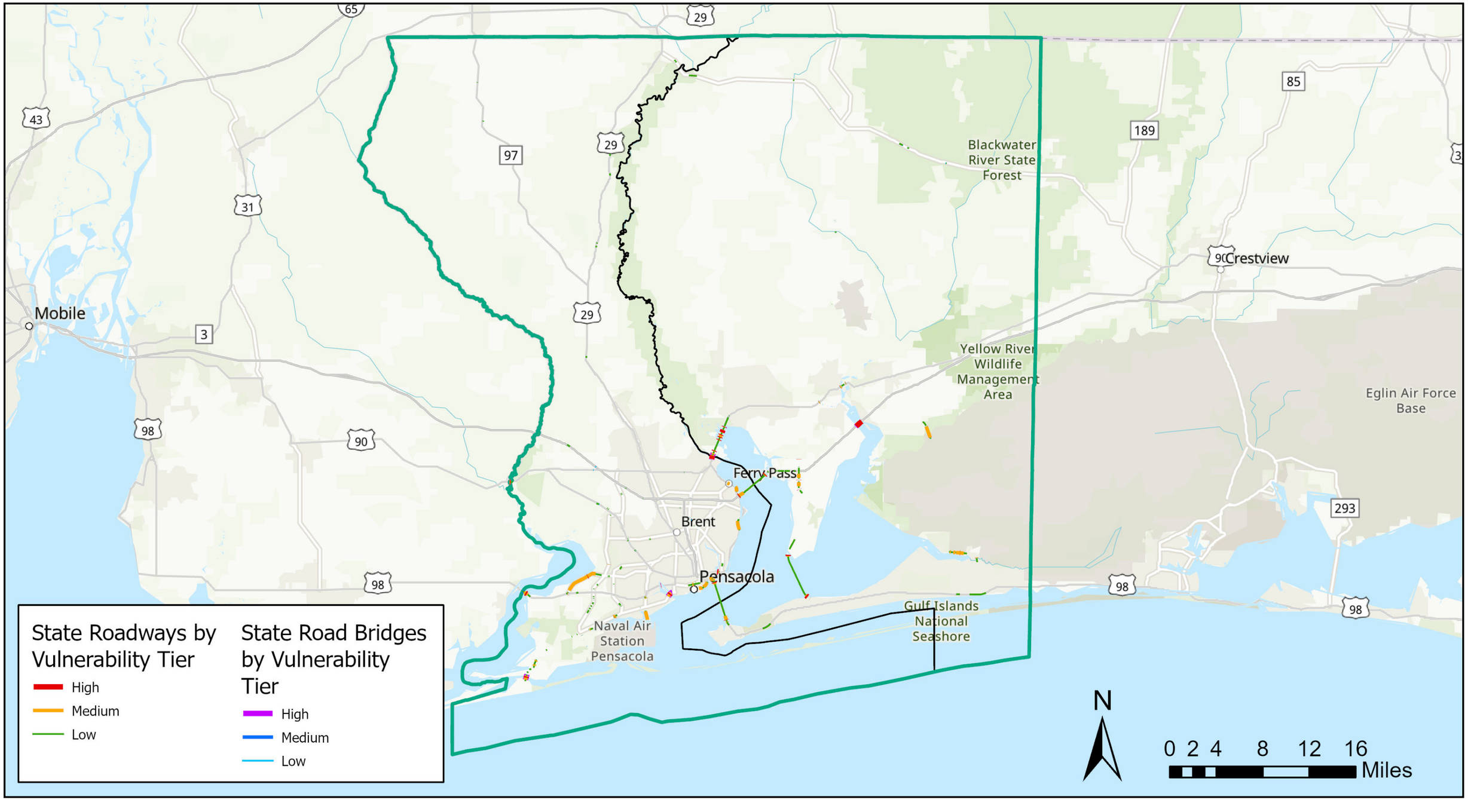


TABLE 21: RESILIENT INFRASTRUCTURE TECHNOLOGIES

County	Location	RWIS	Resilient Corridor Studies
Escambia	I-10 from US-90 to SR-281		●
Escambia	SR-10/US-90 from Alt. US-90 Davis Highway to Floridatown Road		●
Escambia	SR-399 Pensacola Beach Boulevard Bridge Over Santa Rosa Sound	●	
Escambia	US-98 Pensacola Bay Bridge (General Daniel "Chappie" James Jr. Bridge)	●	
Escambia	US-98 Perido Bay Bridge	●	
Regional	SR-30/US-98 Regional		●
Santa Rosa	SR-281 Avalon Boulevard Bridge Over Pensacola Bay	●	
Santa Rosa	SR-399 Florida Scenic Trail Navarre Beach Bridge Over Santa Rosa Sound	●	

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CHAPTER 8

ENHANCING ENERGY EFFICIENCY AND DIVERSITY

Enhancing Energy Efficiency and Diversity

8.1 Need for Energy Efficiency and Diversity

Optimizing energy efficiency and diversity has the potential to achieve the following outcomes.

- Reduced costs of fueling, operating, and maintaining vehicles
- Improved operational performance (i.e., energy efficiency)
- Enhanced risk management (e.g., reduced-price volatility and/or supply volatility)
- Reduced dependence on foreign suppliers
- Economic development (e.g., infrastructure investment, new markets, etc.)
- Job creation
- Reduced nuisance (e.g., noise, odor, etc.)
- Improved public health from improved air quality and reduced toxicity
- Better regulatory compliance
- Reduced toxicity (e.g., fuel spills and other accidents)
- Reduced local air pollution
- Decreased greenhouse gas emissions

8.2 National Electric Vehicle Infrastructure Program

The National Electric Vehicle Infrastructure (NEVI) program is a part of the Infrastructure Investment and Jobs Act (IIJA). Through this effort, two funding sources were created, a formula program with $5B and a discretionary program with $2.5B. The current focus of FDOT's NEVI program is on the formula funds.

