CAPE FEAR

Moving Forward 2045

METROPOLITAN TRANSPORTATION PLAN

WILMINGTON URBAN AREA MPO
DRAFT PLAN, SPRING 2020

CAPE FEAR

Moving Forward 2045

METROPOLITAN TRANSPORTATION PLAN

WMPO

WILMINGTON URBAN AREA MPO

DRAFT PLAN, SPRING 2020

Foreword

The WMPO Board appointed the Citizens Advisory Committee (CAC) to guide the development of the Cape Fear Moving Forward 2045 Metropolitan Transportation Plan. The CAC invested numerous hours in meetings, exploring new and innovative transportation developments, and studying current population and transportation data. We considered the likely role that new technologies will play during the life of the 2045 plan. These sources of information were combined with opinions from the citizens of the region who strongly voiced the need for multimodal and innovative transportation solutions in the coming years. Understanding that the future of transportation in the Cape Fear region will look much different than today, both in available transportation options and how people choose to move, the CAC hoped to develop a vision and goals for the plan that reflected a changing transportation landscape. The CAC recognizes that the immediate transportation needs of today may be changed by 2045. The CAC also recognizes constraints in innovative transportation planning from both the federal and state governments and urges caution in vast expenditures on facilities that may become outdated within the planning horizon of 2045. The projects contained within were developed based on current data and historical information. The committee hopes and encourages a shift in both thinking and transportation policy for the future in order to better support a multimodal and innovative plan. It is the Committee's hope that this comprehensive long-range transportation plan provides appropriate guidance while facing the transportation challenges of today as well as the needs of tomorrow.

Sincerely,

The Cape Fear Moving Forward 2045 Citizens Advisory Committee

Acknowledgements

WMPO Board

David Piepmeyer, Chair, Pender County
Pat Batleman, Vice Chair, Town of Leland
Mike Alford, NC Board of Transportation
Mike Allen, Town of Belville
Neil Anderson, City of Wilmington
Jonathan Barfield, Jr., Cape Fear Public Transportation Authority/New Hanover County
John Ellen, Town of Kure Beach
Rob Zapple, New Hanover County
Hank Miller, Town of Wrightsville Beach
Charlie Rivenbark, City of Wilmington
LeAnn Pierce, Town of Carolina Beach
Frank Williams, Brunswick County
Eulis Willis, Town of Navassa

Citizen Advisory Committee

Laura Padgett, Chair, City of Wilmington
John Cawthorne, Vice Chair, Town of Kure Beach
David Hollis, Brunswick County
Web Bostic, New Hanover County
Sallie Rochelle, Pender County
Jason Windham, City of Wilmington
Patrick Boykin, Town of Carolina Beach
Harold King, Town of Wrightsville Beach
Stuart Smith, Town of Belville
Brayton Willis, Town of Leland
Valorie Hatten, Town of Navassa
Vanessa Lacer, Cape Fear Public Transportation Authority
Neal Andrew, NC Board of Transportation

Technical Coordinating Committee

WMPO Staff

Mike Kozlosky, Executive Director
Abby Lorenzo, Senior Transportation Planner
Zach Manfredi, Assoc. Transportation Planner
Rachel McIntyre, PLA, Assoc. Transportation Planner
Luke Foreman, GIS Analyst
Nick Cannon, Go Coast/TDM Coordinator
Tracy Manning, Executive Assistant
Greg Laughter, Traffic Counter
Bill McDow, Associate Planner
Regina Hopkins, Senior Accountant

Consultant

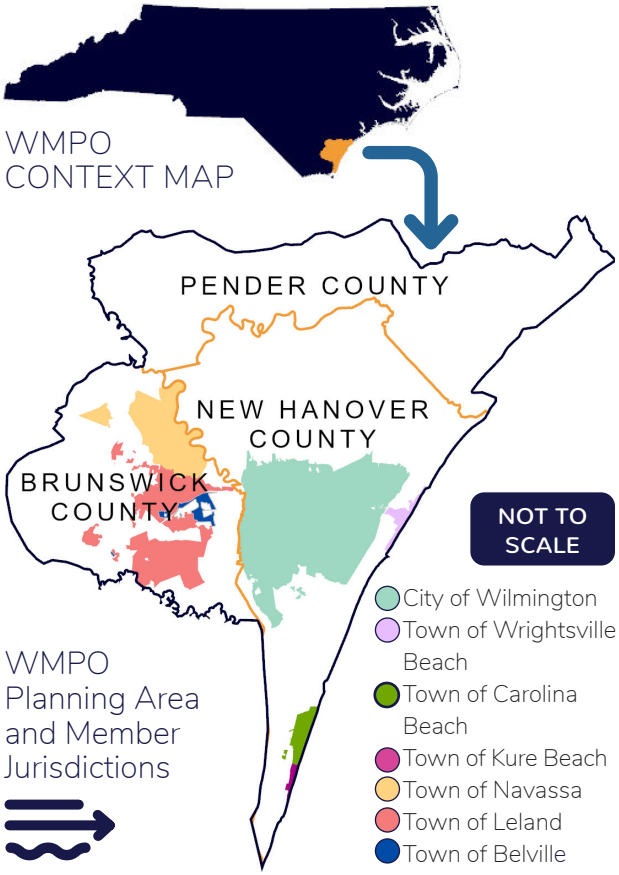
WSP

Table of Contents

CHAPTER 1:
Introduction

What is an MPO?

Metropolitan Planning Organizations (MPOs) are federally designated local transportation planning agencies that are responsible for conducting regional transportation planning in a continuing, cooperative, and comprehensive manner. MPOs were introduced by the Federal-Aid Highway Act of 1962 and are required to represent localities in all urbanized areas with populations over 50,000. The Wilmington Urban Area Metropolitan Planning Organization is the MPO recognized by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) for the Wilmington Urban Area. The MPO consists of representatives from the City of Wilmington (lead planning agency), Town of Wrightsville Beach, Town of Carolina Beach, Town of Kure Beach, Town of Belville, Town of Leland, Town of Navassa, New Hanover County, Brunswick County, Pender County, the Cape Fear Public Transportation Authority and North Carolina Department of Transportation. The WMPO's planning area is approximately 494 square miles and encompasses all of New Hanover County and portions of Brunswick and Pender counties.



What is Cape Fear Moving Forward 2045?

Cape Fear Moving Forward 2045 is the WMPO's Metropolitan Transportation Plan (MTP). The plan identifies the Wilmington region's transportation needs and provides a blueprint for the next 25 years.

Transportation Plans

A transportation plan is essential for building an effective multimodal transportation system. The implementation of any transportation project often requires several years to complete from concept to construction. Once a community determines that a project is needed, there are many detailed steps to be completed including public involvement, environmental analysis, design, funding, and finally construction. In Southeastern North Carolina, a roadway project often takes between 10 and 15 years from planning to construction; however, depending upon the complexity of the project and the associated environmental, community, and economic impacts, a project could take as many as 20 to 30 years or more to complete.

Metropolitan areas use a variety of plans to turn their transportation visions into reality. These plans start out as the present and future transportation needs of the community and are eventually prioritized and funded as the scope of the plan narrows. The MTP is used as a fiscally-constrained, long term vision between a Comprehensive Transportation Plan and funding in the Statewide Transportation Improvement Program (STIP)/MPO Transportation Improvement Program.

Types of Transportation Plans:

CTP: Comprehensive Transportation Plan (30+ years)

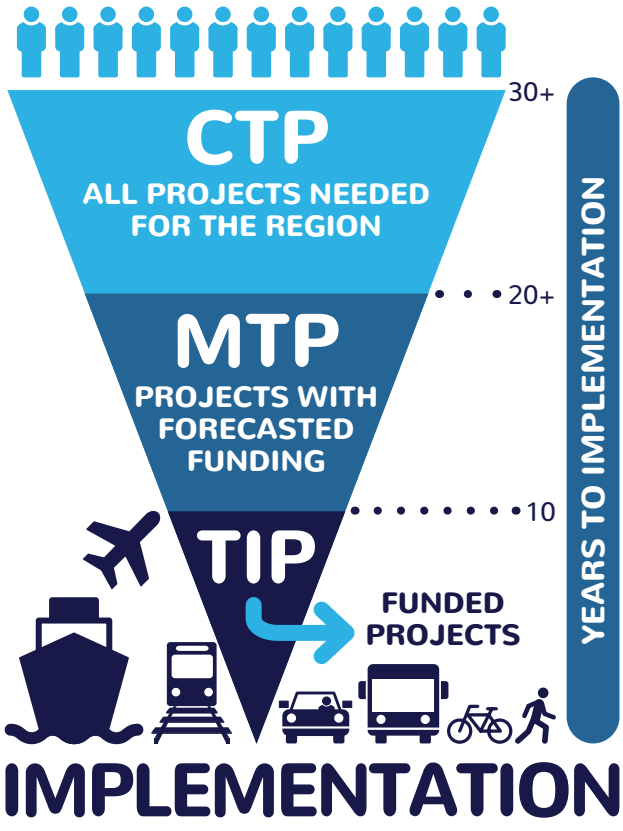
- Long term multimodal vision of how the transportation network should serve residents
- No priorities
- No identified funding

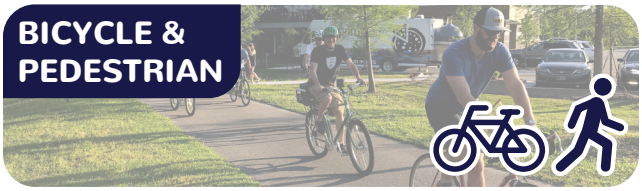
MTP: Metropolitan Transportation Plan (20+ years)

- Mid term vision that establishes goals and objectives for the transportation network
- Projects are prioritized at the regional/local level
- Revenue forecasts created to predict funding

TIP: Transportation Improvement Program (10 years)

- Short term transportation investments
- Prioritized at the state/local level
- Funding mutually approved by NCDOT and WMPO





Metropolitan Transportation Plans

The Metropolitan Transportation Plan (MTP) is also used to help inform decisions needed for the preservation, expansion, or operation of the multimodal transportation system. The MTP defines the policies, programs, and projects to be implemented over a minimum 20-year planning horizon, and is ultimately used to develop the MPO's and Statewide Transportation Improvement Programs (MPO TIP/STIP) through which many projects are funded. This plan assesses the current state of, and contains recommendations for, the following modes of transportation:

- Aviation
- Bicycle and Pedestrian
- Ferry and Water Transportation
- Freight and Freight Rail
- Public Transportation
- Roadway

While a project might not be first identified in the MTP, it is within this plan that a project begins to develop support within the region. Being included in the MTP means a project has been recognized as a regional priority that has potential funding. This can be a critical step towards a project being included in the TIP and then constructed. Regions like Wilmington must develop these plans at least every five years. These plans must be adopted by the MPO Board and must be formally amended if regionally significant transportation investments are added, deleted, or modified.

The MTP is also federally required to have a financial plan component that is fiscally constrained. This means that projects in this plan have been prioritized, and anticipated funding has been identified in order for them to be programmed. This is done so that programmed projects will not exceed anticipated funds over the life of the plan.

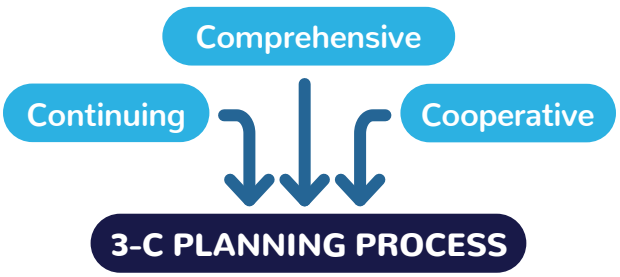
Additionally, being an urbanized area with a population over 200,000, the WMPO is designated a Transportation Management Area (TMA). In recognition of the greater complexity of transportation issues in large urban areas, additional planning tools are required, such as a Congestion Management Process (CMP). The purpose of the CMP is to systematically and continually address congestion as an integral part of the planning process, and implement strategies to reduce travel demand, increase capacity, and improve operations.

Federal Plan Requirements

The federal regulations that mandate the creation of metropolitan planning organizations also regulate the contents of, and process used for, the development of the Metropolitan Transportation Plan. 23 USC Chapter 1 – Federal-Aid Highways, Section 134 – Metropolitan transportation planning requires the plan development process to consider several critical factors such as projects and strategies that protect and enhance the environment, increasing safety and security, and preserving the existing transportation network. The section also stipulates the contents of the plan to include consideration of the following:

- A vision that meets community goals;
- A multimodal approach that provides for alternative modes such as public transportation, walking, and bicycling as well as highway projects;
- A minimum 20-year planning horizon;
- A financial plan that balances revenues and costs to demonstrate that the plan is financially responsible and constrained;
- An air quality analysis to show that forecasted emissions will not exceed air quality emission standards, when a region is subject to air quality conformity requirements; and
- A public involvement process that meets federal guidelines and is sensitive especially to those groups traditionally left out of the planning process.

The 3-C Planning Process



Federal regulation requires that the planning process be conducted utilizing the 3-C approach—continuous, cooperative, and comprehensive. Federal legislation also includes planning factors which identify primary considerations in transportation planning. Eight planning factors were originally outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and carried forward by MAP-21 (Moving Ahead for Progress in the 21st century), which was signed into law in 2012. An additional two factors were added in 2015 by the Fixing America's Surface Transportation (FAST) Act.

Cape Fear Moving Forward 2045 addressed and considered the ten current planning factors:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- Enhance travel and tourism.

These factors should be considered within the context of regional issues such as transportation system development, land use, employment, economic development, housing, community development, and the built and natural environment. The scale and complexity of these issues within the region may affect the degree of consideration given to each of the planning factors.

Performance-based Approach

MPOs are required to establish and utilize a performance-based approach to decision making within the metropolitan transportation planning process. The performance-based approach must support the following national goals: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduce project delivery delays. Each MPO must establish performance measures and targets in order to track progress toward the achievement of its goals and objectives.

Performance measures are specific, measurable attributes of performance which are used to assess implementation strategies. Performance measures can be monitored and tracked to determine progress toward a goal.

Examples of safety performance measures include:

- Number of crashes
- Number of fatalities
- Number of serious injuries

Performance targets identify a desired level of performance by defining specific critical amounts of progress expected over a designated time frame.

Example of a performance target:

Reduce the number of crashes that result in fatalities by 20% each year

Performance measures and targets are coordinated with public transportation providers as well as the State DOT to the maximum extent possible to ensure consistency. The WMPO works with NCDOT to adopt their performance measures and targets.

See Appendix B, Federal Regulations and Reporting Requirements, for more information on safety performance measures and performance targets

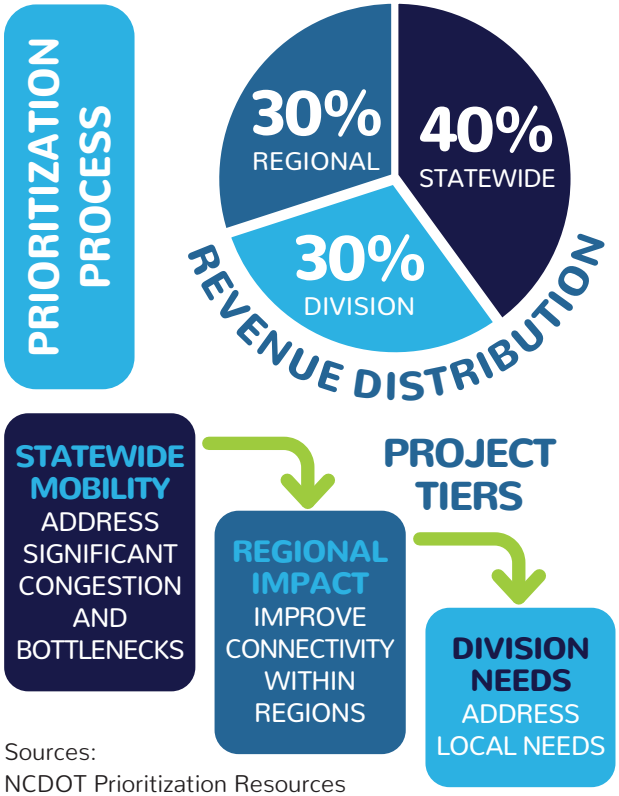
How will this Plan be Used?

Metropolitan Transportation Plans (MTPs) provide a financially constrained framework for implementing regional visions for multimodal transportation systems. Cape Fear Moving Forward 2045 will be the plan used by federal, state, and local governments to guide transportation projects in our region over the next 25 years. The plan will play a significant role in decision-making, including:

Programming Projects

Only projects that appear in a Metropolitan Transportation Plan (MTP) may be included in the federally funded portion of the MPO Transportation Improvement Program (MTIP) for funding. The MTIP outlines efforts from the MTP that are planned to be implemented over the next 10 years that involve state or federal funding.

The MTP bridges the gap between the regional comprehensive plan and Statewide Transportation Improvement Program (STIP). The STIP is prepared through a process called prioritization, governed by the Strategic Transportation Investments Law (STI). The law, passed in 2013, allows NCDOT to use its funding more efficiently and effectively to enhance the state's infrastructure, while supporting economic growth, job creation, and a higher quality of life. NCDOT and the MPO use a transparent, data-driven method for prioritizing transportation investment decisions. Projects are scored and ranked at the statewide mobility, regional impact, and division needs funding levels based on mode and facility classification.



Sources:
NCDOT Prioritization Resources
NCDOT STIP Development: P6.0 Fact Sheet

Designing Local Road Networks

MTPs chiefly address larger transportation facilities with regional impact. The projects in this plan identify a cross-section that represents the WMPO's suggested cross-section for these facilities. This information will be used during the scoping process. Communities can then use this larger network as a framework for planning local streets and other transportation facilities to connect to these larger facilities.

Making Land Use Decisions

In addition to allocating resources for specific transportation investments, local, state, and federal agencies will utilize this plan to ensure that land is strategically developed for these investments, and to coordinate land use and development decisions with planned infrastructure.

Identifying Projects for Further Plans and Studies

Cape Fear Moving Forward 2045 will be used by various agencies to identify future projects and investments that may require more in-depth plans and studies.

While the comprehensive transportation plan (CTP) outlines all of the transportation planning efforts the region would eventually like to see implemented, the Metropolitan Transportation Plan (MTP) outlines those efforts which are financially feasible within the horizon of the plan. Cape Fear Moving Forward 2045 has a 25-year planning horizon and includes lists of projects to guide future transportation infrastructure priorities in the region during this time frame. The plan also includes policies to guide action on transportation-related issues within the region over the next 25 years. The plan will be used to allocate resources for specific aviation, bicycle and pedestrian, ferry and water transportation, freight and freight rail, public transportation, and roadway projects listed as well as Transportation Demand Management (TDM) and Transportation Systems Management and Operations (TSMO).

Sources:

- FHWA FAST Act (2015)
  https://www.fhwa.dot.gov/fastact/
- NCDOT: Strategic Transportation Investment Law: Article 14B (2013)
  https://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_136/Article_14B.pdf
- NCDOT: Guidance for North Carolina's Comprehensive Transportation Planning (CTP) Process (2015)
  https://connect.ncdot.gov/projects/planning/TPB%20Documents/MASTER-15Apr24-CTP-Guidance-POSTED2.pdf
- United States Code of Federal Regulations, Title 23: Highways, Part 450.306: Scope of the Metropolitan Planning Process
- NCDOT Prioritization Resources
  https://connect.ncdot.gov/projects/planning/Pages/PrioritizationResources.aspx
- NCDOT State Transportation Improvement Program Development: P6.0 Fact Sheet
  https://www.ncdot.gov/initiatives-policies/Transportation/stip/development/Documents/p6-fact-sheet.pdf

CHAPTER 2:

About the Wilmington Region

1. The WMPO Planning Area
2. Population in the Region
3. Socioeconomic Conditions
4. Trends and Projections

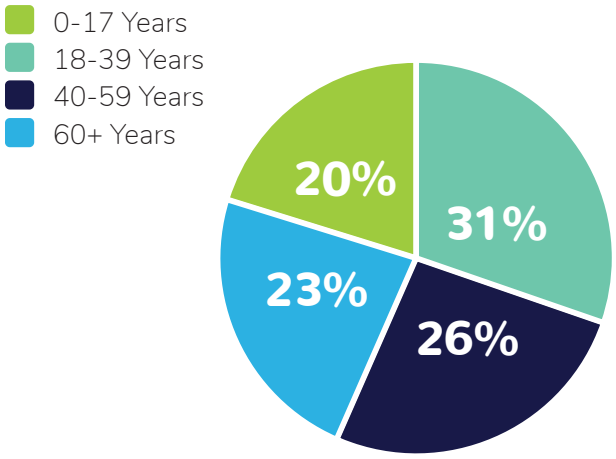
The WMPO Planning Area

The WMPO Planning Area is currently 494 square miles encompassing all of New Hanover County and portions of Brunswick and Pender counties. Municipalities within the boundary include the City of Wilmington, the Town of Belville, the Town of Carolina Beach, the Town of Kure Beach, the Town of Leland, the Town of Navassa, and the Town of Wrightsville Beach.