EV charging infrastructure key considerations include:

- EV charging infrastructure must be public or to authorized commercial motor vehicle operators from more than one company.
- EV charging must be located along a designated Alternative Fuel Corridor (AFC).
- States must prioritize charging locations along the Interstate Highway System.
- EV charging locations should be spaced at a maximum of 50 miles apart.
- States must prioritize charging locations along the Interstate Highway System.
- EV charging locations must meet certain power capabilities.
- States should prioritize rural, underserved, and disadvantaged communities for EV charging infrastructure.
- Sites should include access to with publicly restrooms, appropriate lighting, and sheltered seating areas.

Florida's Electric Vehicle Infrastructure Deployment Plan was published by FDOT in October 2023.

8.3 Strategies and Tactics

Electric vehicle chargers supply power to charge batteries for plug-in electric vehicles. There are numerous public charging network operators with thousands of public charging sites nationwide. Most of the network operators are profit driven and select charging sites based on the potential to generate revenue. Public agencies may have different priorities when selecting a public charging site, such as:

- Providing widespread access to public EV charging
- Filling gaps in charging network coverage
- Enabling residents to charge in locations convenient to their homes, schools, or workplaces
- Ensuring access to public chargers by lower-income residents and/or residents of multi-unit dwellings

Public agencies can also control the cost of charging at charging stations that they own and operate, which can further support access to electric vehicles for lower-income residents.

The need for public electric vehicle charging stations in the Emerald Coast community was examined via the following process:

- Identify and map existing public charging stations
- Identify and map indicators of community need, such as historically disadvantaged communities or multifamily housing communities
- Identify areas with a lack of public charging stations and high indicators of community need as priority areas for public charger deployment
- Within those priority areas, identify possible sites for public charger deployment

Map 21 shows the existing public charging stations throughout the region. **Map 22** shows an example of the priority area selection process.

8.4 Candidate Projects for Energy Efficiency and Diversity Projects

Based on the analysis, the following priority areas were identified. Neighborhood names were assigned to each census tract based on the largest-area neighborhood in each tract according to Google Maps.

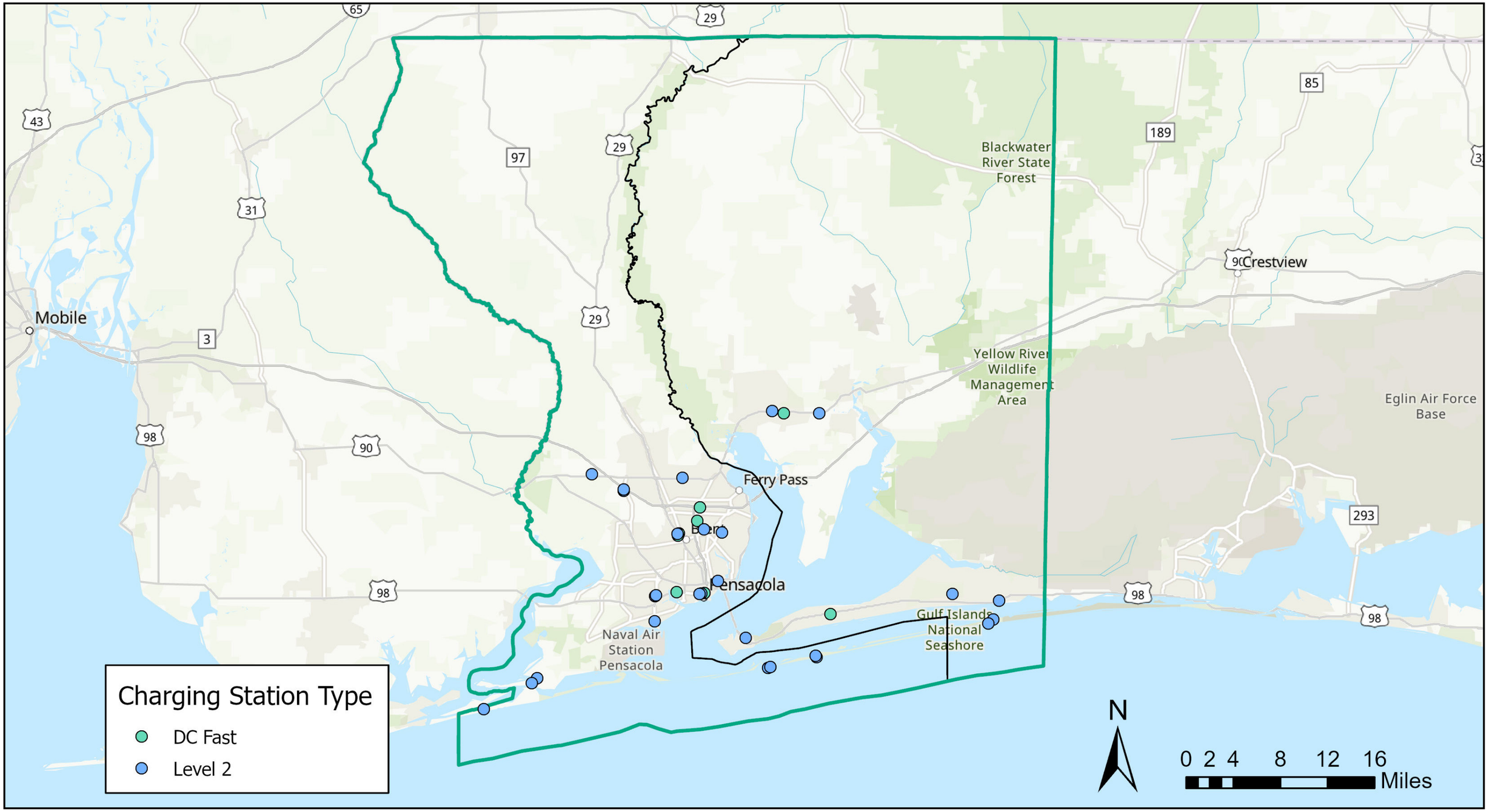
- **Priority areas within Pensacola**
  - Census tract 4: Westpointe Heritage
  - Census tract 21: Edgewater
  - Census tract 28.03: Pinehurst
  - Census tract 35.05: Oakhurst
  - Census tract 34: Pine Springs Estates
  - Census tract 35.09: Drummond Park
  - Census tract 35.10: Carlisle Unit
  - Census tract 11.04: Belvedere Park
  - Census tract 35.06: Northpoint

Although charger deployment can be costly, grants and incentives are available that support the deployment of public charging stations are available. Public-private partnerships with businesses in the priority areas should also be explored.

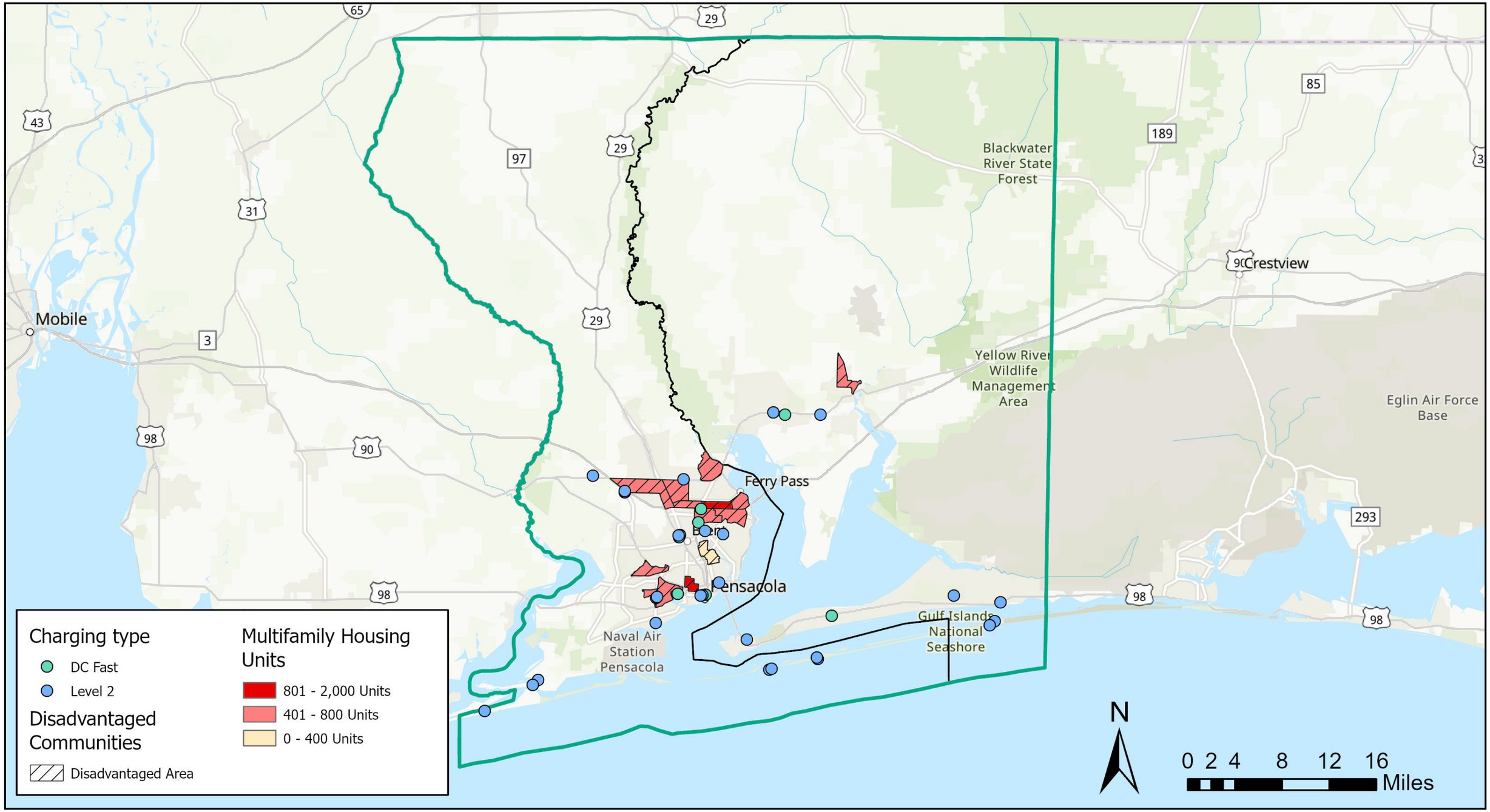
The following sites were then identified as possible public EV charging sites within the priority areas

- Fricker Community Center: 900 N F Street, Pensacola
- Grocery Advantage Shopping Center: 8084 N Davis Highway, Pensacola

MAP 21: EXISTING PUBLIC CHARGING STATION



MAP 22: SELECTION OF PRIORITY AREAS FOR PUBLIC ELECTRIC VEHICLE CHARGING STATIONS



CHAPTER 9

LEVERAGING BIG DATA

Leveraging Big Data

The Smart Regions Plan, underpinned by information and communication technologies, is a catalyst for change. Data platforms, a key element of this plan, enable us to compile, organize, and process vast data sets into accessible tools. These tools empower practitioners to anticipate system needs and make swift, informed decisions. Real-time data processing is instrumental in enhancing safety, reducing congestion, minimizing emissions, and improving overall quality of life, thereby bringing significant benefits to the region.