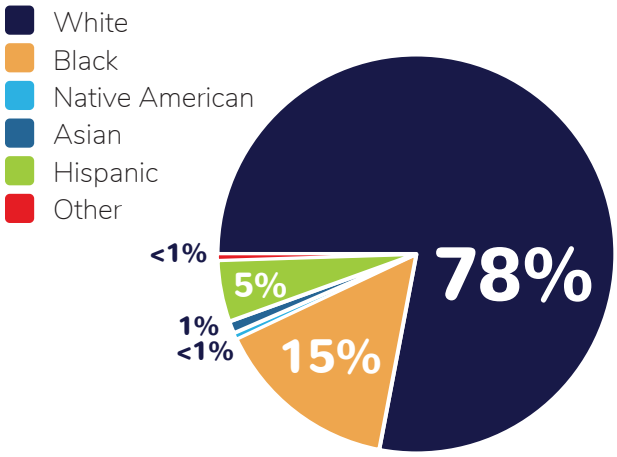
Population in the Region

The WMPO boundary area population is estimated at approximately 280,000 residents, and seasonally the area is impacted significantly by non-resident populations of students and visitors. Population density for the area is 2,083 persons per square mile. See pages 11 and 12 for mapping of population density and household density, respectively. See page 17 for mapping of projected population density change over the planning horizon of this plan.

Age Breakdown



Race Breakdown



Socioeconomic Conditions

The average household income for the WMPO area is $55,000/year. Twenty-eight percent (28%) of residents within the WMPO boundary hold a Bachelor's degree or higher. Eighteen percent (18%) of households in the region fall below the poverty line. Seven percent (7%) of households do not own a vehicle.

Trends and Projections

The WMPO Travel Demand Model predicts a population of 422,748 residents by the year 2045. The model used over 600 Traffic Analysis Zones (TAZs) and 11 data points to predict population, household, and employment growth in the region.

See Appendix A, Background and Demographics, for a detailed description of how the Travel Demand Model utilized Traffic Analysis Zones to make predictions for 2045.

MAPS:

FIGURE 2-1:
POPULATION DENSITY

FIGURE 2-2:
HOUSEHOLD DENSITY

FIGURE 2-3:
EMPLOYMENT DENSITY

FIGURE 2-4:
AVERAGE HOUSEHOLD INCOME

FIGURE 2-5:
HIGHER EDUCATION IN THE REGION

FIGURE 2-6:
ZERO-VEHICLE HOUSEHOLDS

FIGURE 2-7:
PROJECTED POPULATION DENSITY CHANGE

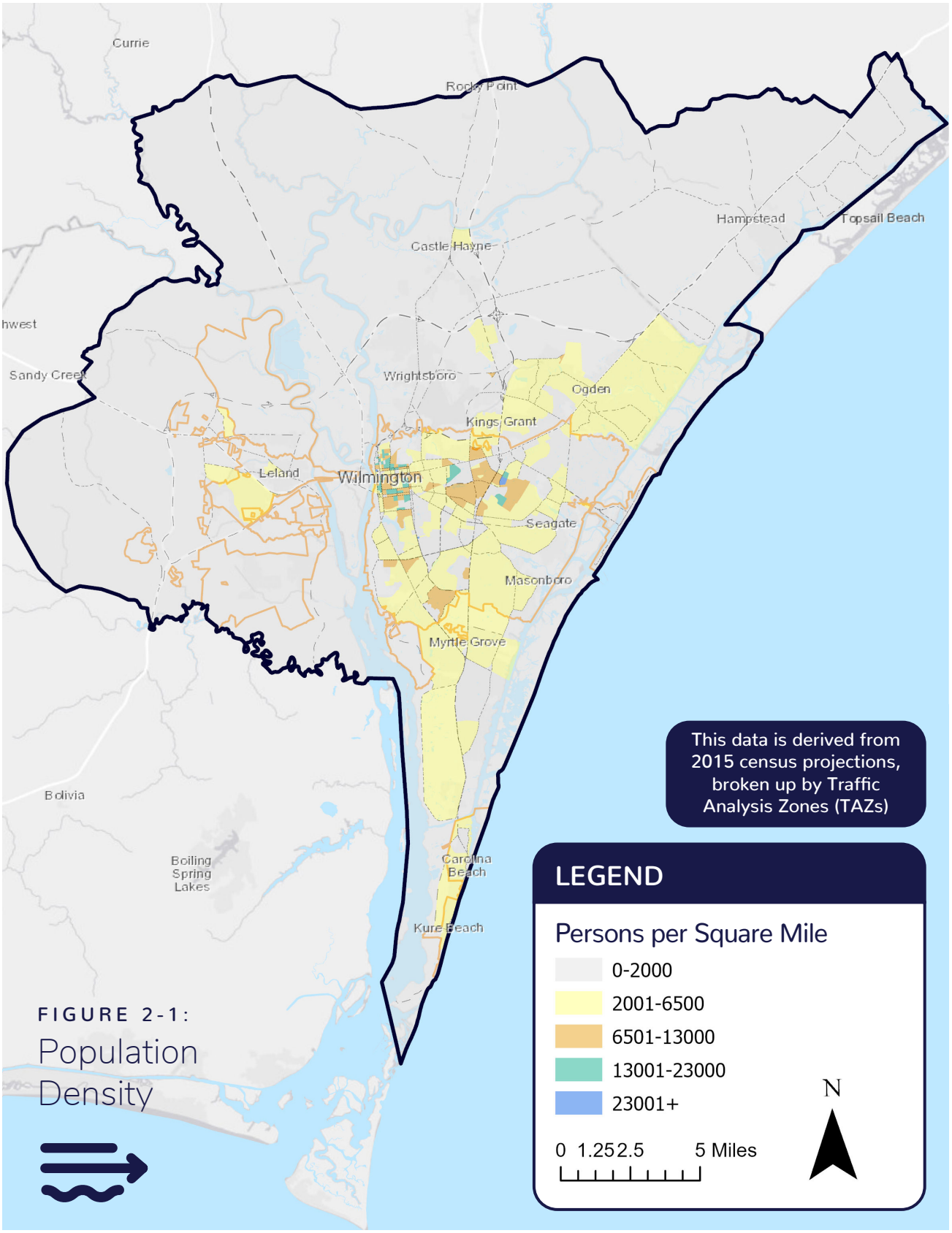


FIGURE 2-1:
Population Density

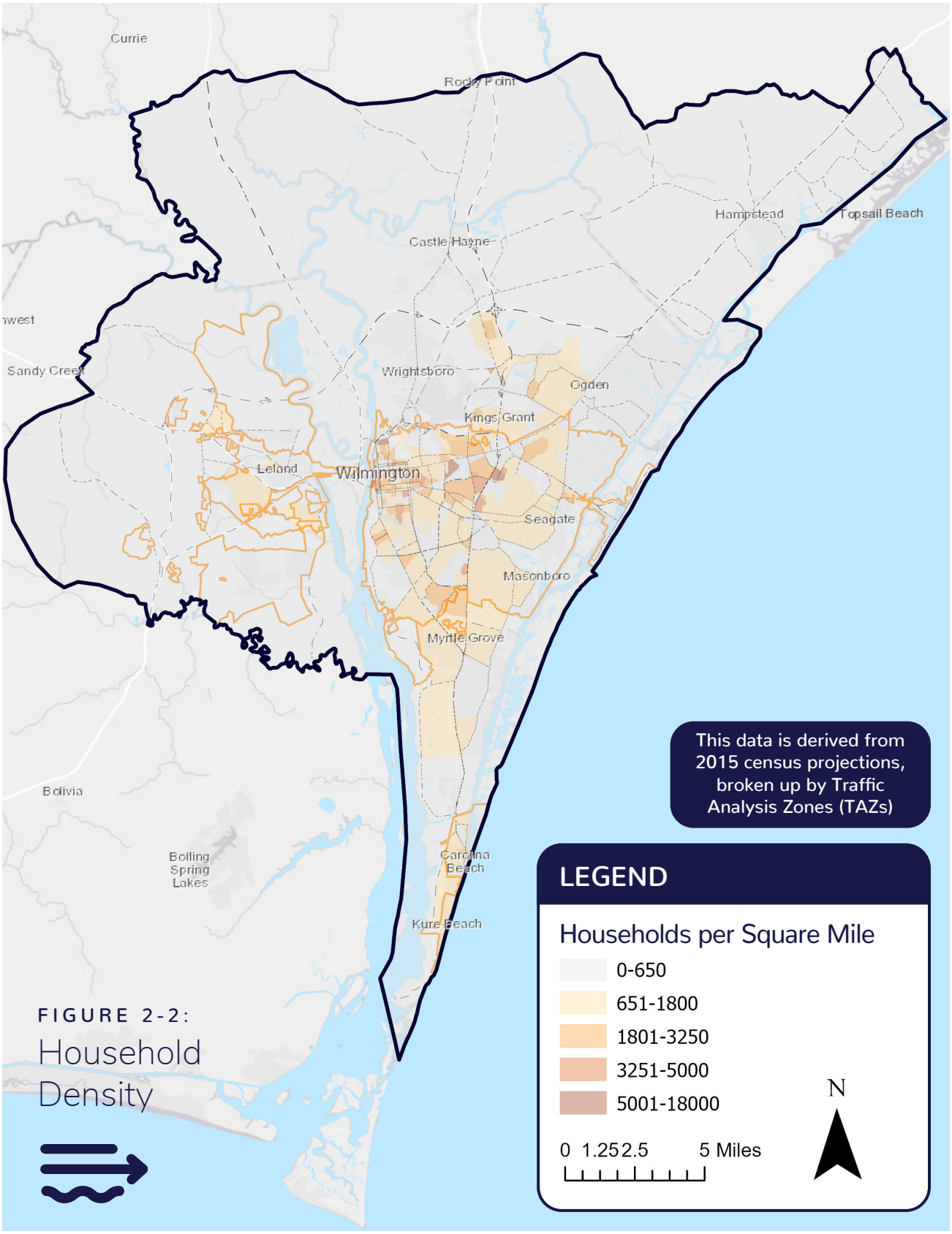


FIGURE 2-2:
Household Density

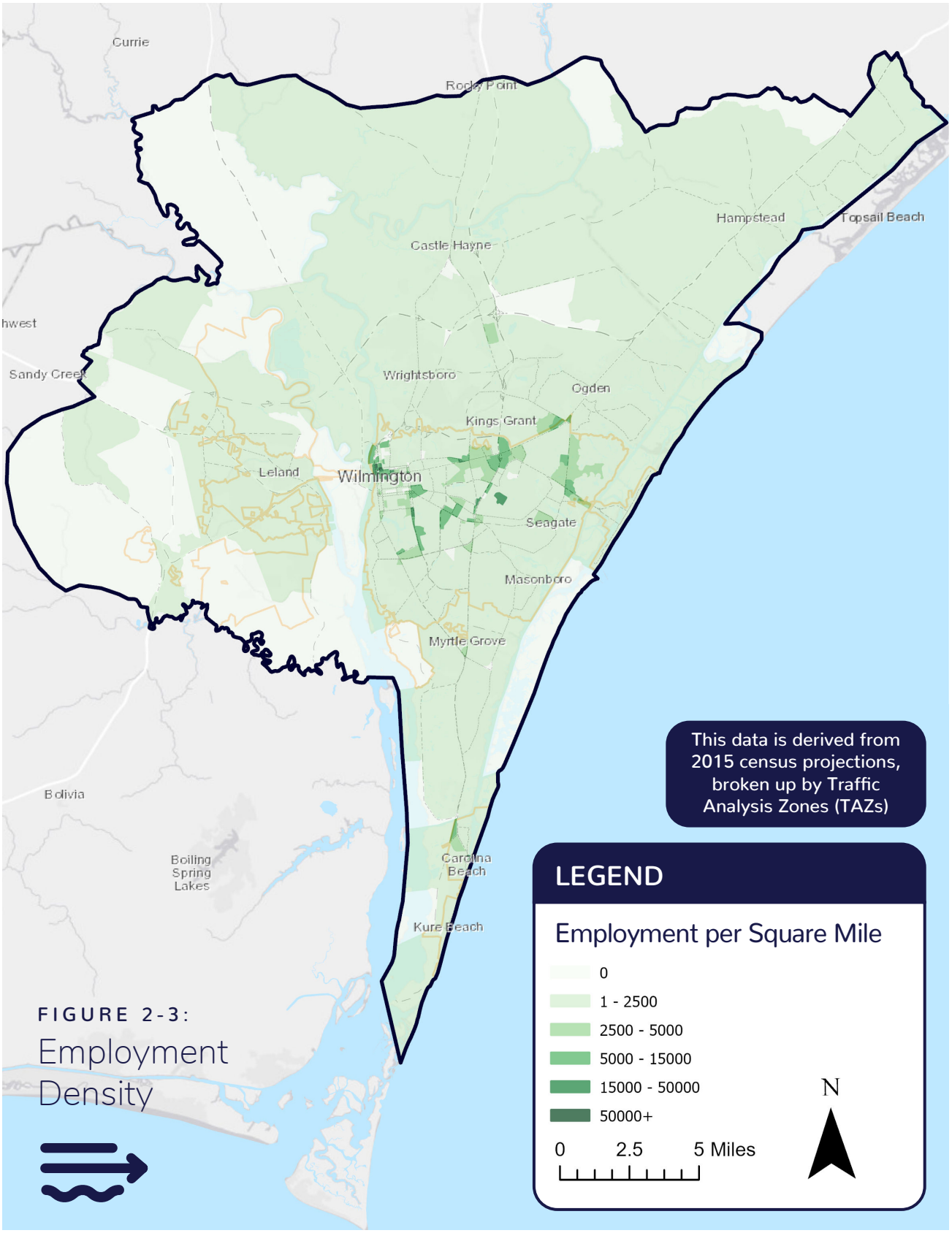


FIGURE 2-3:
Employment Density

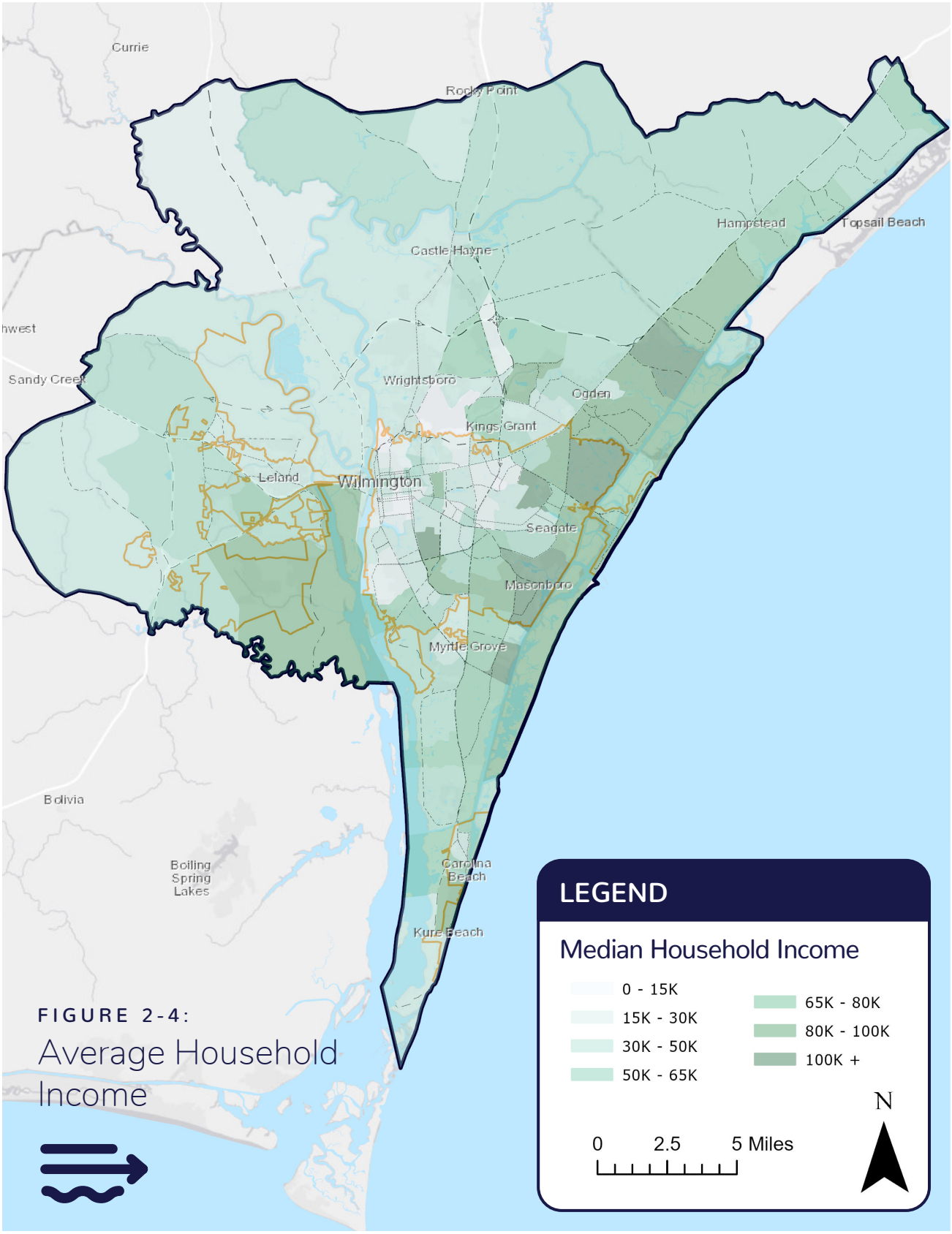


FIGURE 2-4:
Average Household Income

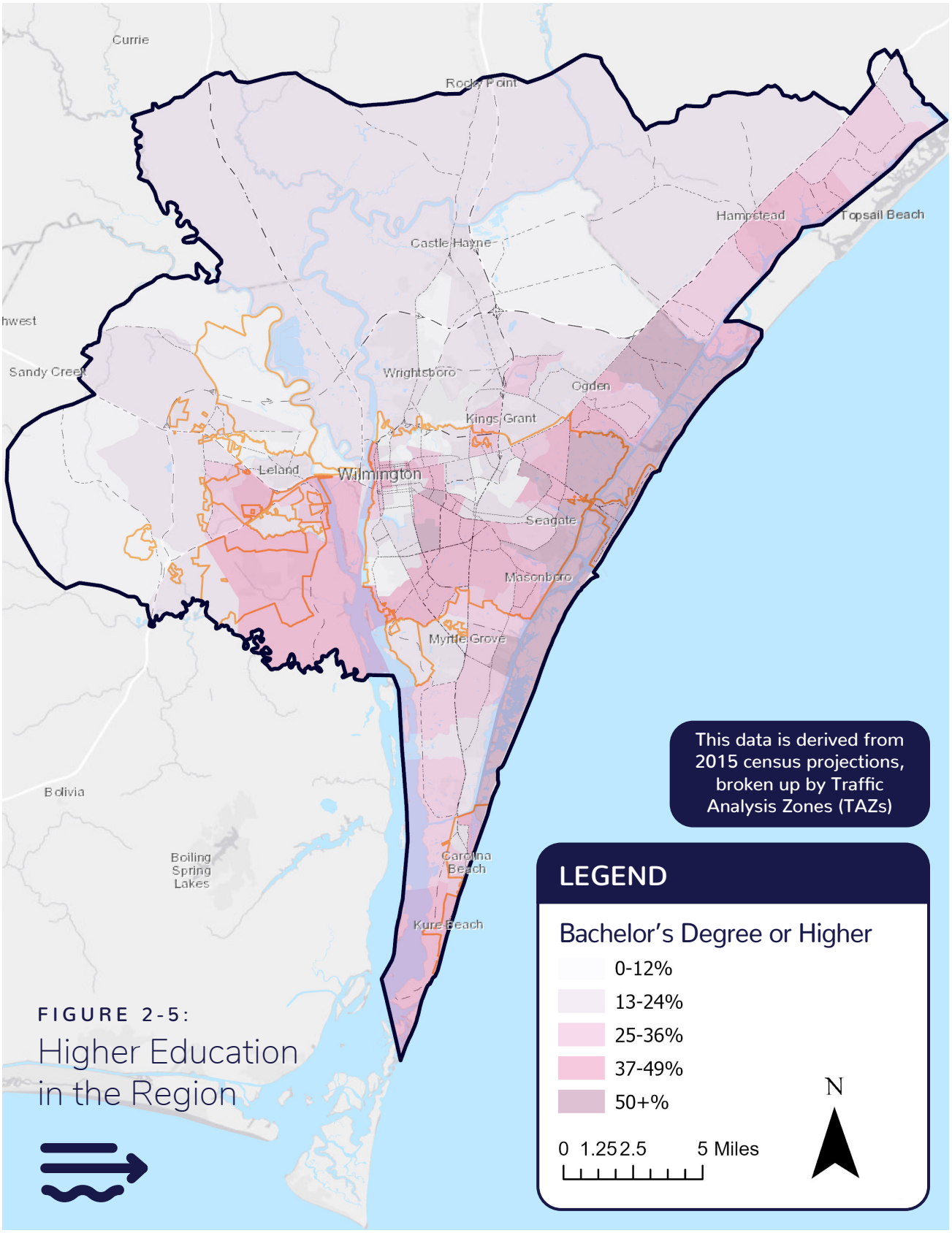


FIGURE 2-5:
Higher Education in the Region

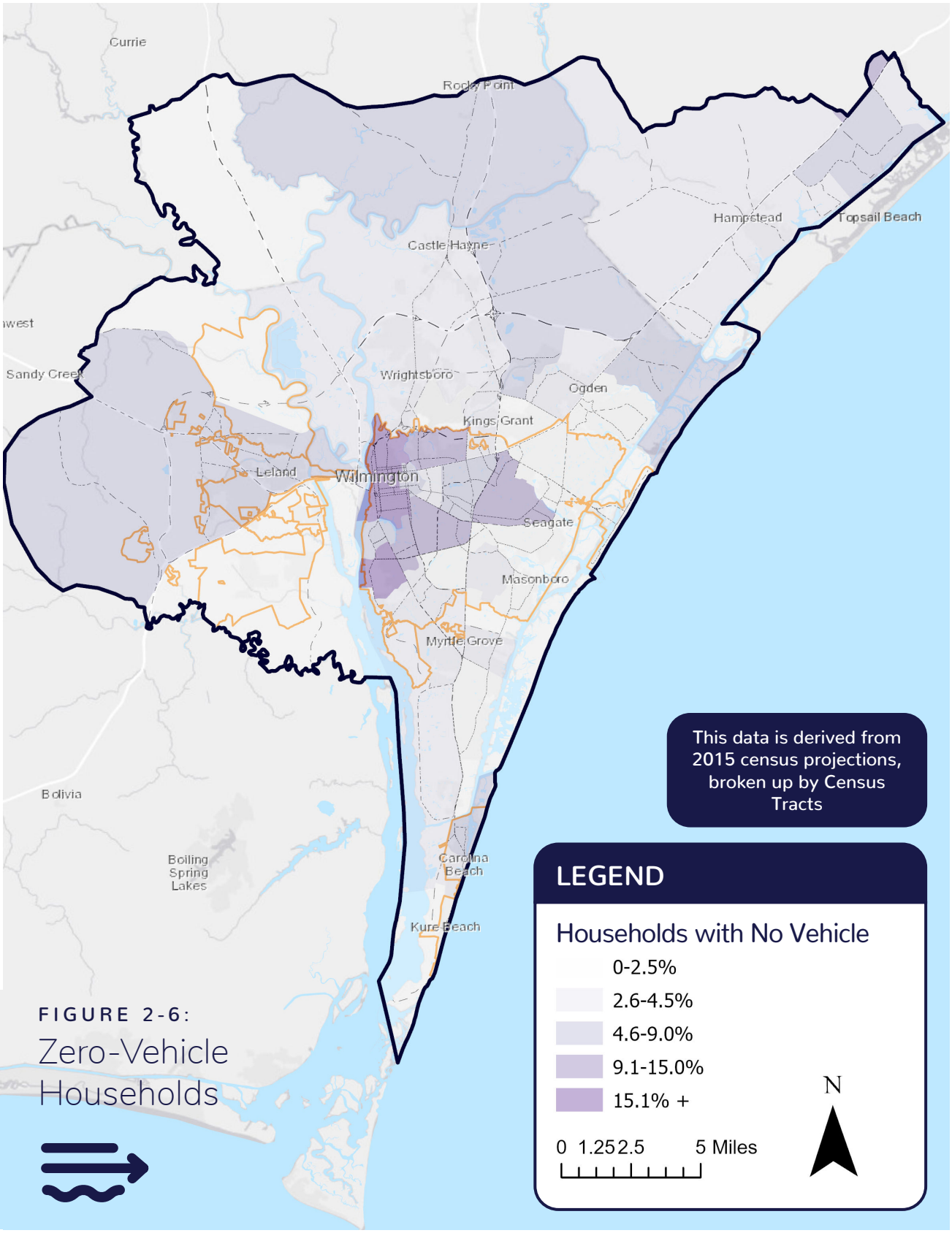


FIGURE 2-6:
Zero-Vehicle Households

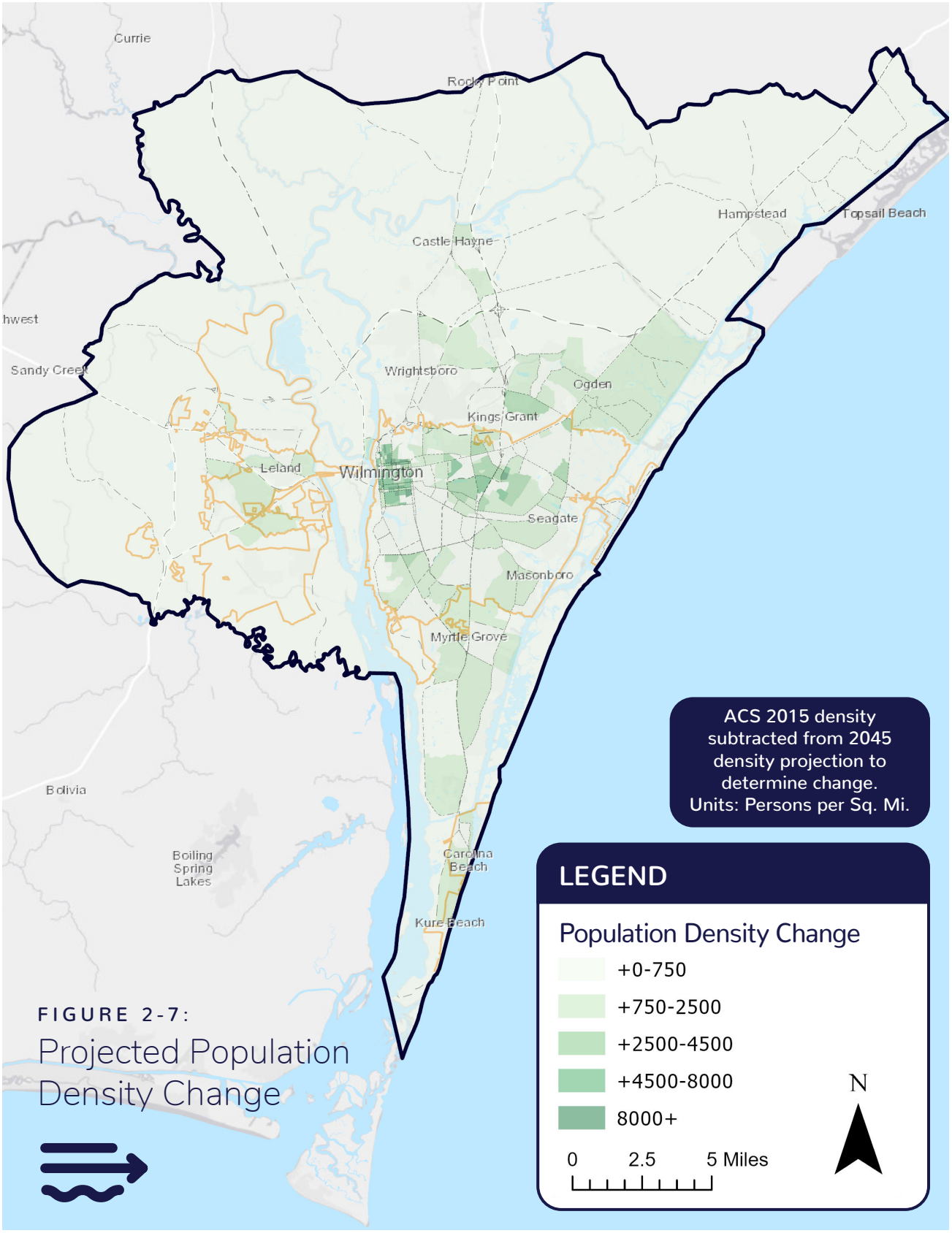


FIGURE 2-7:
Projected Population Density Change

Sources:

- United States Census Bureau: 2010 Census Data (2010)
  https://www.census.gov/2010census/data/

CHAPTER 3:

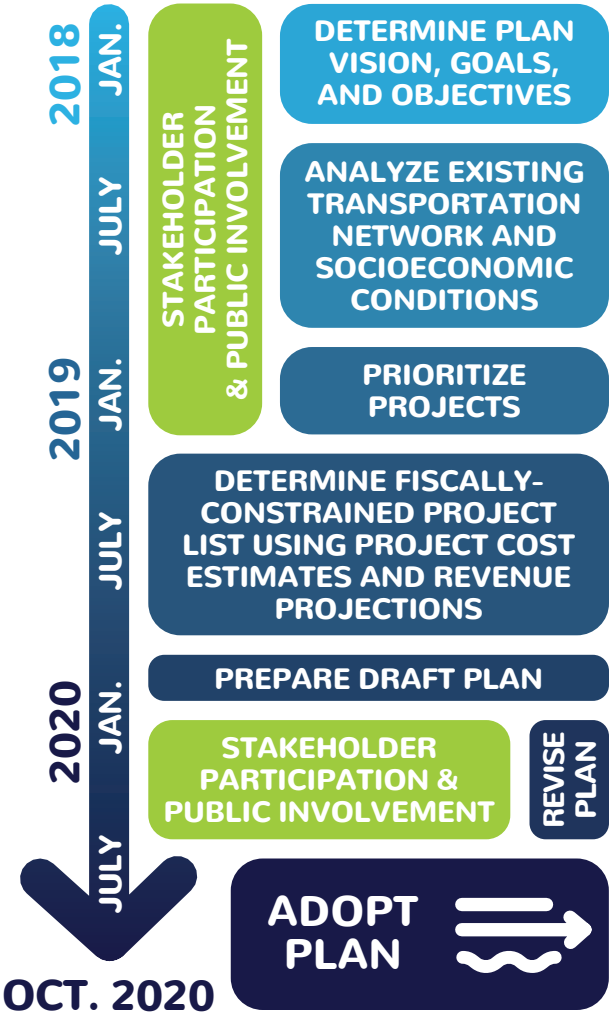
Public Involvement and the Plan Development Process

1. What is the CAC and what is its Role?
2. The Plan's Vision and Goals
3. Public Outreach and Participation
4. Plan Considerations

Public participation is a critical component in the development of this plan. The WMPO's Public Participation Plan (PPP) outlines the public involvement process for the development of the Metropolitan Transportation Plan. This plan includes a variety of tools and methods of distributing information to the public and gathering feedback. The PPP underscores the importance of public participation in all stages of the transportation planning process. The methods contained within the policy are designed to ensure the priorities of the public are incorporated into transportation decisions.

What is the CAC and what is its Role?

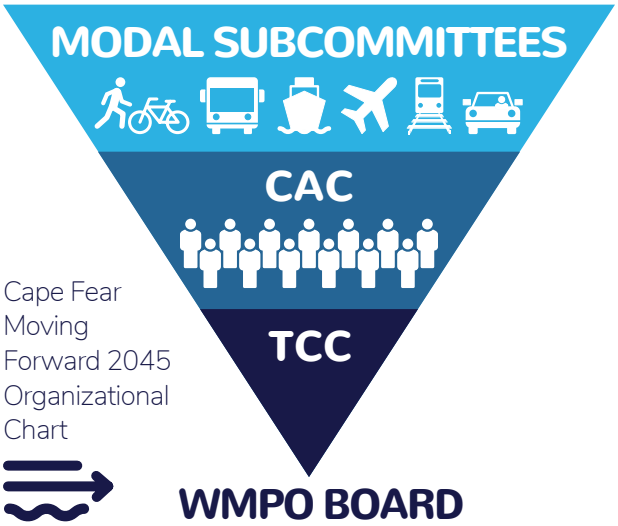
The WMPO employed the use of a Citizens Advisory Committee (CAC) to oversee and guide the development of Cape Fear Moving Forward



2045. The 13-member, volunteer committee was comprised of citizen representatives, appointed by each Board member, representing various community and civic organizations, professional and neighborhood associations, and the private sector. The CAC was instrumental in providing a citizen review and approach to the plan's development.

The Plan's Vision and Goals

The CAC developed a vision statement and goals to guide the development of the plan. The Cape Fear Moving Forward 2045 vision statement and goals can be found below.



Cape Fear Moving Forward 2045 Organizational Chart

VISION

The 2045 MTP will plan for a safe, realistic, efficient, and reliable multimodal transportation network that embraces innovation and is environmentally and socially responsible.

EFFICIENT

Transportation network allows for time savings, interconnected across all modes of transport

RELIABLE

Dependable travel times and connections

MULTIMODAL

Alternative modes of transportation available for most trip types

INNOVATIVE

Responsive to changing concepts and technologies in both design and construction

SAFE

Promotes transportation projects that increase the safety of all users by decreasing injury and increasing user awareness

REALISTIC

Appropriately utilizes available funding resources and does not exceed the financial means of the region

ENVIRONMENTALLY AND SOCIALLY RESPONSIBLE

Accessible, sustainable, and equitable transportation solutions actively communicated to increase public awareness and collaboration

Federal Planning Factors

Chapter 1 introduced ten planning factors outlined in federal transportation legislation. These planning factors, which have evolved over time, are a foundational part of the transportation planning process and were considered throughout the development of this plan's vision and goals. Two new planning factors of special significance to our region have been added since the 2040 MTP. These include: improve the resiliency and reliability of the transportation system; and enhance travel and tourism. An evaluation of Cape Fear Moving Forward 2045 goals in relation to the planning factors is shown below.

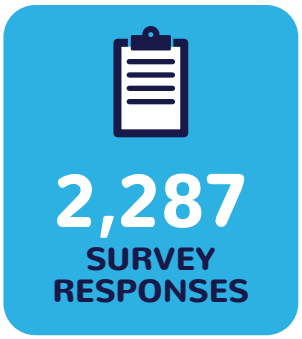
FEDERAL PLANNING FACTORS	CAPE FEAR MOVING FORWARD 2045 GOALS						
							
Support the economic vitality of the metropolitan area		●		●	●	●	●
Increase the safety of the transportation system	●				●	●	
Increase the security of the transportation system	●				●	●	
Increase accessibility and mobility of people and freight			●		●	●	●
Protect and enhance the environment, improve quality of life	●	●	●	●	●	●	●
Enhance the integration and connectivity of the transportation system			●		●	●	●
Promote efficient system management and operation	●	●	●	●		●	
Emphasize preservation of the existing transportation system		●		●	●		●
Improve the resiliency and reliability of the transportation system		●	●		●	●	●
Enhance travel and tourism	●	●	●		●	●	●

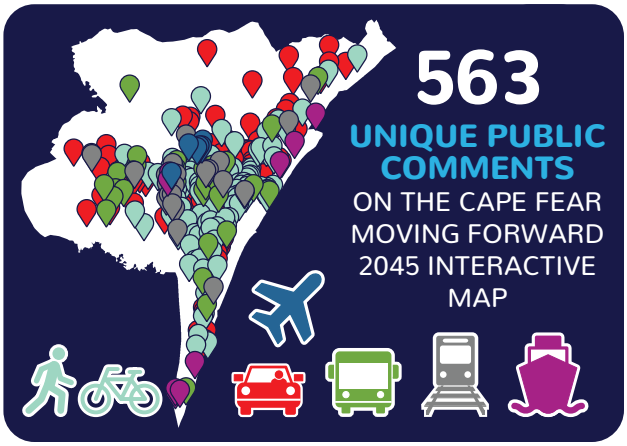
Public Outreach and Participation

Outreach for the plan officially kicked off on April 3, 2018 with an open house style meeting held at the New Hanover County Northeast Library Branch. The event featured speakers that included the Vice Chair of the WMPO Board, the Chair of the Citizens Advisory Committee, and a representative from FHWA. The event also unveiled two tools created by the WMPO to solicit public input: a 17-question transportation survey available online or as a hard copy, and in English and Spanish; and an online interactive mapping tool that allowed citizens to provide transportation related feedback associated with a geographic location. Both tools were accessible from the plan's website, CapeFearMovingForward2045.org.

Over the course of four months, from April 3, 2018 to July 31, 2018, the WMPO engaged in an extensive outreach process that included regional open houses, presentations to the governing boards of the WMPO's member jurisdictions, a presence at various farmers markets (6 total), and a broad media campaign that included multiple media interviews, written articles, and social media advertising. These activities emphasized the importance of citizens' ideas on current and future transportation needs while promoting the use of the transportation survey and interactive mapping application.