The Florida Alabama TPO is in the process of establishing a new traffic management center. This center, designed to house and aggregate intelligent transportation system information in a single location, is a pivotal step in our journey towards building a comprehensive data platform for the region.

Currently, 275 signals in the region are configured with MioVision hardware, a technology that allows users to access real-time data such as timing values, live camera feeds, and detector data. The region also benefits from fiber optic networks that provide traveler information and incident management services.

Data available through these technologies and other sources, such as RITIS, will be used to prepare a data platform that will be a cornerstone for the Smart Regions. The potential for the data platform is broad, but solutions will be developed to address the region's needs. Some of the potential solutions of the platform can include:

- Congestion and traffic management
- Bottlenecks
- Signal optimization and priority systems
- Scenario-based planning
- Parking and curb management
- ATMS
- Incident management
- Traveler information
- Queue warning systems
- Emergency vehicle prioritization systems

CHAPTER 10

SUPPORTING DISASTER RECOVERY

Supporting Disaster Recovery

10.1 Background

26 of the 79 named tropical storms impacted the Florida-Alabama TPO region as summarized in **Table 22**. An impact is defined as tropical storm force winds occurred within one of the counties within the Florida-Alabama TPO boundary. Landfall could have occurred in another county. The storms are classified as:

- **Tropical Wave** - 1
- **Tropical Depression** - 0
- **Tropical Storm** - 17
- **Category 1** - 2
- **Category 2** - 1
- **Category 3** - 3
- **Category 4** - 1
- **Category 5** - 1

TABLE 22: HURRICANES IMPACTING THE REGION SINCE 2000

Storm	Classification at Landfall	Year	Landfall Location	County
Helene	TS	2000	Fort Walton Beach	Walton
Allison	TS	2001	Freeport, TX	
Barry	TS	2001	Santa Rosa Beach	Walton
Arthur	TW	2002	Panhandle	
Hanna	TS	2002	Alabama/Mississippi border	-
Isadore	TS	2002	Grand Isle, LA	-
Bonnie	TS	2004	Apalachicola	Franklin
Ivan	3	2004	West of Gulf Shores, Alabama*	Escambia
Arlene	TS	2005	Pensacola	Escambia
Cindy	1	2005	Grand Isle, LA	-
Dennis	3	2005	Santa Rosa Island	Santa Rosa
Fay	TS	2008	Carabelle	Franklin
Claudette	TS	2009	Santa Rosa Island	Santa Rosa
Ida	TS	2009	Dauphine, AL	-
Lee	TS	2011	Grand Isle, LA	-
Hermine	1	2016	St. Marks	Wakulla
Cindy	TS	2017	Cameron, LA	-
Alberto	TS	2018	Laguna Beach	Bay
Gordon	TS	2018	Pascagoula, MS	-
Michael	5	2018	West of Mexico Beach	Bay
Cristobal	TS	2020	Grand Isle, LA	-
Sally	2	2020	Gulf Shores, AL	-
Zeta	3	2020	Cocodrie, LA	-
Claudette	TS	2021	Houma, LA	-
Fred	TS	2021	Mexico Beach	Bay
Ida	4	2021	LaFourche Parish, LA	-

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10.2 Strategies and Tactics

Several of the smart city strategies and tactics previously identified support identifying (such as flood sensors) and providing traveler information services to reduce evacuation response and clearance times. Other strategies and tactics are also available.

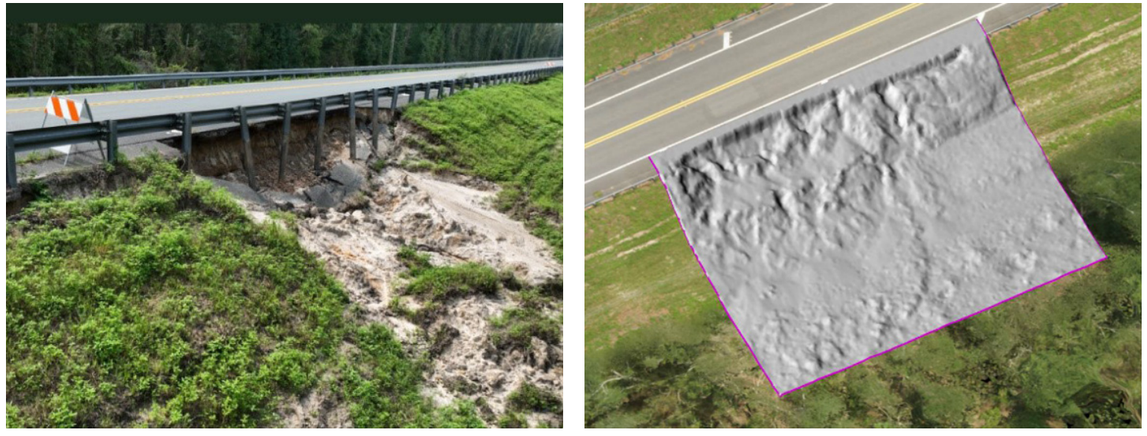
Unmanned Aerial Systems (UAS)

UAS, Unmanned Aerial Vehicles (UAV) or drones are useful technologies to support all agencies during disaster recovery. These services include not just visual inspections but can be used to determine used to determine important intelligence more efficiently and effectively.