In order to reach traditionally underserved populations, the WMPO worked with the CAC and its planning partners such as the New Hanover County Senior Center and the Wilmington Housing Authority to identify successful methods of reaching those residents. A common barrier towards reaching underserved populations is language. In an attempt to bridge this barrier, the WMPO worked with UNCW to translate outreach materials into Spanish. The plan's website also allowed for the site to be translated into 104 languages. Another identified barrier was the media platform used for

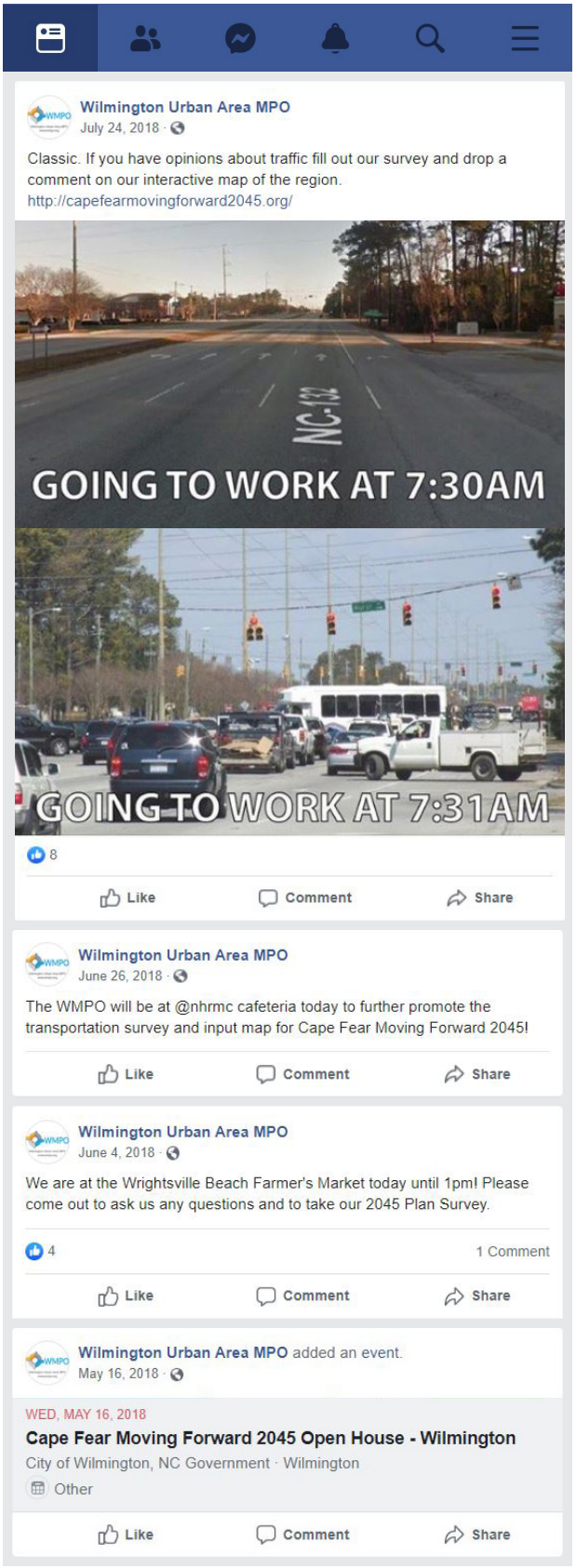




disseminating information. In order to be inclusive, the WMPO distributed outreach materials utilizing numerous types of media and social media platforms. Materials were also disseminated by community partners within historically underserved populations such as low income, ESL, and minority.

The transportation survey and interactive map closed for public comment on July 31, 2018. A total of 2,287 survey responses and 563 comments with 4,554 votes on the interactive mapping application were collected, totaling 7,404 public responses. The data collected through the two input tools was analyzed by WMPO staff and divided into three categories: potential projects, potential policy guidance, and comments requiring urgent addressing such as roadway potholes and missing signage. Survey responses were also analyzed by the modal subcommittees during the development of modal goals and objectives.

See page 24 for a summary of survey results.



StarNews ONLINE

Opinion

EDITORIAL: Your chance to weigh in on critical transportation planning

By StarNews Editorial Board
Posted May 1, 2018 at 2:01 AM

Transportation is about much more than getting across town quickly; it's a critical foundation for jobs and economic prosperity

Navigating the intersection of College and Oleander or driving Military Cutoff can make it hard to believe at times, but there is a grand plan behind transportation in Wilmington.

The Wilmington Urban Area Metropolitan Planning Organization (WMPO) is responsible for mapping out transportation strategies in all of New Hanover County and portions of Pender and Brunswick, including Hampstead, Leland, Belville and Navassa.

WMPO is developing a 25-year plan -- Cape Fear Moving Forward 2045 -- and your input is needed.

SURVEY RESULTS

TOP INVESTMENT PRIORITIES:

1st IMPROVING THE **SAFETY** OF **EXISTING ROADS**

2nd IMPROVING THE **QUALITY** OF **EXISTING ROADS**

3rd **BICYCLE/ PEDESTRIAN SAFETY** EFFORTS

CURRENT TRAVEL TO SCHOOL/WORK:

85%
DRIVE A CAR FOR OVER 50% OF TRIPS

2%
CARPOOL/ VANPOOL FOR OVER 50% OF TRIPS

1%
USE PUBLIC TRANSPORTATION FOR OVER 50% OF TRIPS

5%
BICYCLE FOR OVER 50% OF TRIPS

3%
WALK FOR OVER 50% OF TRIPS

FUTURE PREFERENCES:

3 OUT OF 5 WOULD PREFER TO DRIVE A CAR TO SCHOOL OR WORK **LESS OFTEN** IN THE FUTURE

1 OUT OF 4 WOULD PREFER TO CARPOOL/VANPOOL TO SCHOOL OR WORK **MORE OFTEN** IN THE FUTURE

1 OUT OF 2 WOULD PREFER TO USE PUBLIC TRANSPORTATION TO SCHOOL OR WORK **MORE OFTEN** IN THE FUTURE

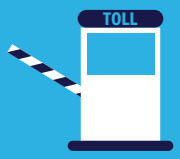
2 OUT OF 3 WOULD PREFER TO BICYCLE TO SCHOOL OR WORK **MORE OFTEN** IN THE FUTURE

3 OUT OF 5 WOULD PREFER TO WALK TO SCHOOL OR WORK **MORE OFTEN** IN THE FUTURE

TOP TRAVEL PRIORITIES:

Safety
Travel Time
Convenience

62%
CONSIDER **DIFFERENT TRANSPORTATION OPTIONS** TO BE **IMPORTANT OR VERY IMPORTANT** WHEN DECIDING **WHERE TO LIVE**



52%
WOULD PAY OR CONSIDER PAYING A **TOLL**

SEE **APPENDIX D** FOR COMPREHENSIVE SURVEY RESULTS

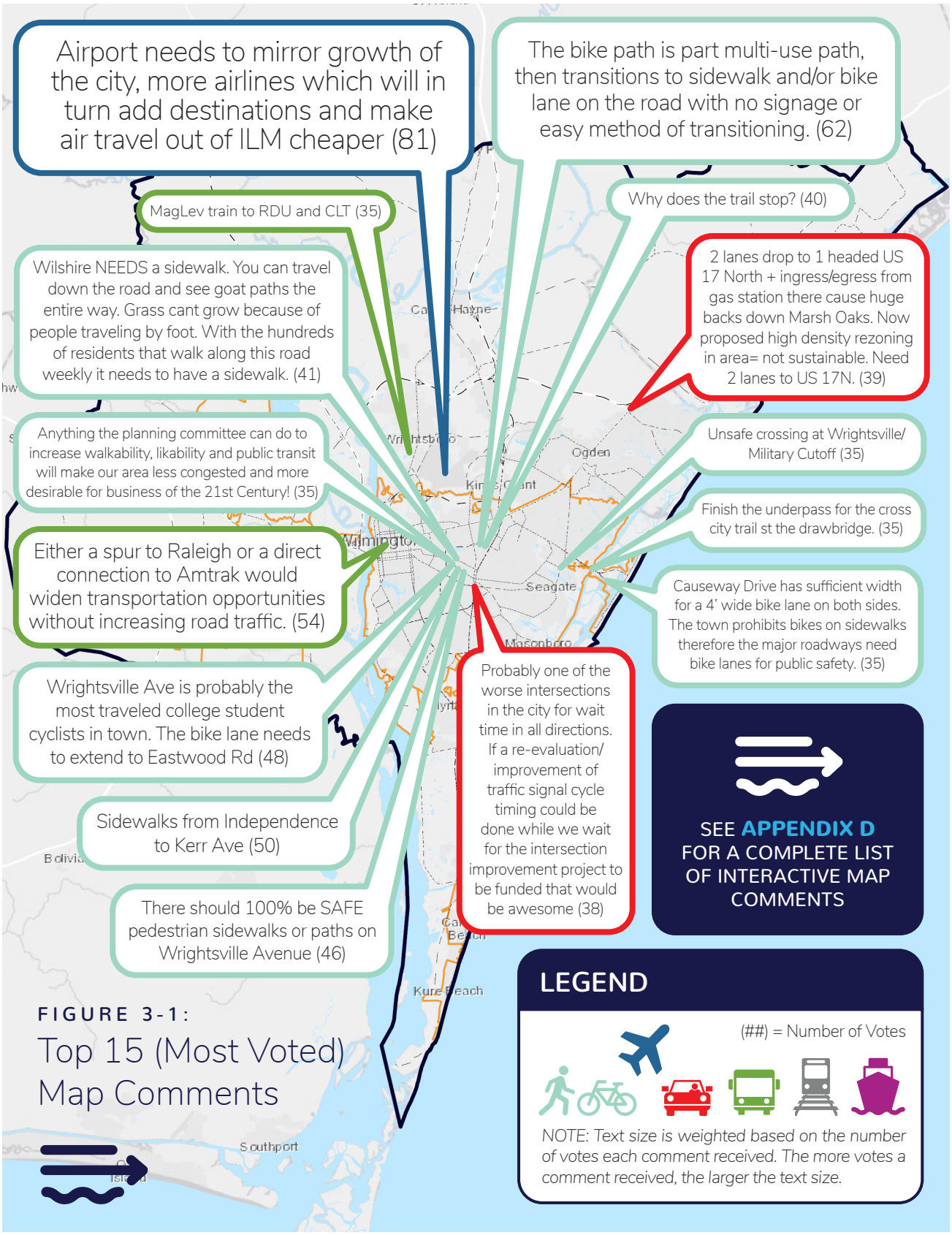


FIGURE 3-1:
Top 15 (Most Voted) Map Comments

Plan Considerations

Cape Fear Moving Forward 2045 recognizes the many transportation challenges facing the region. These include:

- Coordinating land use and transportation planning to ensure orderly development that does not overburden transportation infrastructure;
- Developing in a way that is sustainable in the long term and sensitive to the region's many important environmental, cultural and historic features;
- Finding alternative funding sources to pay for the many transportation needs;
- Promoting the use of alternative modes of transportation to provide viable transportation choices to the region's travelers;
- Working cooperatively as regional partners to address regional and local transportation issues;
- Leveraging technology to enable users to be better informed and make safer, more coordinated, and smarter use of the transportation network;
- Improving the resiliency and reliability of the transportation system; and
- Fulfilling the tenants of environmental justice, as defined by the EPA.

Anticipating Future Transportation Technologies & Infrastructure Needs

The incorporation of innovative technology when addressing transportation needs in the region will become increasingly popular and is already beginning to take place. From preemptive traffic signal timings to cameras on major corridors, the City of Wilmington has already begun to embrace the role of technology in creating the most efficient transportation system possible. The WMPO hopes to identify technology that can be adopted in the region including Intelligent Transportation Systems (ITS), future public transportation technology, drones, and autonomous vehicles. The incorporation of technology in transportation solutions was discussed and heavily considered by the CAC and modal subcommittees during the development of the plan and is represented in future projects and policies. The following are future technologies likely to become prevalent during the life of the plan.

Intelligent Transportation Systems (ITS)

- Modern data collection using GPS, Bluetooth, etc.
- Improved data analysis allowing for more efficient signal timing
- Signage communicating real time delays, weather, and event conditions to travelers
- Emergency vehicle preemptive signalization
- Improved enforcement

Future Public Transportation Technology

- Smart phones will allow for greater access to public transportation information
- Modern fare collection will allow for multiple methods of collecting fares
- Bus Rapid Transit (BRT) elements prioritize public transportation with their own travel lane, rapid boarding, and high frequency
- Micro Transit provides an efficient way to address coverage needs for a transit system

Drones

- Drones are increasingly being used for data collection in dangerous locations
- Drones are beginning to be seen as a viable method of transportation and delivery for goods and services
- Passenger drones, or air taxis, have made demo flights in various cities worldwide and are beginning to be commercialized in China

Autonomous Vehicles

- Levels of automation are already being introduced as features in new cars such as lane detection and speed control

- Autonomous vehicles will increase safety and efficiency of the transportation network
- Parking requirements and sprawl will have to be addressed
- Biggest challenges are currently technology limits and legislation

Resiliency

Resiliency is the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. The Fixing America's Surface Transportation (FAST) Act has built upon previous funding bills to include the consideration of projects that improve the resiliency and reliability of the transportation system. During this plan's development, the region experienced two significant hurricanes, emphasizing the need for resilient planning and design for infrastructure.

The FHWA has developed resources for state DOTs and MPOs on integrating resiliency into transportation planning. Utilizing these resources, which include the Climate Resilience Pilot Program, the WMPO has derived the following steps that the region should take:

During the Planning Stage

- Add a goal statement explicitly related to sustainable transportation and resiliency into long range transportation plans
- Identify sustainable and resilient transportation project criteria that can be used as part of the prioritization/programming process
- Continue to identify and assess climate adaptation activities and extreme weather vulnerability.

At the Project Level

- Consider new design approaches and standards which minimize potential disruption due to extreme weather events, such as profile elevation

From top to bottom: Hurricane Florence evacuees wait to board WAVE buses; news headline from Hurricane Florence; US421 at the Pender-New Hanover County line following Hurricane Florence

At the Project Level (continued)

- Apply design criteria or consider realignments or relocation away from high risk areas
- Redesign drainage systems to handle larger flows
- Create programs and develop capital projects to address needed drainage improvements*

As Part of On-going Operations and Maintenance

- Identify pre-planned detour routes around critical facilities whose disruption or failure would cause major network degradation
- Coordinate with NCDOT and emergency responders to identify risk management strategies
- Improve resiliency of sign structures and signal wires to avoid disruption
- Create programs and develop capital projects to address needed drainage improvements*
- Address storm water maintenance issues and develop active storm water management programs*
- Dredge the Intracoastal Waterway*
- Alleviate potential flooding at Town Creek/ US17*
- Alleviate potential flooding on NC133 in Brunswick County*

*Included in the WMPO's Top-5 Resilient Transportation Infrastructure Priorities, adopted on May 29, 2019.

Following Hurricane Florence, which made landfall in North Carolina on September 14, 2018, the Wilmington and Fayetteville regions were isolated from the remainder of the state. Travel within the state was significantly impacted and/or re-routed. The WMPO Board passed a resolution in February of 2019 in support of NCDOT's efforts to secure state and federal funding for improvements to I-40 and I-95 to address flooding and accessibility issues experienced during recent, significant weather events.

Environmental Justice

A 1994 Presidential Executive Order directed every federal agency to incorporate environmental justice into their mission. Agencies were required to identify and address the effects of their policies and activities on minority and low-income communities.

The EPA defines Environmental Justice as:

"the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies,"

where 'fair treatment' means:

"no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies."

The US Department of Transportation (USDOT) promotes environmental justice as an integral part of the long range transportation planning process continuing through individual project planning and design. According to USDOT, environmental justice requires the understanding and incorporation of the unique needs of distinct socioeconomic groups to create transportation projects that fit within the framework of their communities without sacrificing safety or mobility.

Cape Fear Moving Forward 2045 incorporates environmental justice by adhering to the following fundamental principles developed by USDOT:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

During the development of this plan, the WMPO identified seven demographically-based environmental justice (EJ) populations within the WMPO planning boundary. These special populations are:

- African American
- Household poverty
- Limited English Proficiency (LEP)
- Disability
- Households with no vehicle
- Hispanic
- Other Minority

Once these populations were identified, they were located and mapped to determine areas of concentration ranging from no concentration to slight, moderate, or high concentration as defined in the table below.

These concentrations of EJ populations were then studied in conjunction with the proposed roadway transportation network to determine where these residents have traditionally not been involved in the planning process, or have been negatively impacted by transportation decisions. This Degree of Impact (DOI) analysis illustrates for decision makers where it may be necessary to conduct enhanced study of either the proposed transportation network, or specific projects.

Proposed Cape Fear Moving Forward 2045 roadway projects were overlaid on the demographic data to assess the overall impact on EJ populations. It is not our intent to determine impacts, but rather to inform or make known to future decision makers where impacts—either positive or negative—may occur. See Figure 3-2, Fiscally-Constrained Roadway Projects and EJ Populations, on the following page.

A more in-depth explanation of this process, as well as additional mapping, is included in Appendix N, Environmental Justice and Critical Resources

Mapping EJ Populations			
Map Value	EJ Score	Definition	Level of Concentration
	0	0 of the 7 defined EJ populations exceed area averages	No Concentration
	1-2	1-2 of the 7 defined EJ populations exceed area averages	Slight Concentration
	3-4	3-4 of the 7 defined EJ populations exceed area averages	Moderate Concentration
	5-7	5-7 of the 7 defined EJ populations exceed area averages	High Concentration

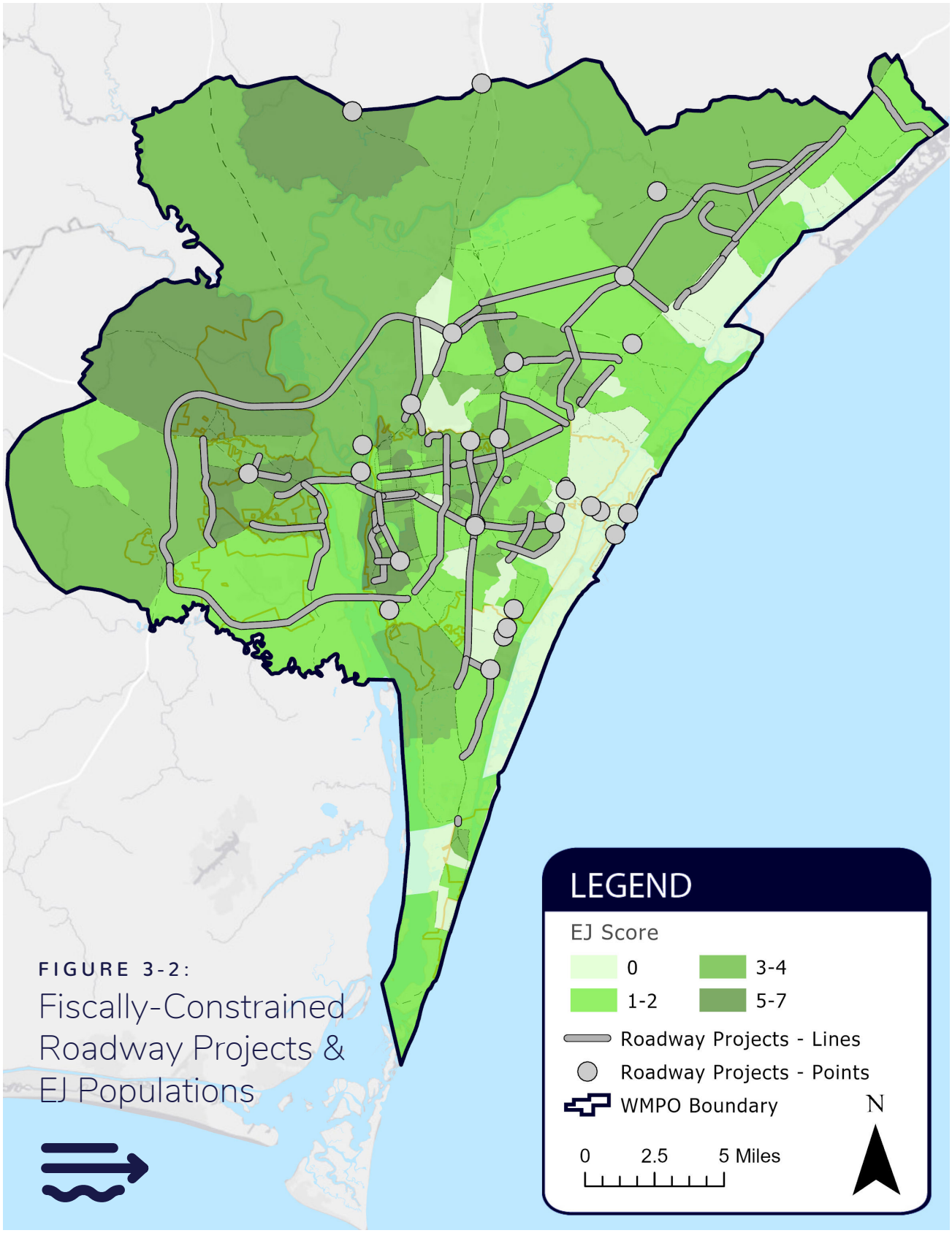
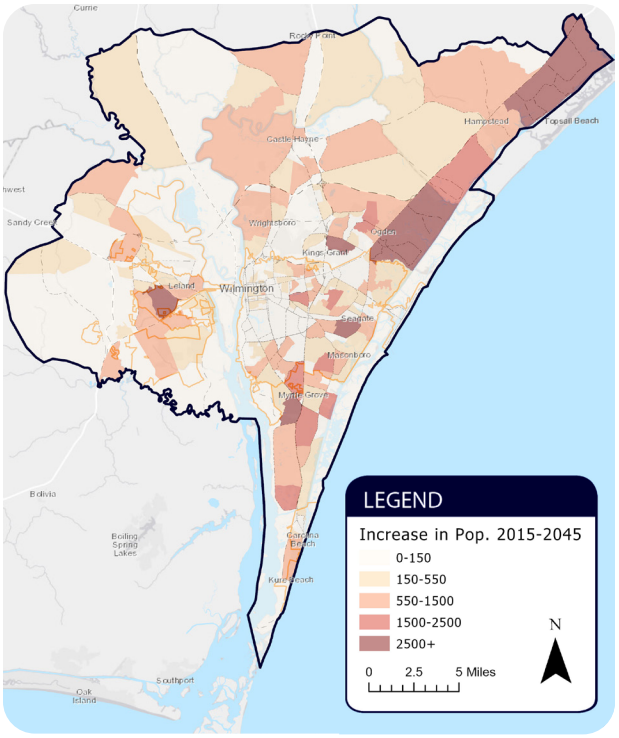


FIGURE 3-2:
Fiscally-Constrained Roadway Projects & EJ Populations

Projected Regional Growth

According to the WMPO Travel Demand Model, the population within the WMPO planning boundary, which is currently estimated at 280,000, is projected to increase to approximately 422,748 by 2045. This represents an increase of 50% over the life of this plan. The number of households is projected to increase from 117,813 (2015 estimate) to 183,209 by 2045. The number of jobs is projected to increase from 144,808 (2015 estimate) to 158,681 by 2045. The map to the right depicts where population growth is projected to occur.



As the region continues to grow, keeping up with anticipated growth while not neglecting today's issues is the key challenge addressed by Cape Fear Moving Forward 2045. The plan's approach to mitigating the impacts of growth is multi-faceted, recognizing the importance of developing alternative modes of transportation and becoming less dependent on automobiles for daily travel.

Sources:

- FHWA FAST Act (2015)
  https://www.fhwa.dot.gov/fastact/
- ITS Joint Program Office
  https://www.its.dot.gov/about/federal_its_program.htm
- NCDOT: Wilmington MPO Travel Demand Model (2019)
- TRB: Incorporating Resilience into Transportation Planning and Assessment (2018)
- United States Code of Federal Regulations, Title 23: Highways, Part 450.306: Scope of the Metropolitan Planning Process
- FHWA Climate Resilience Pilot Program
  https://www.hrpdcva.gov/uploads/docs/7E_FHWA%20Pilot%20Summary%20-%20South%20Florida.pdf
- American Planning Association (APA): "Autonomous Vehicles: Planning for Impacts on Cities & Regions"
  https://planning.org/research/av/
- Forbes: "Four Reasons Why Drones, Not Driverless Cars, Are the Future of Autonomous Navigation"
  https://www.forbes.com/sites/gregorymcneal/2016/10/24/four-reasons-why-drones-not-driverless-cars-are-the-future-of-autonomous-navigation/#1f36c3173e45
- Government Executive: "Poll: Americans Want Drone Delivery - But Not Yet"
  https://www.govexec.com/management/2016/10/poll-americans-want-drone-delivery-not-yet/132291/
- Networkworld: "Why Smart Cities Are Crucial for Autonomous Cars"
- APA Zoning Practice: "Getting Ready for Driverless Cars"
  https://www.planning.org/publications/document/9138083/
- CO.Design: "The Quest to Build a Smarter Road"
- Govtech: "Infrastructure Must be Ready to Accommodate Modern Vehicles"
  https://www.govtech.com/fs/Infrastructure-Must-be-Ready-to-Accommodate-Modern-Vehicles.html

CHAPTER 4:

Transportation Modes

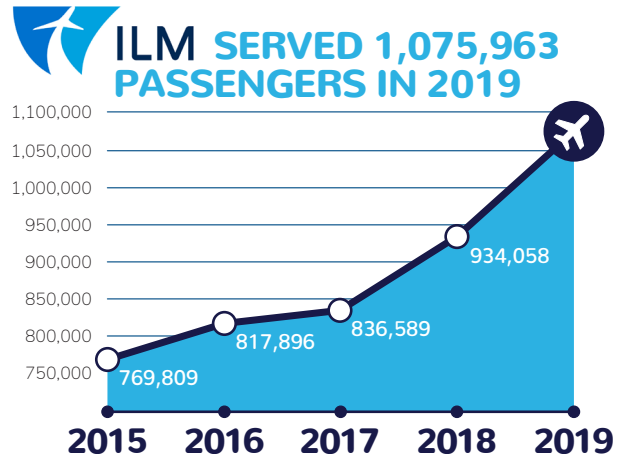
1. Aviation
2. Bicycle and Pedestrian
3. Ferry and Water Transportation
4. Freight and Freight Rail
5. Public Transportation
6. Roadway

Cape Fear Moving Forward 2045 is a multimodal, long range plan that considers the future of all transportation modes, and how they interact, in the region. These modes are Aviation, Bicycle and Pedestrian, Ferry and Water Transportation, Freight and Freight Rail, Public Transportation, and Roadway. Descriptions of each are included in this chapter. During the development of the plan, regionally significant projects for each mode were identified through several sources, analyzed, scored, and ranked based on expert-derived, publicly vetted, quantifiable factors. This process is further outlined in the plan's modal appendices.

Aviation

Aviation operations support a critical component of the movement of people and goods within the region's transportation network. Wilmington International Airport (ILM) is the WMPO region's only public airport, and supports three types of aviation operations: commercial, general, and military. Commercial aviation supports interstate and international passenger travel for business and leisure, as well as a freight component that supports the movement of goods across the country. Three commercial airlines serve ILM, providing the region with access to eight non-stop destinations and six international gateways, which together provide one-stop access to 310 destinations world-wide. Additionally, general aviation supports business travel needs and recreational flying, while military procedures at ILM account for approximately 12% of aircraft operations. In total, ILM has seen an increase in both passenger and cargo enplanements every year since 2015.

FOR MORE INFORMATION ON EACH MODE, REFER TO THE FOLLOWING APPENDICES:					
AVIATION	BICYCLE & PEDESTRIAN	FERRY & WATER TRANSPORTATION	FREIGHT & FREIGHT RAIL	PUBLIC TRANSPORTATION	ROADWAY
F	G	H	I	J	K



As the region's primary aviation facility, the majority of aviation projects are coordinated and funded through financial structures managed by ILM through FAA grants. Working closely with the Wilmington International Airport Authority, the WMPO coordinates state funding through NCDOT's Prioritization process. Planning with the WMPO ensures that ILM is connected with existing and future multimodal networks of the region. This multimodal connectivity will be increasingly important with the expansion of uses planned for the ILM Business Park. Cape Fear Moving Forward 2045 supports the further development of the aviation sector, and aims to support the addition of direct commercial flights to and from ILM as identified in the WMPO 2017-2022 Strategic Business Plan.

Clockwise from lower right (this page): ILM Direct Flights map; ILM Non-Stop Destinations table (by airline); plane taking off at ILM; graph depicting number of passengers from 2015-2019

ILM Non-Stop Destinations		
Airport Code	City	Airline
ATL	Atlanta	Delta
BOS	Boston*	American
CLT	Charlotte	American
ORD	Chicago O'Hare	United
ORD	Chicago O'Hare*	American
DFW	Dallas Fort Worth	American
LGA	New York City	American
LGA	New York City*	Delta
PHL	Philadelphia	American
DCA	Washington DC	American
IAD	Washington Dulles	United

*Seasonal, Subject to change
Source: *flyilm.com/airlines-at-ilm*

Bicycle and Pedestrian

Bicycle and pedestrian facilities are an important part of a transportation system and often serve as a main source of transportation or vital connection between other transportation modes. In 1994, the US Department of Transportation (USDOT) adopted the first national transportation policy to increase the use of bicycling, to address bicycle and pedestrian needs, and to increase pedestrian safety. North Carolina's first statewide bicycle and pedestrian plan, *Bicycling and Walking in North Carolina: A Long-Range Transportation Plan*, was completed in 1996. *WalkBikeNC*, an update to the 1996 plan, was adopted by the NC Board of Transportation in December 2013. Following the trend, Wilmington, and many of the surrounding jurisdictions within the WMPO, have since adopted plans to not only address the bicycle and pedestrian needs of their communities, but also to enhance the region's reputation as one of the premier tourism and recreation destinations in the Southeast.

NCDOT's "Complete Streets" policy, which was updated in 2019, requires the consideration and incorporation of multimodal facilities in the design and construction of new transportation projects as well as improvements to existing transportation infrastructure. The policy began as part of a national movement. The Complete Streets Act of 2009—which recognized the significant influence of street design on public health, safety, the environment, economic vitality, and quality of life—directed state DOTs and MPOs to adopt policies supporting innovative and inclusive transportation planning and to apply them to federally funded transportation projects. The WMPO Board adopted its "Complete Streets" policy in 2009, which required all transportation projects within the MPO's planning boundary to be designed in a balanced, responsible, and equitable way in order to accommodate and encourage travel by bicyclists, public transportation vehicles and their passengers, and pedestrians of all ages and abilities.

NCDOT's "Complete Streets" policy is making it easier for communities to develop multimodal transportation facilities. Alternative transportation projects that are identified in a region's CTP and/or MTP can be included in NCDOT roadway projects and will be funded entirely by NCDOT. The updated policy enables municipalities to complete multimodal projects in less time and at a lower or no cost by combining several projects into one design and construction effort. The table below outlines the cost share associated with the new policy.

Below: North Carolina's Statewide Pedestrian and Bicycle Plan, WalkBikeNC. Right: NCDOT "Complete Streets" Policy Cost Share.

NCDOT Complete Streets Cost Share			
Facility Type	In Plan	Not in Plan, but Need Identified	Betterment
Pedestrian Facility	NCDOT pays full	Cost Share	Local
On-Road Bicycle Facility	NCDOT pays full	NCDOT pays full	Local
Side Path	NCDOT pays full	Cost Share	Local
Greenway Crossing	NCDOT pays full	Cost Share	Local
Bus Pull Out	NCDOT pays full	Cost Share	Local
Bus Stop (pad only)	NCDOT pays full	Cost Share	Local

During the development of Cape Fear Moving Forward 2045, community transportation survey results found that there was a preference among citizens to make more transportation trips by walking (60%) and cycling (66%) in the future. Survey results also showed that the top three factors desired to increase cycling in the region were multi-use paths, bicycle lanes, and more information about where facilities are located. The results showed that for pedestrians, the top three factors were multi-use paths/sidewalks, safer intersections, and safer connections. As a community with strong representation from students and senior citizens, bicycle and pedestrian accommodations are a vital part of our transportation network. In addition to providing critical connections, multi-use paths also serve as recreational destinations for both residents and visitors.

Over 900 individual bicycle and pedestrian improvement projects were identified during the creation of Cape Fear Moving Forward 2045. Careful consideration by the WMPO's Bicycle and Pedestrian Advisory Committee helped narrow the total down to 200 regionally significant projects to be prioritized. These projects include infrastructure

TOP 3 FACTORS DESIRED TO INCREASE MODE USAGE:

BICYCLING

1. **MORE** OFF-ROAD **MULTI-USE PATHS**
2. **MORE** ON-ROAD **BICYCLE LANES**
3. **MORE INFORMATION** ABOUT BIKE ROUTES

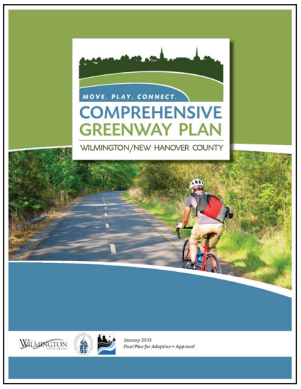
WALKING

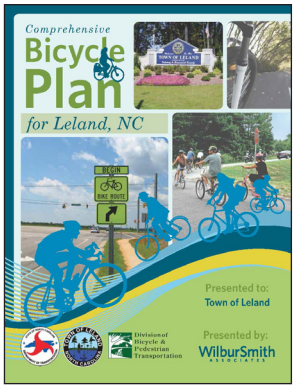
1. **MORE SIDEWALKS** & **MULTI-USE PATHS**
2. **SAFE** INTERSECTION **CROSSINGS**
3. **SAFE CONNECTIONS** FROM HOMES TO STORES, OFFICES, ETC.

Source: Cape Fear Moving Forward 2045 Public Survey

Clockwise from top left: A Rapid Flashing Beacon (RFB) alerts drivers of pedestrians at a crossing in Carolina Beach; sharrows on Ann Street in Wilmington; locally adopted bicycle and pedestrian plans (Wilmington/NHC Comprehensive Greenway Plan and Comprehensive Bicycle Plan for the Town of Leland shown); a HAWK (High-Intensity Activated crossWalK) signal in Wrightsville Beach; on-road bike lanes along Kerr Avenue in Wilmington; cyclist on the Gary Shell Cross-City Trail; Cape Fear Moving Forward 2045 public survey results

improvements specific to bicycle facilities as well as those specific to pedestrian facilities. Pedestrian improvements include infrastructure such as sidewalks, crosswalks, and pedestrian signalization while bicycle improvements include striping bicycle lanes on new and existing roadways, developing bicycle boulevards, and constructing multi-use paths. Projects were prioritized based on a series of criteria in order to apply limited funding to the most needed projects. This prioritization process gave preference to projects that provided accommodations for both bicyclists and pedestrians.





694.1 MILES OF SIDEWALK

56.1 MILES

560 MARKED CROSSWALKS

35.6 MILES

GARY SHELL CROSS-CITY TRAIL
EAST COAST GREENWAY
RIVER TO SEA BIKEWAY
CAROLINA BEACH GREENWAY

5.0 MILES

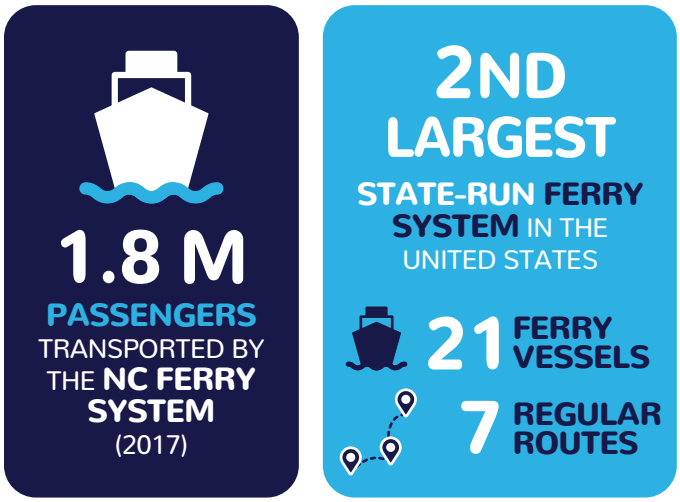
BIKE LANES | MUPs | SHARROWS

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

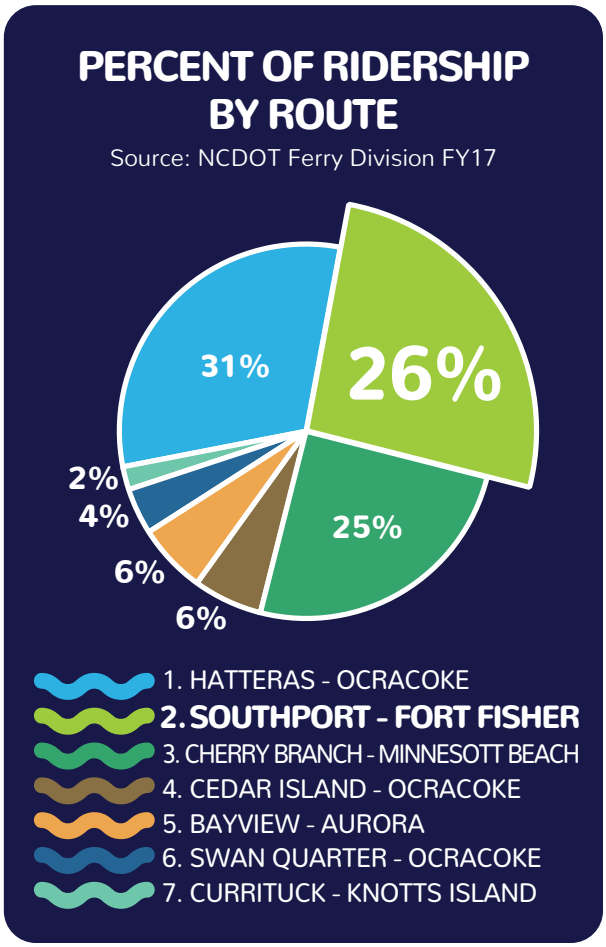
Ferry and Water Transportation

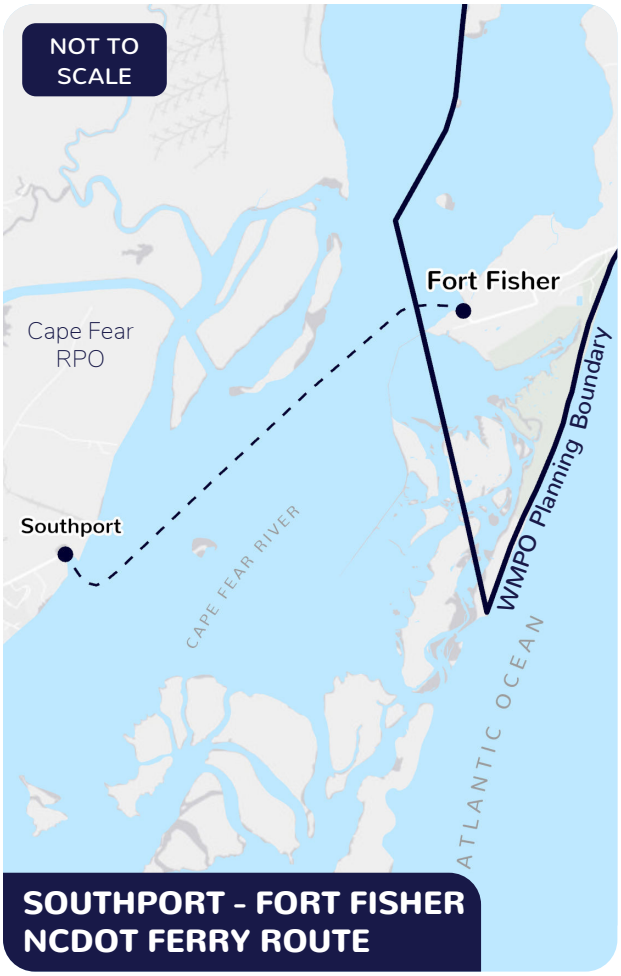
Given the Wilmington region's geographic location, ferry and water transport offer critical connections in the transportation network. The NCDOT-operated Fort Fisher to Southport ferry route continues to see a steady annual increase in ridership. The existing and expected growth of the tourism industry in the region will require improvements to, and expansion of, the local ferry system. An additional mooring facility at Southport and an additional ferry vessel are programmed in the 2020-2029 STIP. As the roadway system within the region becomes increasingly congested, the ferry system may provide an alternative to vehicular travel by offering connections to alternative transportation networks such as transit systems and greenways. Leaders in the region are also particularly interested in exploring the potential to expand the existing water transportation options through public-private partnerships.