> ***Drones can provide rapid service in emergencies, meaning they are the first to arrive at the location. Traditional first responders may take longer, especially in sites with difficult access. Drones can quickly and efficiently survey the area, provide information to emergency responders, and even perform specific tasks, such as delivering medical supplies or dropping water on a fire. Using drones as first responders can help save lives and reduce the impact of emergencies by providing immediate assistance and information. By being equipped with specialized sensors and tools, drones can provide real-time data to help emergency responders make informed decisions and allocate resources more effectively.*** *https://votix.com/wp-content/uploads/2024/01/VOTIX-Drone-as-First-Responders-DFR.pdf*

Drones can be used with Light Detection and Ranging (LiDAR) sensors to measure conditions in the field. A recent project completed by Smart North Florida leveraged drones equipped with LiDAR to estimate the cubic volume of eroded area for fill, the amount of asphalt effected, and length of guard rail effected by erosion/washout caused by a recent storm at six locations. This project demonstrated that the quantities needed can be estimated with an acceptable level of accuracy to deployment maintenance contractors to make repairs. An example is provided in **Figure 28**.

FIGURE 28: VOLUMETRIC FILL ESTIMATES USING DRONES



Drones can be used to estimate the volume of debris for removal during recovery efforts. Accurate estimates of the volume of debris are needed for federal reimbursement by the Federal Emergency Management Agency (FEMA). Following Hurricane Ivan there were significant disputes between local agencies and FEMA.

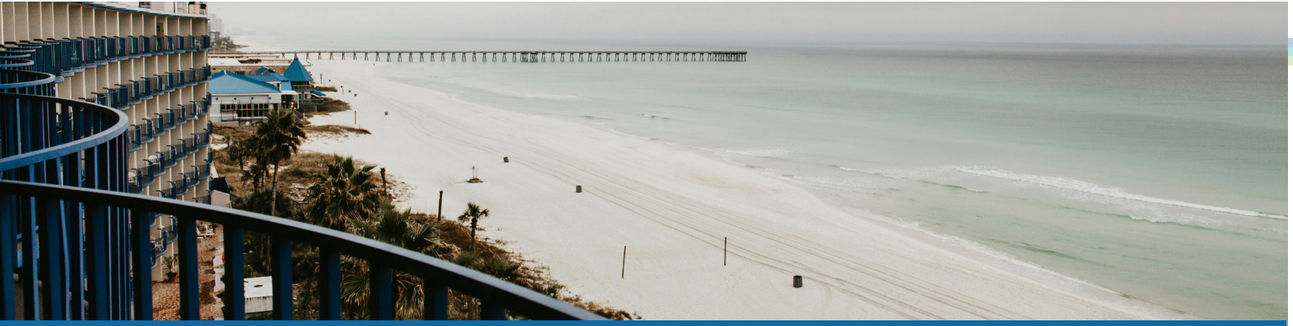
Aerial and underwater structural inspections can also be performed using drones to reduce exposure of field personnel to potential unsafe conditions. These inspections can apply to

- Bridges
- Buildings
- Roadways
- Overhead electrical and other utilities

Drones can also be used to provide equipment such as defibrillators. Emergency medical delivery services are being piloted throughout the nation and in the Netherlands to deliver defibrillators to heart attack patients when emergency vehicles can not arrive. For each minute after 8-minutes assistance is not provided during a heart attack, survival rates drop by 10% or more. (See https://www.skydio.com/customer-stories/anderson-pd-drone-to-help-monitor-heart-attack-response)

Digital Twins

Digital twins are virtual models of systems. Developing and maintaining digital twins can be expensive but can provide benefits during emergencies by having a strong baseline of information to assess changes.



CHAPTER 11

BRINGING IT ALL TOGETHER

Bringing It All Together

The Florida-Alabama TPO's vision is to leverage smart technologies to enhance the quality of life of residents and visitors. This Smart Region Plan focuses on the following use cases to leverage information technologies to enhance quality of life.

This smart region plan focuses on identifying smart region technologies that meet specific project needs that were identified through data analysis and stakeholder coordination. The focus is on proposing technologies that will meet these goals on a focused network selected based on the frequency of fatalities and serious injuries.

Tables 23, 24, and **25** summarize the locations, strategies, and tactics proposed in this plan. In total, 57 locations have been identified. **Table 23** represents the 27 locations that are present on the Safety Action Plan's High Injury Network. The 21 locations listed in **Table 24** are not part of the High Injury Network. **Table 25** features 9 locations where the roll-out of strategies and tactics will be region-wide. Additional engineering and studies are needed to determine the feasibility.

11.1 Index of Strategies and Tactics

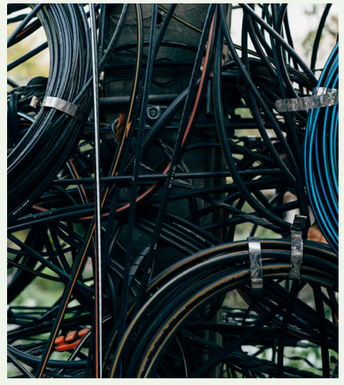
A variety of strategies and tactics have been recommended throughout this plan to address the transportation challenges faced by the Florida-Alabama TPO region. These strategies and tactics rely on technology, integrated communication, and data collection to provide adaptive, responsive, and effective solutions. By employing these strategies, the region can achieve the connectivity, safety, mobility, resiliency, and sustainable energy goals necessary to maintain an effective and functional transportation network for all citizens.

An Index of Strategies and Tactics can be found below that describes the recommendations of in this plan. Each term is defined and provides an overview of the strategies and tactics that may be implemented regionwide, by local jurisdictions, or by other stakeholder organizations to achieve the Florida-Alabama TPO's Smart Region goals. The Index is divided by color, with each color corresponding to a different category. The categories may be found below.

- Fiber Connectivity
- Safety
- Mobility
- Resiliency
- Energy

FIBER CONNECTIVITY

Fiber optic connectivity is utilized as communications infrastructure to transmit data quickly over great distances. Within the Florida-Alabama TPO region, fiber connectivity is the backbone of smart region technology. Technologies such as CCTV, VDS, Roadside Traveler Information, DMS, and other technological improvements are entirely reliant on fiber connectivity. Ensuring that fiber connectivity is robust along core corridors will allow the region to facilitate technology rollout needed to achieve a Smart Region.



VULNERABLE ROAD USERS

VRUs include bicyclists, pedestrians, and motorcyclists who utilized the roadway without the protection of a vehicle. In the Florida-Alabama TPO region, VRU crashes far exceed the national average, illustrating the need for swift action in the region. A number of strategies and actions may be undertaken to enhance roadway safety for VRUs.

- Pedestrian Hybrid Beacon
- In-Pavement Crosswalk Lighting
- Connected Vehicle to Vulnerable Road Users
- Rectangular Rapid Flashing Beacons
- Automated Detection Systems → Bicycle Loop Detector, Bicycle Video Detection, Microwave Radar Detection, Bicycle Detection Confirmation System

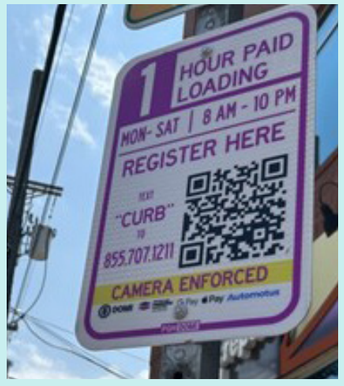
SPEED MANAGEMENT

Within the Florida-Alabama TPO region, speeding was involved in 36% of fatal and serious injury crashes. Speeding also contributed to crashes where the motorist lost control of the vehicle and left the roadway. Countermeasures to reduce speeding should be implemented to address these trends and reduce crashes overall.

- Dynamic Speed Feedback Signs
- Dynamic Curve Warning System
- In-Pavement Lights Through Curves
- Variable Speed Limit Signs

CONGESTION AND INCIDENT MANAGEMENT

A variety of tools may be utilized to ease congestion and bottlenecks in major corridors within the Florida-Alabama TPO region.



- Surveillance and Incident Management Systems
- Advanced Traveler Information Systems
- Active Traffic Management Systems
- Transit Signal Priority
- Dynamic Detours
- Queue Warning Systems
- Parking and Curb Management → Performance Based Dynamic Parking Pricing, Smart Loading Zones

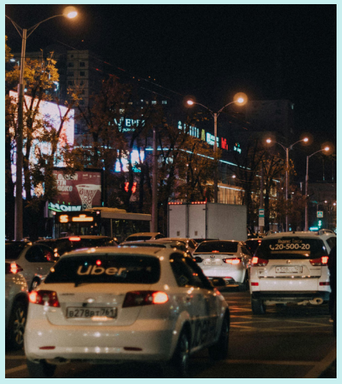
BASE ACCESS STRATEGIES

The Department of Defense is the largest direct employer within the Florida-Alabama TPO region, with a number of military installations existing within the region. Ensuring that direct and efficient access to these military installations is maintained is of paramount importance for regular operations and scenarios requiring urgent response.

- Arterial Traveler Information Systems
- Priority Phase During Quick Response Scenarios
- Temporary Alternative Gate Configuration

MOBILITY FOR THE UNDERSERVED

Several strategies may be undertaken to enhance transportation for historically underserved populations.



- Expand Fixed Route Service
- Incentivize Shared Vehicles
- Incentivize Transportation Network Companies
- Incentivize Mobility for Remote Care

ROAD WEATHER INFORMATION SYSTEMS

Road Weather Information Systems (RWIS) are data collection systems that can be used to consolidate data on flooding events within the Florida-Alabama TPO region. This data can be utilized to provide engineers and planners with better information to assess design decisions and improve building standards to create more resilient infrastructure. RWIS may also be used to inform decisions about standards relating to new minimum elevations for critical infrastructure, including roadway and sewage infrastructure.

RESILIENT CORRIDOR STUDY

RCS can be utilized to identify weaknesses within the transportation system. Within the Florida-Alabama TPO region, RCS may focus on the exposure of roadways assets to flooding events, whether from rain events, hurricanes, or sea-level rise projections. Corridor studies may be implemented to prepare and fortify roadways for future conditions.

EV CHARGING

Electric vehicle usage has a myriad of benefits, including reduction in fossil fuel usage, increased energy efficiency, reduced demand for foreign fuels, decreased air pollution, reduction in vehicle noise, and a decrease in greenhouse gas emissions. Ensuring that EV charging infrastructure is widely available within the Florida-Alabama TPO region can support the adoption of electric vehicles. Charging infrastructure should be public or managed by authorized commercial motor vehicle operators, and should be located near AFCs or the Interstate Highway System to support motorists' charging needs. Gaps in existing charging infrastructure should be addressed to support EV readiness, and locations that lack infrastructure should be considered high-priority.