Per the fiscally-constrained projects (Figure 7-3), the expansion of the region's ferry connections will utilize both the Intracoastal Waterway and the Cape Fear River to transport individuals North/South in addition to the current East/West Service. Those proposed upgrades will result in regional economic growth - a goal enumerated by the Ferry modal subcommittee – through expanding the interconnectivity of residential, recreational, tourist, and employment destinations. Beyond the development of terminals along the Cape Fear and Intracoastal, the increase in fleet size will produce more efficient and effective ferry routes, legitimizing its use as a day-to-day means of transportation.



Source: NC Moves 2050, State of the System: Ferry





SOUTHPORT - FORT FISHER N.C. FERRY ROUTE (2017)

468,000 PASSENGERS TRANSPORTED

TRIP PURPOSE

- **Beach / Fishing / Sightseeing 46%**
- **Dining / Shopping / Errands 30%**
- **Other 13%**
- **Work 11%**
- **School <1%**

Source: NCDOT Ferry Division

Passengers aboard the Southport-Fort Fisher Ferry

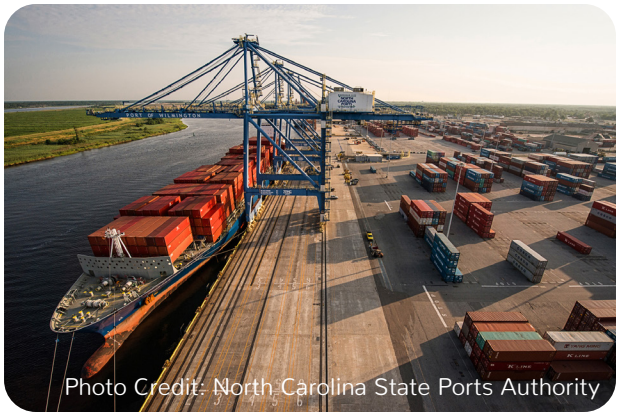


Photo Credit: North Carolina State Ports Authority

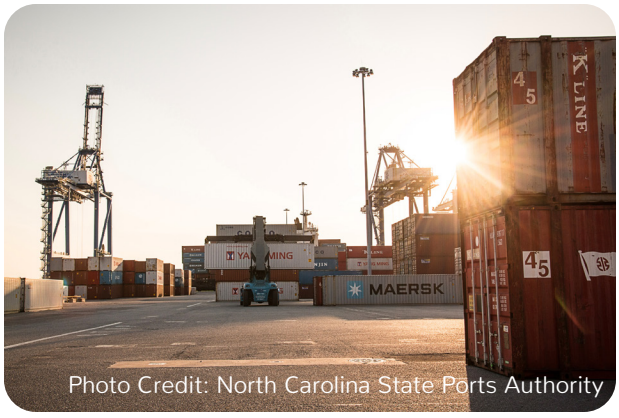


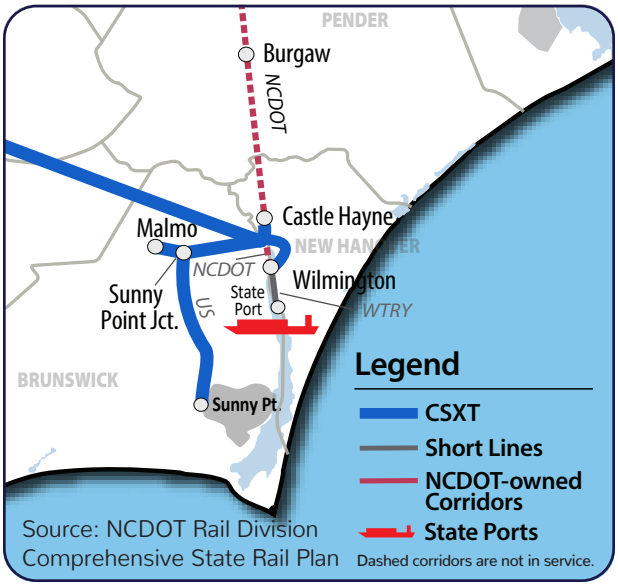
Photo Credit: North Carolina State Ports Authority

Photo Credit: NCDOT

Freight and Freight Rail

Freight transportation is a critical element of an advanced industrial economy. The ease of freight movement is one component of a region's economic competitiveness for attracting and retaining various types of industry and jobs. Access and mobility of freight impacts a region's quality of life, particularly with the need to ensure heavy truck traffic and rail have suitable routes connecting to the highway system, rail networks, and port facilities, all while avoiding established residential areas.

A key focus of this plan was improving freight movement within the region by promoting intermodal connections for ports, rail, and highway to improve supply chain reliability. This includes improvements to the US74 highway corridor and the CSX rail line connecting the port to Charlotte, as well as restoration of the rail line between Castle Hayne and Wallace to provide rail access to Raleigh and the Northeast. It also includes new location facilities such as the Cape Fear Crossing and Wilmington Rail Realignment routes as important new connections within the transportation network of our region. Identifying and securing new funding sources will be critical in developing and constructing these regionally significant, large-scale projects.



Source: NCDOT Rail Division Comprehensive State Rail Plan

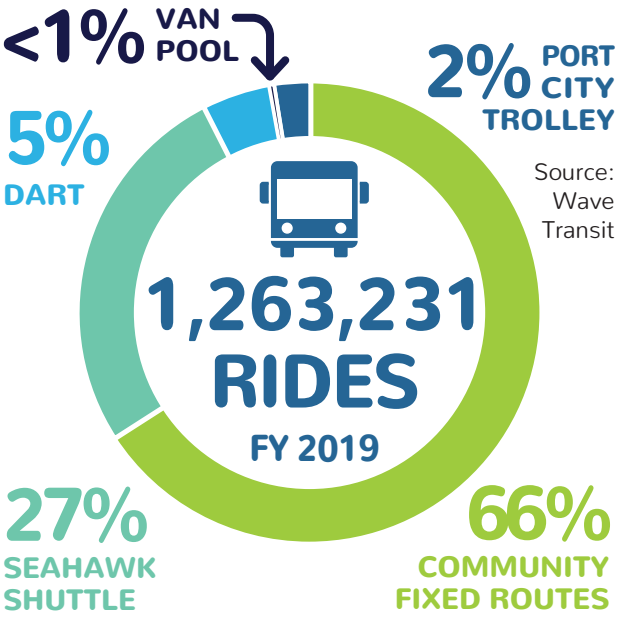
Public Transportation

The Public Transportation element of Cape Fear Moving Forward 2045 identifies projects and policies that encourage increased ridership and improved service within the WMPO boundary. National and regional trends along with public input have been considered in the development of this plan to meet the needs of the Wilmington region. The planning process has shown an immediate need for improved comfort and accessibility in order to retain customers, attract choice riders, and build community support. Long-range goals include integrating increased frequency, modern technology, and increased mode choice.

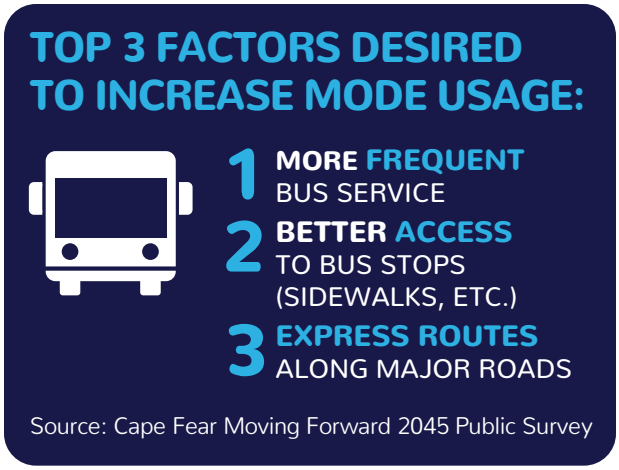
As growth of communities within the WMPO planning boundary outpaces the capacity of our transportation network, public transportation will serve an increasingly vital role in meeting the transportation needs of our citizens. The region has significant senior and student populations that depend on public transportation. By coordinating land use and transit planning, as well as increasing frequency, the WMPO's member jurisdictions can make public transportation a more favorable option for current customers and choice riders when making trip decisions. The benefits of a robust public transportation network include reduced congestion, improved air quality, and increased mobility for customers with limited transportation options. The Public Transportation element strives to address both the current needs and future needs of the region.

Wave Transit currently offers a fixed route coverage model for its community routes, Seahawk Shuttle routes, and trolley, favoring coverage over frequency. Wave also offers demand response transit through its DART System for disabled riders and its vanpool, which coordinates pickups for groups. Wave's current coverage model offers an equitable service that allows for the greatest potential number of riders at the expense of more frequent service. In a culture dominated by single occupancy vehicles, the coverage model has historically served as a transportation lifeline to low income citizens and citizens in underserved areas, whose system benefits are difficult to measure through ridership and fare collection.

The public transportation climate has slowly begun to shift towards the preference for a frequency model, which prioritizes ridership and efficiency,



Passengers ride Wave Transit's 101 Princess Place route. The route had the highest ridership of Wave's fixed-route buses in FY18-19.



Above, from top: Cape Fear Moving Forward 2045 public survey results; the new Wilmington Multimodal Transportation Center in downtown Wilmington; the rebranded Port City Trolley, unveiled in November 2019

forcing public transit systems utilizing the coverage model to evolve. Currently, 18% of Wave's operating revenues come from local sources, of which none are dedicated, leaving Wave financially vulnerable on a year-to-year basis. Wave will need to secure a dedicated local funding source or begin prioritizing ridership and frequency, which may come at a cost to its current customers in outlying areas.

One strategy municipalities adopting to increase ridership is Bus Rapid Transit (BRT). BRT is a bus-based public transportation system designed to improve capacity and reliability relative to a conventional fixed route system. Its main features include dedicated bus lanes, off-board fare collection, prioritized intersection treatment, and platform level boarding. Raleigh is beginning to introduce BRT into its public transportation system, and Wave has shown the potential to adopt certain elements of BRT, which could improve efficiency. Modern fare collection and increased frequency, such as found in BRT systems, has been identified as a priority for Wave in its short-range transit plan and in Cape Fear Moving Forward 2045.

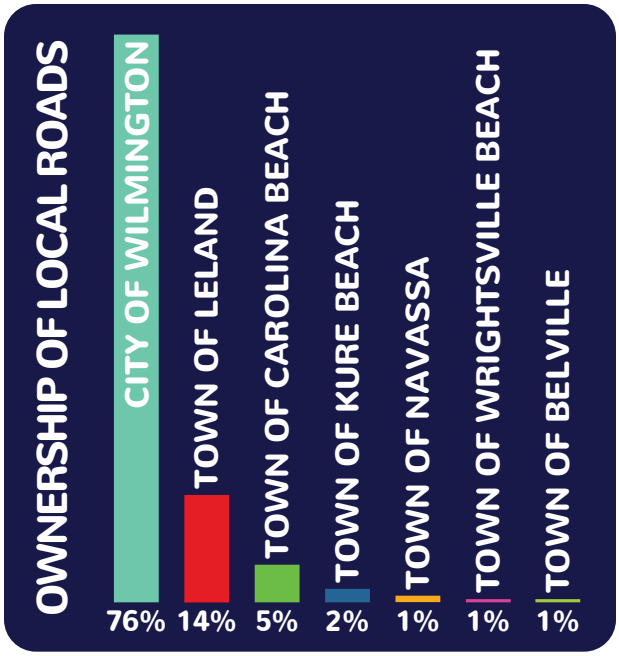
Technology will continue to shape public transportation, serving to make it more efficient and economical. Technologies already being implemented include alternative energy fuel sources such as compressed natural gas (CNG) and electric vehicles (EV); alternative fare payment options including cellular devices; apps communicating and monitoring real time arrivals, departures, and delays; and on-demand service (also known as micro-transit). Wave has already transitioned some of its vehicles to CNG and their short-range plans include expanding fare payment options. The development of autonomous vehicles could have a significant impact on public transportation, while the combination of electric vehicles, autonomous vehicles, and mobile connectivity and route planning has the potential to revolutionize transportation as a whole.

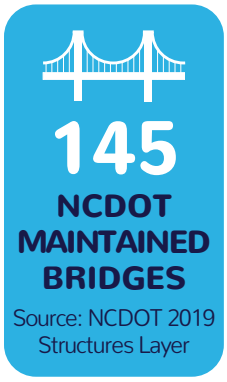
Roadway

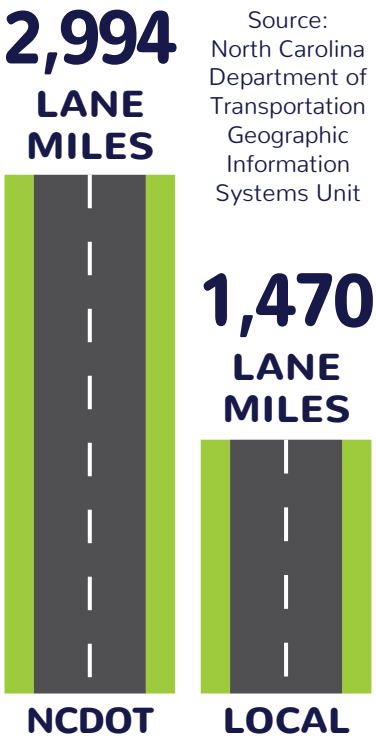
While the WMPO is dedicated to creating a balanced, multimodal transportation system, automobile use is and will continue to be the predominant mode of travel for many people within the region. Rapid population growth and development in the region calls for coordination between land use and transportation planning. Current land use plans include considerations for higher densities and mixed-use development, which can reduce travel demand by limiting the number of vehicle miles traveled and facilitating alternative transportation, such as transit, walking, and biking.

The existing roadway network relies on a small number of primary routes to move both regional traffic (moving through an area) and local traffic (accessing land uses within an area) rather than a grid network, which can better distribute traffic. The area's environmental constraints present additional challenges to connectivity within the region, which is designated as a Transportation Management Area (TMA) and therefore required to use an adopted Congestion Management Process (CMP).

Clockwise from top right: Third Street bridge between Campbell and Hanover Streets in downtown Wilmington; Diverging Diamond Interchange (DDI) in Leland; C. Heide Trask Memorial Bridge in Wrightsville Beach; roundabout on River Road in Wilmington





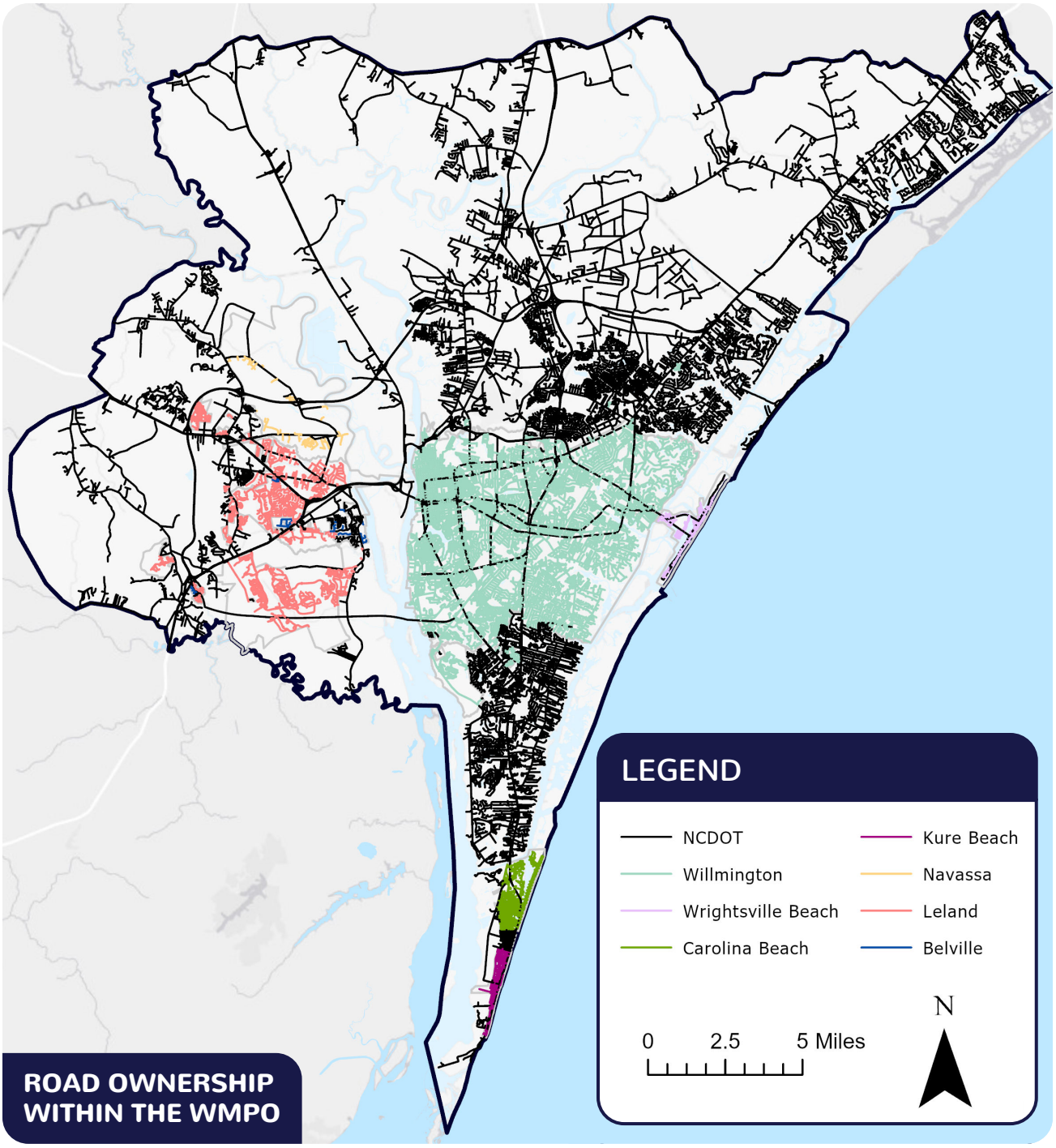


EXISTING ROADWAY INFRASTRUCTURE

Above: I-40 after Hurricane Florence in September 2018

Roadway safety and congestion mitigation were heavily considered during the development of the roadway element of this plan. Metrics used to rank roadway projects included crash rates, crash severity, mean travel time, and vehicle miles traveled (VMT). These metrics helped identify critical projects and prioritize them to be fiscally constrained in this plan. As a Transportation Management Area (TMA), the WMPO is required to develop a Congestion Management Process (CMP) for the region. The WMPO prepares a biennial CMP report. The report examines 30 critical transportation corridors within the region and provides an in-depth analysis of travel times and delays, safety, and multimodal use for each. Many of the metrics and mitigation strategies contained within the 2018 report were utilized in the development of this plan.

Fixing America's Surface Transportation (FAST) Act now requires the consideration of resiliency and reliability of the transportation system as a planning factor in the transportation planning process. The destruction caused by Hurricane Florence, midway through the development of this plan reinforced the need for resilient and reliable infrastructure in our region. While a metric to evaluate the resiliency of improvement projects is still in development by the FHWA, it is recommended that, during project design, the potential impacts from weather related events and other natural disasters be considered and incorporated into the design.



In an effort to provide resiliency and redundancy in the current transportation network, Cape Fear Moving Forward 2045 recommends investments in alternative routes and the fortification of primary routes. The plan also recommends the integration of land use and transportation planning to reduce congestion and provide alternative transportation options. Investments should also be made to maintain or better our existing transportation system through ongoing maintenance and safety-related projects.

The roadway system within the WMPO region is maintained by the incorporated member jurisdictions and NCDOT. Counties in North Carolina do not maintain roadways, thus requiring NCDOT to maintain the roadway network in unincorporated portions of New Hanover, Brunswick, and Pender Counties. Cities and towns utilize a variety of funding sources for building and maintaining the local roadway network. Federal aid qualified roadways, which can be owned by NCDOT or by local jurisdictions, are eligible to be submitted and programmed for funding in the MTIP/STIP.

The introduction of new innovative technologies, such as autonomous vehicles, is expected to increase vehicle miles traveled (VMT) in the future due to the increased mobility of demographics which could not drive previously, such as the elderly and youth without drivers licenses. The introduction of fully autonomous vehicles is also likely to encourage urban sprawl. Allowing a vehicle passenger to utilize time spent traveling by working or other choice activity, rather than driving may encourage people to live further from their place of work. To prevent additional congestion and improve travel time reliability, it will be essential to implement some form of ridesharing with these technologies to reduce the number of vehicles on the road. This reduction will not only cause a decrease in car ownership, but also likely reduce the need for parking facilities.


Photo Credit: City of Wilmington

Above: City of Wilmington Traffic Management Center (TMC) (top); Signalized intersection at 3rd Street and Chestnut Street in downtown Wilmington (bottom)

Another continually advancing technology likely to have a substantial impact on roadways in the region is Intelligent Transportation Systems. Components of this broad term include traffic signal monitoring and coordination, signal preemption, and traveler information systems. The City of Wilmington currently operates a Traffic Management Center (TMC) that monitors a system of 226 traffic signals inside city limits and in some portions of unincorporated New Hanover County through a contract with NCDOT. The operation and monitoring of these signals allows for real time solutions to heavy congestion, accidents, or other incidents having a major impact on the flow of traffic. The constantly monitored system can be adjusted to better accommodate traffic in many of these situations. Benefits of this system management include an increase in safety by potentially reducing crashes; an increase in mobility by decreasing congestion; and positive environmental benefits resulting from the reduction of vehicles hindered by traffic. Traffic video camera images of the regional system are shared with NCDOT's Traveler Information Management System (TIMS), connecting the existing performance of the regional network with a system monitoring the statewide network. The continuation and expansion of this program is recommended, and its positive future impacts will depend greatly on regular investments to upgrade the system's technology, as well as the integration of new advancements in communication technologies as they become available.

Sources:

- Wilmington International Airport ALP Update & Narrative (2018)
- NCDOT Statewide Pedestrian & Bicycle Plan
  https://www.ncdot.gov/divisions/bike-ped/Pages/statewide-bike-ped-plan.aspx
- NC Moves 2050 Ferry Fact Sheet (2019)
- Wave Transit Short Range Transit Plan (2018)
- Wave Transit's Short-Term Efficiencies and Long-Term Governing Model (2018)
- USDOT Intelligent Transportation Systems (ITS) Research Fact Sheets - Benefits of ITS
  https://www.its.dot.gov/factsheets/benefits_factsheet.htm
- NCDOT Complete Streets
  https://www.completestreetsnc.org/
- American Planning Association (APA): "Autonomous Vehicles: Planning for Impacts on Cities & Regions"
  https://planning.org/research/av/
- Networkworld: "Why Smart Cities Are Crucial for Autonomous Cars"
- APA Zoning Practice: "Getting Ready for Driverless Cars"
  https://www.planning.org/publications/document/9138083/
- Society of Automotive Engineers (SAE) Automation Levels
  https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety
- USDOT: ITS Joint Program Office
  https://www.its.dot.gov/

CHAPTER 5:

Transportation Systems Management and Operations

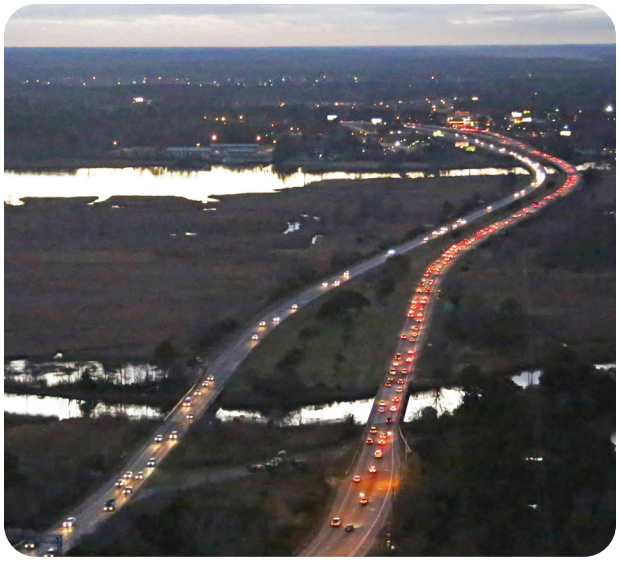
1. Transportation Systems Management & Operations
2. Transportation Demand Management
3. Congestion Management Plan

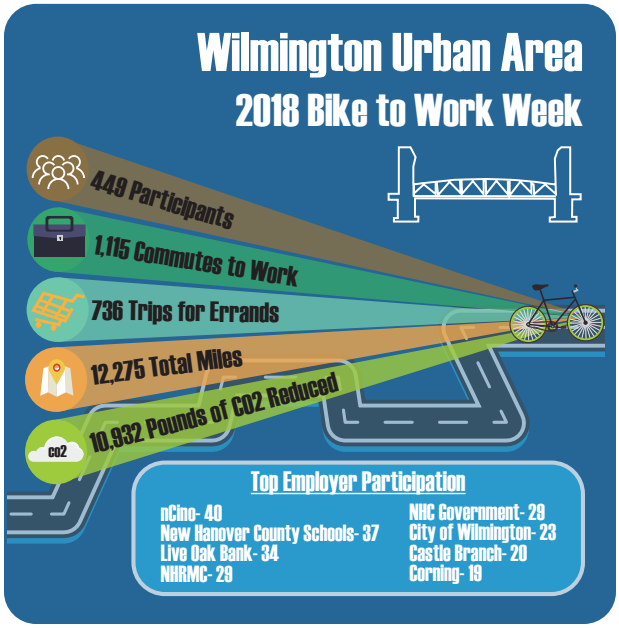
Transportation Systems Management & Operations

The Moving Ahead for Progress in the 21st Century Act (MAP-21) defined Transportation Systems Management and Operations (TSMO) as "an integrated set of strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system."

The goal of TSMO is to get the best performance out of our current transportation facilities. TSMO examines performance from a systems perspective. Our transportation system is viewed as a unified whole, made up of the different transportation modes and various transportation facilities which must work together in order for the system to perform better. Strategies should be coordinated across jurisdictional lines and across modes, as well as among various agencies. TSMO aims to improve operations and increase capacity of the multimodal transportation system to manage travel demand, allowing for fewer travel delays. By enhancing the existing infrastructure to increase roadway capacity; reducing congestion; controlling access to roadways (access management); and integrating transportation and land use planning, TSMO can improve the security, safety, and reliability of the transportation system.

TSMO provides a toolbox of solutions which, when combined, can lead to greater system performance.





Above (from top): Traffic on the Leland Causeway (US17/74/76); 2018 Bike to Work Week results; 2019 Go Coast Commuter Challenge social media marketing campaign

Cape Fear Moving Forward 2045 recommends the implementation of the following TSMO strategies in the Wilmington region:

- Access Management
- Additional Turn Lanes
- Bus Pullouts
- Emergency Vehicle Preemption and Transit Signal Priority
- Improved Signage and Lighting
- Intersection Modifications and Geometric Design Improvements
- Motorist Assistance Program
- Pavement Markings
- Social Media and Smart Apps
- Streetscape Improvements
- Traffic Signal Timing Optimization
- Traveler Information Systems and Dynamic Message Signs
- Vehicle Detectors Repair/Replacement

See Appendix L for a detailed description of each recommended TSMO strategy.

Benefits of TSMO can include smoother and more reliable traffic flow; improved safety; reduced congestion; more efficient use of resources (both facilities and funding); less wasted fuel; increased economic vitality; cleaner air; and a higher quality of life.

Transportation Demand Management

Transportation Demand Management (TDM) is a general term for a variety of strategies to reduce motor vehicle traffic congestion by reducing travel demand or redistributing this demand in space or time. It emphasizes the movement of people and goods rather than motor vehicles. One of

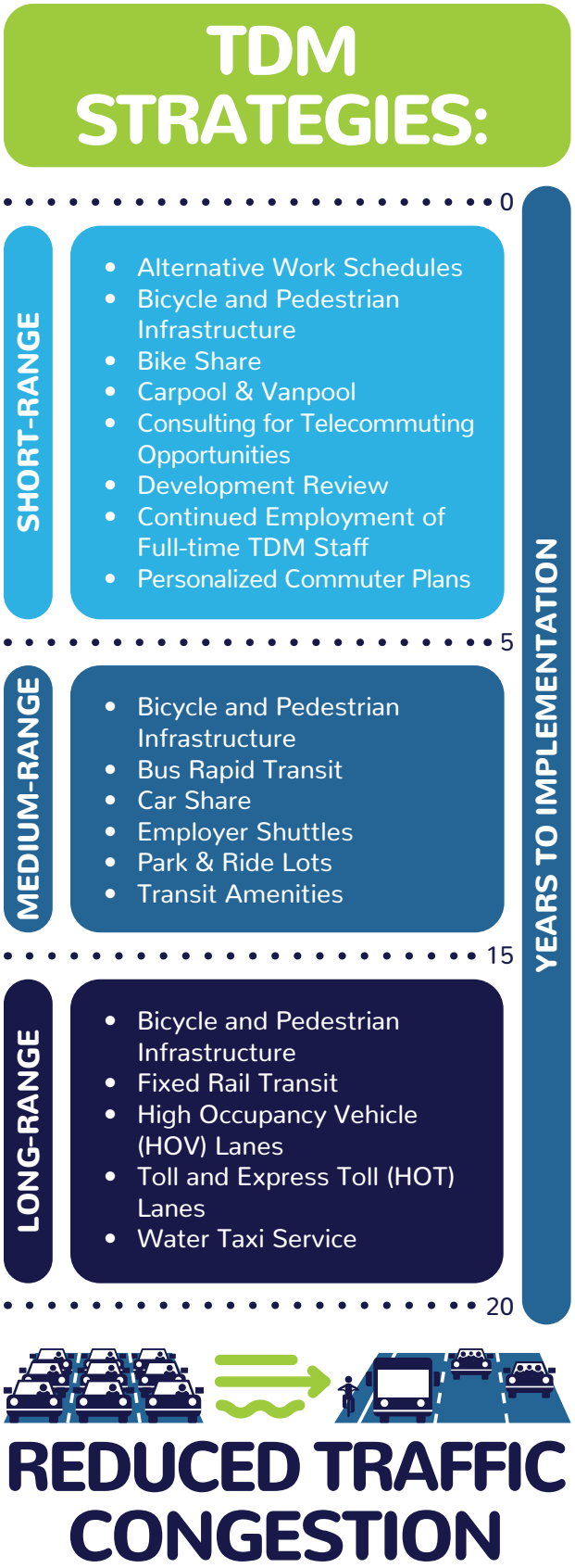
the major goals of TDM is to get people out of their single occupancy vehicles by promoting alternative modes of transportation such as public transit, walking, bicycling, and carpool/vanpool, particularly under congested conditions. TDM will become increasingly important as the population grows and more people need to get around. The overarching goal of TDM programs is to mitigate traffic congestion.

See Appendix M for specific TDM strategies to mitigate congestion in the WMPO region over the coming years.

According to the Cape Fear Moving Forward 2045 public survey, over 80% of survey respondents use a private vehicle for over half of their trips to work or school. However, when respondents were asked how they would like to get around the region in the future, 66% would prefer to bicycle more often, 51% would prefer to use public transportation more often, 55% would prefer to walk more often, and over 59% would prefer to drive a vehicle less. The survey results reflect a desire for more information about carpool/vanpool options, Park & Ride lots, and bicycle and pedestrian facilities. Among other TDM strategies, improvements to these travel modes could provide the public with the transportation options they desire while mitigating the growth of traffic congestion in the region.

In 2015, the position of full-time TDM Coordinator was created through a partnership between the WMPO's member jurisdictions and NCDOT. The TDM Coordinator works with area employers to implement the short-range and long-range TDM plans and to conduct extensive public outreach to promote TDM strategies. In order to analyze and propose recommendations for the development of a TDM program in the Wilmington Urban Area, the WMPO created the TDM Advisory Committee (Go Coast Committee). This committee is comprised of

Above (from top): Be a Looker campaign billboard; Commuter Friendly Employer Gold Level Certification; Bike to School Day, 2019; 30th Annual River to Sea Bike Ride, May 4, 2019



community stakeholders and employers. The Go Coast Committee strives to have representation from an employer with more than 1,000 employees, an employer with 500-1,000 employees, an employer with 100-500 employees, an institution of higher learning, and each WMPO member jurisdiction.

The primary focus of the TDM element of the Metropolitan Transportation Plan is to outline strategies that will encourage and enable the population to engage in traffic mitigation practices and utilize alternative modes of transportation.

Since the development of the Go Coast Committee in 2013, several TDM strategies have been implemented. Three Park & Ride lots have been established in Leland. The WMPO also contributes and promotes the NCDOT-provided rideshare matching program, Share the Ride NC. This program allows potential carpool participants to find other potential carpool participants with similar work/home locations and schedules. Share the Ride NC also allows Wilmington area residents interested in vanpool, walking or bicycling, and using mass

Pedestrians on the Cross-City Trail

transportation to explore routes and options. Go Coast can also collaborate with Wave Transit's vanpool program to help co-workers commute together. Wave's vanpool is an employer-organized effort eligible for groups of 5-12 commuters who work at the same location. Employers can be recognized for their transportation benefits like this through the Commuter Friendly Employer Program. There are currently six regional employers recognized as "commuter friendly employers". Being a warm, coastal, and geographically flat area, bicycling and walking for transportation, exercise, or recreation is prevalent. Go Coast maintains a constant effort to educate the community on safe driving, bicycling, and walking to reduce the number of bicycle and pedestrian injuries and fatalities. Go Coast also hosts annual events like the River to Sea Bike Ride, Bike To Work Month, and the Commuter Challenge.

For this plan, the TDM Coordinator and the Go Coast Committee identified strategies for short and long-range planning efforts. These strategies are grouped into three categories, short range, medium range, and long range. Short range strategies are feasible between one and five years, medium range strategies are feasible between five and fifteen years, and long range strategies are likely not feasible for at least fifteen to twenty years.

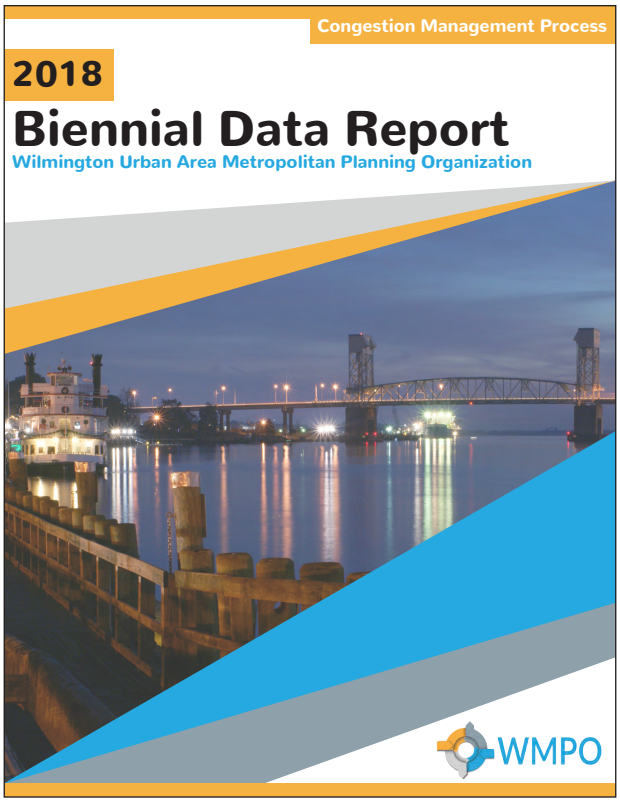
Congestion Management Process (CMP)

Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods. A CMP is required in metropolitan areas with populations exceeding 200,000, known as Transportation Management Areas (TMAs). Although there are no federal requirements on how often a CMP must be updated, the WMPO has elected to update the report on a biennial basis. The CMP is created in cooperation with engineering and planning staffs to provide data related to travel times and capacity. The process involves the following:

1. Develop Regional Objectives for Congestion Management
2. Define CMP Network
3. Develop Multimodal Performance Measures
4. Collect Data/Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Evaluate Strategy Effectiveness

What Role Does the CMP Play in Cape Fear Moving Forward 2045?

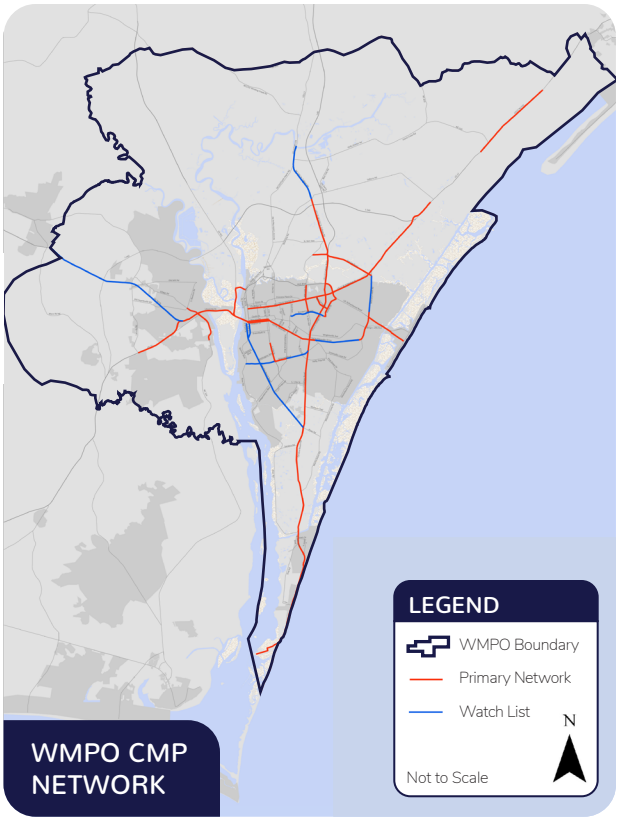
The CMP serves as a mid-range analysis of the performance of corridors, and begins identifying options to improve transportation operations in the region. The travel demand model predicts transportation needs out to a 25-year horizon. The CMP serves as an intermediate, more in-depth



analysis that identifies the current performance of facilities.

Improvements to the system identified in the CMP often become high priority projects in the MTP, thus giving them the ability to qualify for the NCDOT STIP/MPO TIP. Inclusion of CMP projects and strategies in the MTP is part of the seventh step of the process, outlined on the previous page, and is the first step in programming and implementing the high priority projects identified in the CMP.