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Smart Regions Locations also on the High Injury Network

TABLE 23: HIN SUMMARY OF NEEDS

County	Corridor	From	To	Fiber Connectivity	Vulnerable Road Users	Speed Management	Congestion and Incident Management	Base Access Strategies	Mobility for Underserved	RWIS	Corridor	EV Charging	Analytics Platform
Escambia	Palafox Street	Main Street	Cervantes Street	●									
Escambia	SR-10/Alt. US-90 9-Mile Road	Beulah Road	Unfunded Gap SUN Trail		●								
Escambia	SR-10/Alt. US-90 9-Mile Road	Bowman Avenue	Unfunded Gap SUN Trail		●								
Escambia	SR-10A/US-90 Mobile Highway	SR-297 Pine Forest Road	SR-295 Fairfield Drive	●									
Escambia	SR-10/US-90	Alt. US-90 Davis Highway	Floridatown Road								●		
Escambia	SR-10/US-90 N. Davis Highway	Scenic Highway	Pea Ridge Connector	●									
Escambia	SR-291 Davis Highway	SR-295 Fairfield Drive	SR-296 Brent Lane				●						
Escambia	SR-291 Davis Highway	SR-296 Brent Lane	SR-10/US-90 Scenic Highway	●			●						
Escambia	SR-291 MLK Parkway	SR-30/US-98 Cervantes Street	SR-295 Fairfield Drive				●						
Escambia	SR-295 Navy Boulevard/Duncan Road	Bayou Grand Bridge	SR-30/US-98					●					
Escambia	SR-295 Navy Boulevard/Duncan Road	Radford Boulevard	SR-292 Gulf Beach Highway					●					
Escambia	SR-296 Brent Lane	SR-95/US-29 Palafox Street	SR-95 Pensacola Boulevard	●									
Escambia	SR-296 Michigan Avenue	SR-10/US-90 Mobile Highway	Pipeline Road	●									
Escambia	SR-399 Pensacola Beach Boulevard	Bridge Over Santa Rosa Sound								●			
Escambia	SR-95 Pensacola Boulevard	W Street	SR-296 Brent Lane	●									
Escambia	SR-95/US-29 Palafox Street	Cervantes Street	SR-752 Texar Drive	●									

TABLE 23: HIN SUMMARY OF NEEDS (continued)

County	Corridor	From	To	Fiber Connectivity	Vulnerable Road Users	Speed Management	Congestion and Incident Management	Base Access Strategies	Mobility for Underserved	RWIS	Corridor	EV Charging	Analytics Platform
Santa Rosa	Hamilton Bridge Road	Cora Street	Unfunded Gap SUN Trail		●								
Santa Rosa	Hamilton Bridge Road	Oakleaf Drive	Unfunded Gap SUN Trail		●								
Santa Rosa	SR-10/US-90 Caroline Street	Avalon Boulevard	Ward Basin Road	●									
Santa Rosa	SR-30/ US-98 Navarre Parkway	Sunrise Drive	Rosewood Drive	●									
Santa Rosa	SR-30/US-98	SR-281 Avalon Boulevard	Okaloosa County Line				●						
Santa Rosa	SR-30/US-98 Gulf Breeze Parkway	Tiger Point Boulevard	Sunrise Drive	●									
Santa Rosa	SR-30/US-98 Gulf Breeze Parkway	General Daniel "Chappie" James Jr. Bridge	Gondolier Boulevard	●									
Santa Rosa	SR-281 Avalon Boulevard	Bridge Over	Pensacola Bay							●			
Santa Rosa	SR-30/US-98 Gulf Breeze Parkway	General Daniel "Chappie" James Jr. Bridge	East Bay							●			
Santa Rosa	SR-4	CR-399 County Mill Road	SR-87			●							
Regional	SR-30/US-98	Georgia State Line	Gulf County Line								●		

Smart Regions Locations Not on the High Injury Network

TABLE 24: NON-HIN SUMMARY OF NEEDS

County	Corridor	From	To	Fiber Connectivity	Vulnerable Road Users	Speed Management	Congestion and Incident Management	Base Access Strategies	Mobility for Underserved	RWIS	Corridor	EV Charging	Analytics Platform
Escambia/ Santa Rosa	I-10	SR-10/IUS-90	SR-281								●		
Escambia	I-10	SR-297 Pine Forest Road	SR-95/US-29 Pensacola Boulevard			●							
Escambia	I-110	I-10 EB On Ramp				●							
Escambia	I-110	I-10 WB On Ramp				●							
Escambia	SR-173 Blue Angel Parkway	CR-292A Gulf Beach Parkway	Radford Boulevard					●					
Escambia	SR-295 Fairfield Drive	SR-10A/US-90 Mobile Highway	SR-752 Texar Drive	●									
Escambia	SR-296 Beverly Parkway	Pipeline Road	SR-95/US-29 Palafox Street	●									
Escambia	SR-95 Pensacola Boulevard	Kingsfield Road	9 & Half Mile Road	●							●		
Escambia	Parking Information System	Downtown					●						
Escambia	Public EV Charging	Westpoint Heritage										●	
Escambia	Public EV Charging	Edgewater										●	
Escambia	Public EV Charging	Pinehurst										●	
Escambia	Public EV Charging	Osceola County Club Estates										●	
Escambia	Public EV Charging	Oakhurst										●	
Escambia	Public EV Charging	Pine Springs Estates										●	
Escambia	Public EV Charging	Drummond Park										●	
Escambia	Public EV Charging	Carlisle Unit										●	
Escambia	Public EV Charging	Belvedere Park										●	

TABLE 24: NON-HIN SUMMARY OF NEEDS (continued)

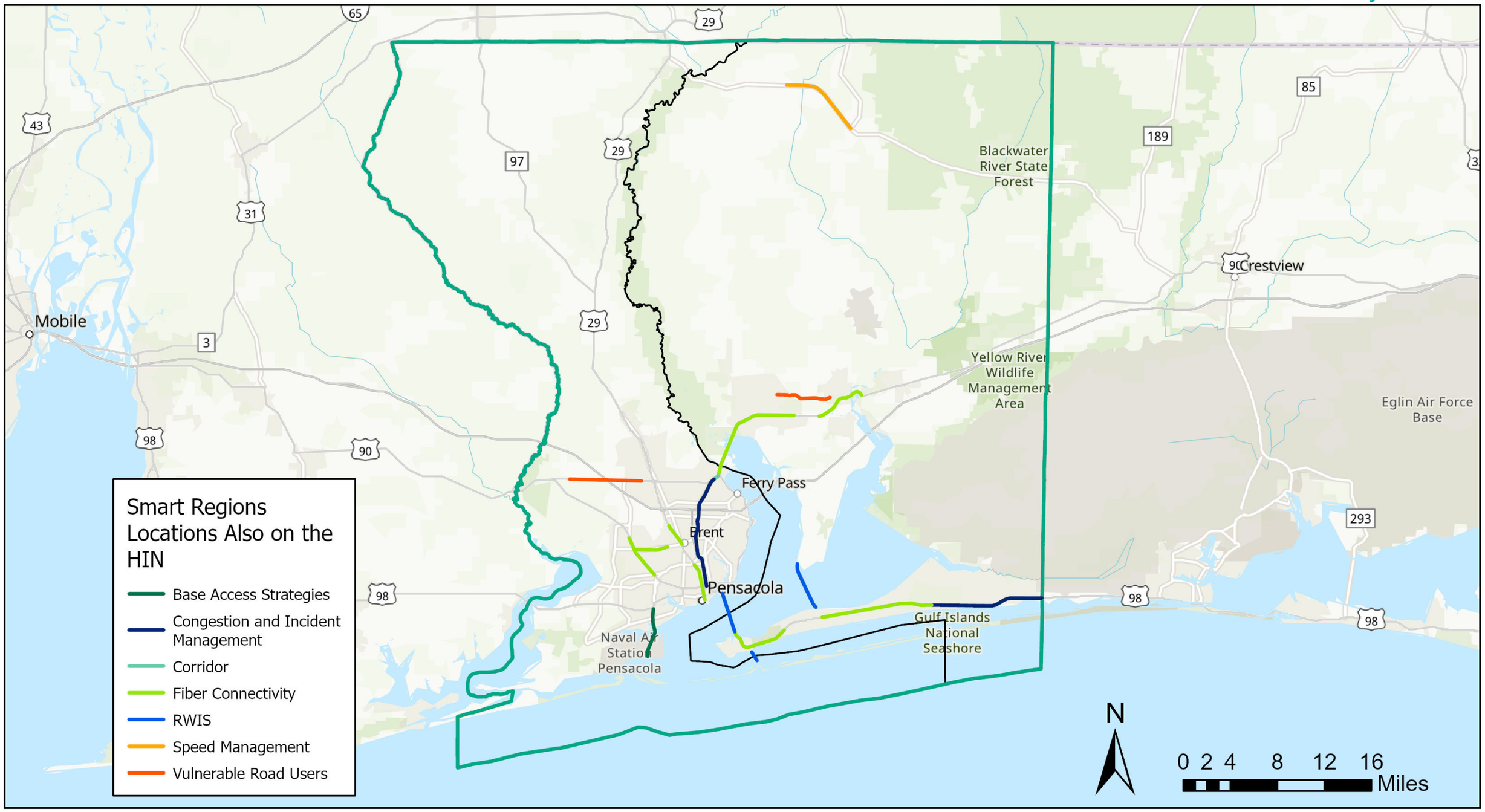
County	Corridor	From	To	Fiber Connectivity	Vulnerable Road Users	Speed Management	Congestion and Incident Management	Base Access Strategies	Mobility for Underserved	RWIS	Corridor	EV Charging	Analytics Platform
Escambia	Public EV Charging	Northpoint	Santa Rosa Sound									●	
Santa Rosa	SR-399 Florida Scenic Trail	Bridge Over								●			
Santa Rosa	Parking Information System						●						

Regional Locations

TABLE 25: REGIONAL SUMMARY OF NEEDS

County	Corridor	From	To	Fiber Connectivity	Vulnerable Road Users	Speed Management	Congestion and Incident Management	Base Access Strategies	Mobility for Underserved	RWIS	Corridor	EV Charging	Analytics Platform
Regional	Enhance Multilingual Services								●				
Regional	Expand Fixed Route Services								●				
Regional	Improve Access to Community Resources								●				
Regional	Incentivize Mobility for Remote Care								●				
Regional	Incentivize Shared ownership								●				
Regional	Incentivize TNCs								●				
Regional	Information Technology Solutions								●				
Regional	Promote Carpooling								●				
Regional	Big Data Analytics Platform												●

MAP 23: SMART REGIONS LOCATIONS ALSO ON THE HIGH INJURY NETWORK



MAP 24: SMART REGIONS LOCATIONS NOT ON THE HIGH INJURY NETWORK