Segment Ranking		
Segment Rank	Segment	Segment Score
1	Segment 1 Market St: 3rd St - College Rd	73
2	Segment 9 College Rd: Gordon Rd - Wilshire Blvd	68
3	Segment 8 Carolina Beach Rd: Alabama Ave - College Rd	64
4	Segment 10 College Rd: Wilshire Blvd - Pinecliff Dr	63
5	Segment 3 Oleander Dr: 5th Ave - Treadwell St	61
6	Segment 4 Oleader Dr/Military Cutoff Rd: Treadwell St - Gordon Rd	57
7	Segment 5 Shipyard Blvd: River Rd - College Rd	50
8	Segment 15 Randall Pkwy: Covil Ave/Independence Blvd - Racine Dr	49
9	Segment 2 Market St: College Rd - Torchwood Dr/Bayshore Dr	49
10	Segment 24 Gordon Rd: Kerr Ave - Military Cutoff Rd	44
11	Segment 27 Eastwood Rd/US 76/Causeway Dr: Military Cutoff Rd - Lumina Ave	44
12	Segment 12 17th St: Savannah Ct - Shipyard Blvd	43
13	Segment 17 New Center Dr: Market St - Racine Dr	41
14	Segment 13 Kerr Ave: MLK Pkwy - Randall Pkwy	41
15	Segment 28 US 421/Carolina Beach Rd: Halyburton Pkwy - Atlanta Ave	40
16	Segment 21 US 17/74/76: NC 133 Split - 5th Ave	33
17	Segment 11 College Rd/Carolina Beach Rd: Rinecliff Dr - Halyburton Pkwy	33
18	Segment 26 US 17/NC 210: Washington Acres Rd - Sloop Point Rd	30
19	Segment 23 US117/College Rd: Holly Shelter Rd - Gordon Rd	29
20	Segment 19 US 17: Lanvalle Rd - US 74/76	28
21	Segment 16 Racine Dr: Randall Pkwy - Eastwood Rd	26
22	Segment 6 Front St: Lake Shore Dr - Cape Fear Memorial Bridge	26
23	Segment 20 Village Rd/NC 133: Navassa Rd - Jackey's Creek Ln	25
24	Segment 25 US 17/Market St: Marsh Oaks Dr/Mendenhall Dr - Sidbury Rd	24
25	Segment 14 MLK Pkwy/Eastwood Rd: College Rd - Racine Dr	23
26	Segment 30 Pine Grove Dr: College Rd - Masonboro Sound Rd	23
27	Segment 22 US 17/US 421/NC 133: US 17 N/S Split - 3rd St	22
28	Segment 18 US 74/76: Maco Rd - NC 133	22
29	Segment 29 US421/Lake Park Blvd: Atlanta Ave - Buzzards Bay	13
30	Segment 7 3rd St.: Kentucky Ave - Cape Fear Memorial Bridge	11

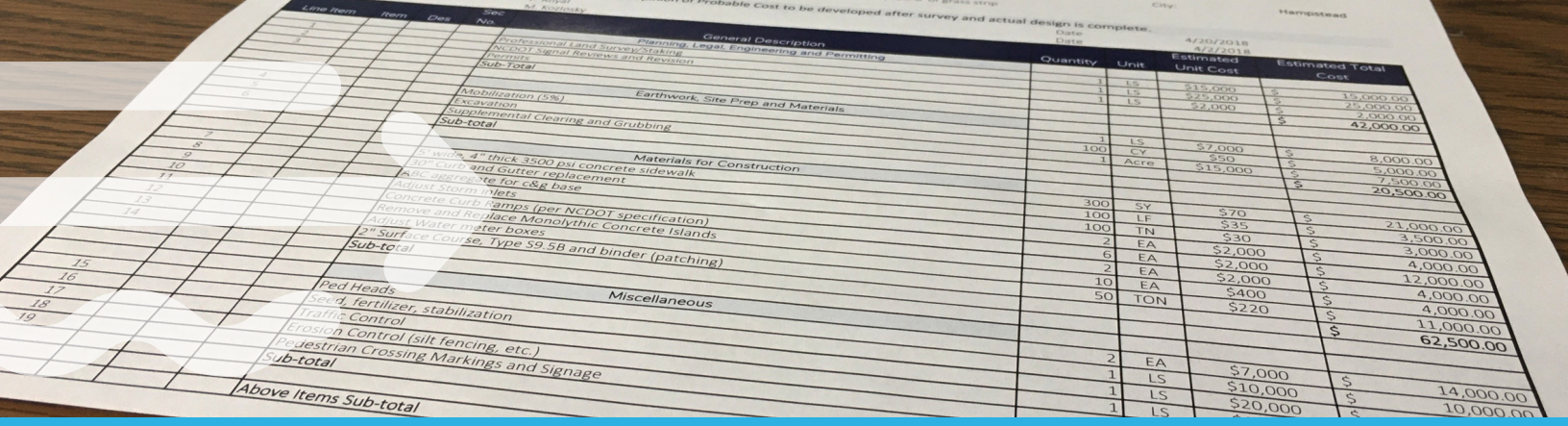


Above: The WMPO's CMP Network, which contains both primary network corridors and watch list corridors

Left: Critical roadway segments, ranked in terms of congestion management needs, from the WMPO's 2018 Biennial CMP Data Report

Sources:

- FHWA Organizing and Planning for Operations https://ops.fhwa.dot.gov/tsmo/index.htm
- MAP-21, Section 1103(a)(30)(A)
- "What is Car Sharing and How Does it Work?" by Michael Graham Richard https://www.treehugger.com/cars/what-is-car-sharing-and-how-does-it-work.html
- Institute for Transportation and Development Policy https://www.itdp.org/library/standards-and-guides/the-bus-rapid-transit-standard/what-is-brt/
- Texas A&M Transportation Institute "Mobility Investment Priorities" https://mobility.tamu.edu/mip/strategies-pdfs/travel-options/technical-summary/trip-reduction-ordinances-4-pg.pdf
- US Department of Transportation https://www.transportation.gov/mission/health/High-Occupancy-Vehicle-Lanes



CHAPTER 6:
Fiscally Constraining the Plan

1. Financial Forecast
2. Project Cost Estimates
3. Alternative Funding Considerations

A critical requirement of the Metropolitan Transportation Plan is that it must be fiscally constrained. This essentially means that the cost to implement the projects in the plan cannot exceed the expected level of funding. In order to fiscally constrain Cape Fear Moving Forward 2045, the WMPO worked with a consultant, WSP, to develop the financial components necessary to complete this required process.

The Fixing America's Surface Transportation (FAST) Act, signed into law on December 4, 2015, provides ongoing financial certainty for ground-level transportation infrastructure planning and investment. This Act requires Metropolitan Planning Organizations to prepare a long-range plan, such as an MTP, and short-term Transportation Improvement Program (TIP). The Act also requires a financial plan as a part of the MTP. The financial plan shows proposed investments that are realistic in the context of reasonably anticipated future revenues over the life of the MTP. Meeting this test is referred to as "financial constraint" in the MTP.

Financial Forecast

The process for determining fiscal constraint starts with the development of a financial forecast from existing funding sources. The financial forecast also evaluates current and future fiscal conditions and will serve to guide policy and programmatic decisions.

Mode	Historical Funding Sources	Financial Forecast (FY2020-FY2045)
	• FAA Grant History • State Match • Wilmington International Airport (ILM) Capital Improvement Plan (CIP) • Customer Facility Charge, Passenger Facility Charge • Airport Operations & Maintenance Revenues	Capital Funding: $208,125,960 Operations & Maintenance Funding: $421,956,667 **AVIATION TOTAL: $630,082,627**
	• Direct Attributable (STBG-DA and TASA-DA) • Local Match • City of Wilmington GO Bond • Municipal Operations and Maintenance (Trails, Sidewalks, Bike Lanes)	Capital Funding: $77,033,372 Operations & Maintenance Funding: $13,756,291 **BICYCLE & PEDESTRIAN TOTAL: $90,789,663**
	• Federal Ferry Boat Program • Toll Revenues • Regional State Transportation Investments • State Operations and Maintenance	Capital Funding: $58,697,582 Operations & Maintenance Funding: $207,846,116 **FERRY & WATER TRANSPORTATION TOTAL: $266,543,698**
	• Rail Industry Access Program (RAIP) • Short Line Infrastructure Assistance Program (SIAP)	Capital Funding: $31,736,429 Operations & Maintenance Funding: N/A **FREIGHT & FREIGHT RAIL TOTAL: $31,736,429**
	• Federal Transit Administration Funds (Capital and O&M) • State and Local Matches • Operations and Maintenance (NCDOT and Local) • Passenger Fares	Capital Funding: $29,236,306 Operations & Maintenance Funding: $438,015,618 **PUBLIC TRANSPORTATION TOTAL: $467,251,924**
	• Statewide Transportation Improvement Program (STIP) • Surface Transportation Block Grant Program – Direct Attributable (STBG-DA) • Local Match • City of Wilmington GO Bond • Operations and Maintenance (NCDOT Division and Powell Bill)	Capital Funding: $3,398,214,479 Operations & Maintenance Funding: $459,701,564 **ROADWAY TOTAL: $3,857,916,043**
		TOTAL CAPITAL FUNDING (ALL MODES): $3,803,044,128 **TOTAL INCLUDING O&M FUNDING (ALL MODES): $5,344,320,384**

The 2045 financial forecast for capital funding is $3.8 billion. The forecasts were provided in five-year increments from 2020 to 2045 in order to account for an assumed 3% inflation rate. As is the nature of any forecast, one should proceed with a bit of judgement and caution.

The chart on the opposite page breaks down the total capital funding forecasted, as well as the operations and maintenance funding forecasted, by transportation mode.

Project Cost Estimates

Project cost estimates were prepared for the six transportation modes – Aviation, Bicycle and Pedestrian, Ferry and Water Transportation, Freight and Freight Rail, Public Transportation, and Roadway. In order to develop these estimates, a project cost estimation spreadsheet was developed for each mode. Each modal spreadsheet contained a list of proposed projects, along with key attributes of the project necessary for assessing the project cost. These attributes varied by mode and costs were calculated using mode-specific tools and estimation methods. Capital project costs were provided in five-year increments, starting in 2020 and running through 2045, assuming a 3% annual rate of inflation.

Project Selection

Once the financial forecast and project cost estimates and ranking were completed, a financial analysis was performed. All new modal projects were evaluated and scored based on mode specific criteria. These projects were then ranked based on received score by mode. Fiscally constrained project selection was conducted by first accounting for committed projects in the NCDOT's State Transportation Improvement Program (STIP). The funding band from which to account for the projects' costs were based on programmed years within the STIP document. Once complete, ranked projects were selected in order until forecasted fund balances

Mode	Primary Data Sources
	• 2005-ILM-Master Plan-C • NCDOT STIP Project Details
	• NCDOT Bicycle and Pedestrian Facility Cost Tool
	• NCDOT Press Releases • NCDOT STIP Project Details
	• Rail Realignment Feasibility Study • NCDOT STIP Project Details
	• WAVE SRTP • Wave Transit Eclipse Specification 10-23-14 • Wave Transit's Five Year Bus Stop Enhancement Plan • WAVE Transit 2019 Budget
	• NCDOT Project Bid Estimates

Project Cost Estimates for Needs by Mode	
Mode	Total Cost of Projects (2020 dollars)
Aviation	$120,000,000
Bicycle and Pedestrian	$772,000,000
Ferry and Water Transportation	$35,000,000
Freight and Freight Rail (without Rail Realignment Project)	$158,000,000
Rail Realignment Project	$631,000,000
Public Transportation (without LRT)	$52,000,000
LRT	$2,865,000,000
Roadway	$6,247,000,000
Total (Conservative)*	**$7,385,000,000**
Total (All Projects)	**$10,881,000,000**

**Conservative total does NOT include Rail Realignment or LRT projects*

for each funding band neared zero. The final fiscally constrained project lists contain regionally significant projects that could be potentially funded during the life of the plan based on historic funding trends.

Alternative Funding Considerations

As noted previously, a key requirement of the MTP is that it be fiscally constrained, meaning that the cost to implement the plan and projects cannot exceed the level of funding considered to be reasonably available for the region. It is nearly always the case that the cost for meeting those needs exceeds the funding available in the financial forecast, creating a gap between the needs of the region and available resources. In these cases, an alternative funding plan can be developed to help close that gap.

The development of the plan requires the MPO to select and prioritize projects within the available funding as identified by the financial forecast combined with the alternative funding plan. These alternatively funded projects contribute to the MPO's long-term transportation plan, and give local governments the ability to conduct planning studies, while at the same time exploring opportunities for new funding.

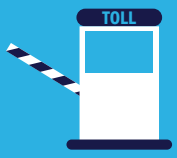
The WMPO considered nine alternative funding sources as additional revenue generators for the plan. Of these, only funds generated from tolling were incorporated to fiscally constrain an additional project. Since the Cape Fear Crossing is the only regionally significant, toll eligible project, the portion funded by anticipated toll revenue was included in the fiscally constrained project list.

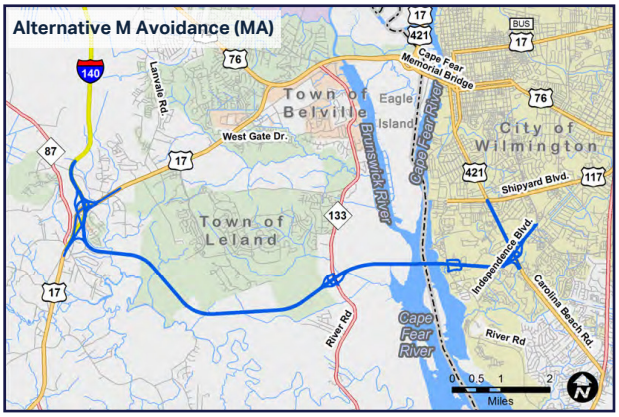
The table on the opposite page lists the total revenue estimates between 2020 and 2045. These are adjusted for 2020 values.

ALTERNATIVE FUNDING SOURCES CONSIDERED:

- QUARTER-CENT LOCAL OPTION SALES TAX
- QUARTER-CENT LOCAL OPTION SALES TAX (FOR TRANSIT ONLY)
- MOTOR VEHICLE LICENSE TAX
- MOTOR VEHICLE LICENSE TAX (FOR TRANSIT ONLY)
- VEHICLE REGISTRATION FEES (FOR TRANSIT ONLY)
- VEHICLE RENTAL TAX
- BICYCLE REGISTRATION
- MUNICIPAL BONDS
- TOLLING (CAPE FEAR CROSSING)

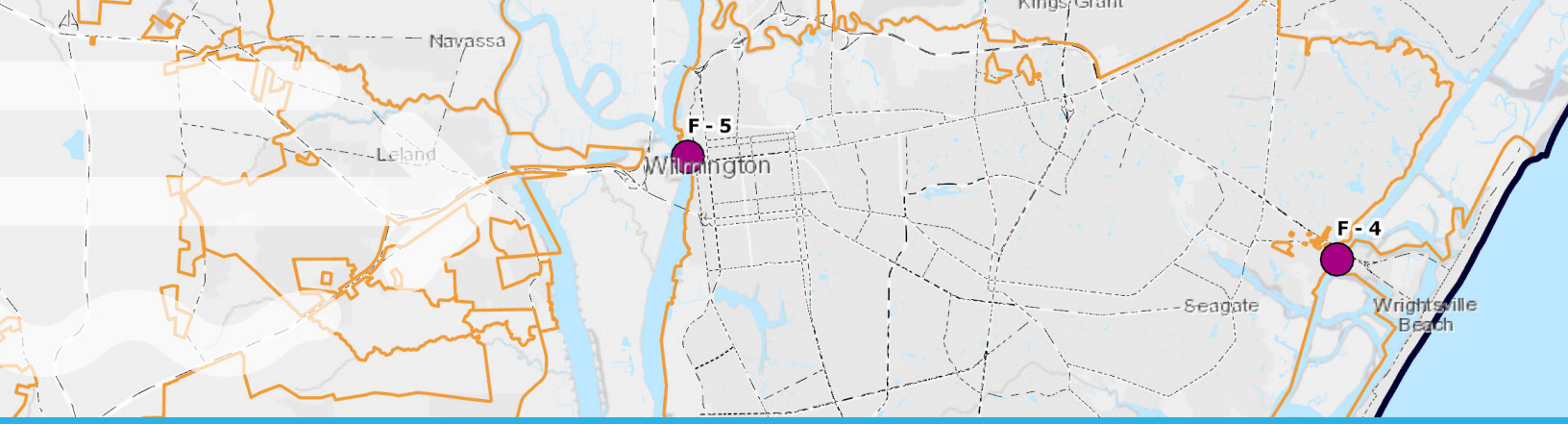
Tolling was approved as an alternative funding source for this plan for the Cape Fear Crossing.





Above: Cape Fear Crossing Alternative MA, as shown in the handout from the Corridor Public Hearing held in April 2019

Tax/Fee	Revenue Estimates in 2020 Dollars (millions)			
	Total	New Hanover	Brunswick	Pender
Quarter-Cent Tax on Sales	612	494	69	49
Quarter-Cent Tax on Sales (Transit Only)	612	494	69	49
Annual Driver's License Tax	25	20	3	2
Additional Driver's License Tax (Transit Only)	25	20	3	2
Annual Vehicle Registration Fee	40	32	4	4
Vehicle Rental Tax	29	29	0	0
Bicycle Registration Fee	7	6	1	1
Total	**1350**	**1094**	**149**	**106**
Percentage by County	100%	81%	11%	8%



CHAPTER 7:
Project Lists and Maps

1. Fiscally-Constrained Aviation Project List
2. Fiscally-Constrained Bicycle and Pedestrian Project List
3. Fiscally-Constrained Ferry and Water Transportation Project List
4. Fiscally-Constrained Freight and Freight Rail Project List
5. Fiscally-Constrained Public Transportation Project List
6. Fiscally-Constrained Roadway Project List

MAPS:

FIGURE 7-1:
FISCALLY-CONSTRAINED PROJECTS - ALL MODES

FIGURE 7-2:
FISCALLY-CONSTRAINED AVIATION PROJECTS

FIGURE 7-3:
FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECTS

FIGURE 7-4:
FISCALLY-CONSTRAINED FERRY AND WATER TRANSPORTATION PROJECTS

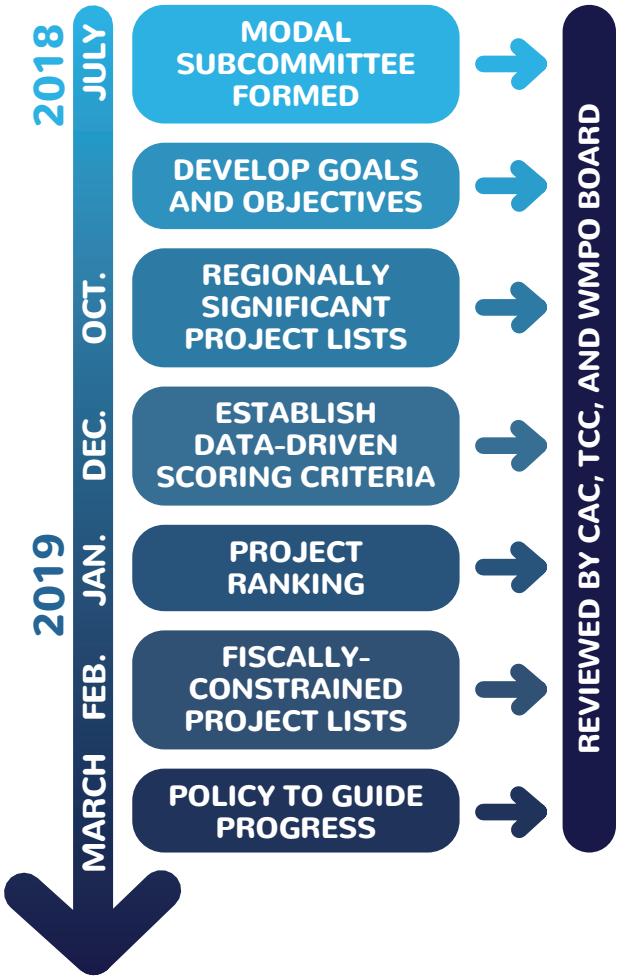
FIGURE 7-5:
FISCALLY-CONSTRAINED FREIGHT AND FREIGHT RAIL PROJECTS

FIGURE 7-6:
FISCALLY-CONSTRAINED PUBLIC TRANSPORTATION PROJECTS

FIGURE 7-7:
FISCALLY-CONSTRAINED ROADWAY PROJECTS

The project lists and maps in this chapter are the product of a several month process that identified, analyzed, scored, ranked, and fiscally constrained transportation projects by mode in the region. A subcommittee was formed for each of the six transportation modes, comprised of local and regional subject matter experts. Each subcommittee was tasked with developing a data-driven approach to prioritize and fiscally constrain projects for the region over the next 25 years. During monthly meetings, the subcommittees developed goals and objectives; identified regionally significant projects; established criteria for scoring those projects; developed ranked project lists and fiscally-constrained project lists; and established policies to

guide future transportation development within the region. The CAC, TCC, and WMPO Board reviewed modal subcommittee progress at each stage and adopted the final fiscally-constrained project lists to be included in Cape Fear Moving Forward 2045.



These goals and objectives, scoring criteria, project lists, and policies are included in the technical appendices. Refer to the following appendices for each mode:

MODE	APPENDIX
AVIATION	F
BICYCLE & PEDESTRIAN	G
FERRY & WATER TRANSPORTATION	H
FREIGHT & FREIGHT RAIL	I
PUBLIC TRANSPORTATION	J
ROADWAY	K

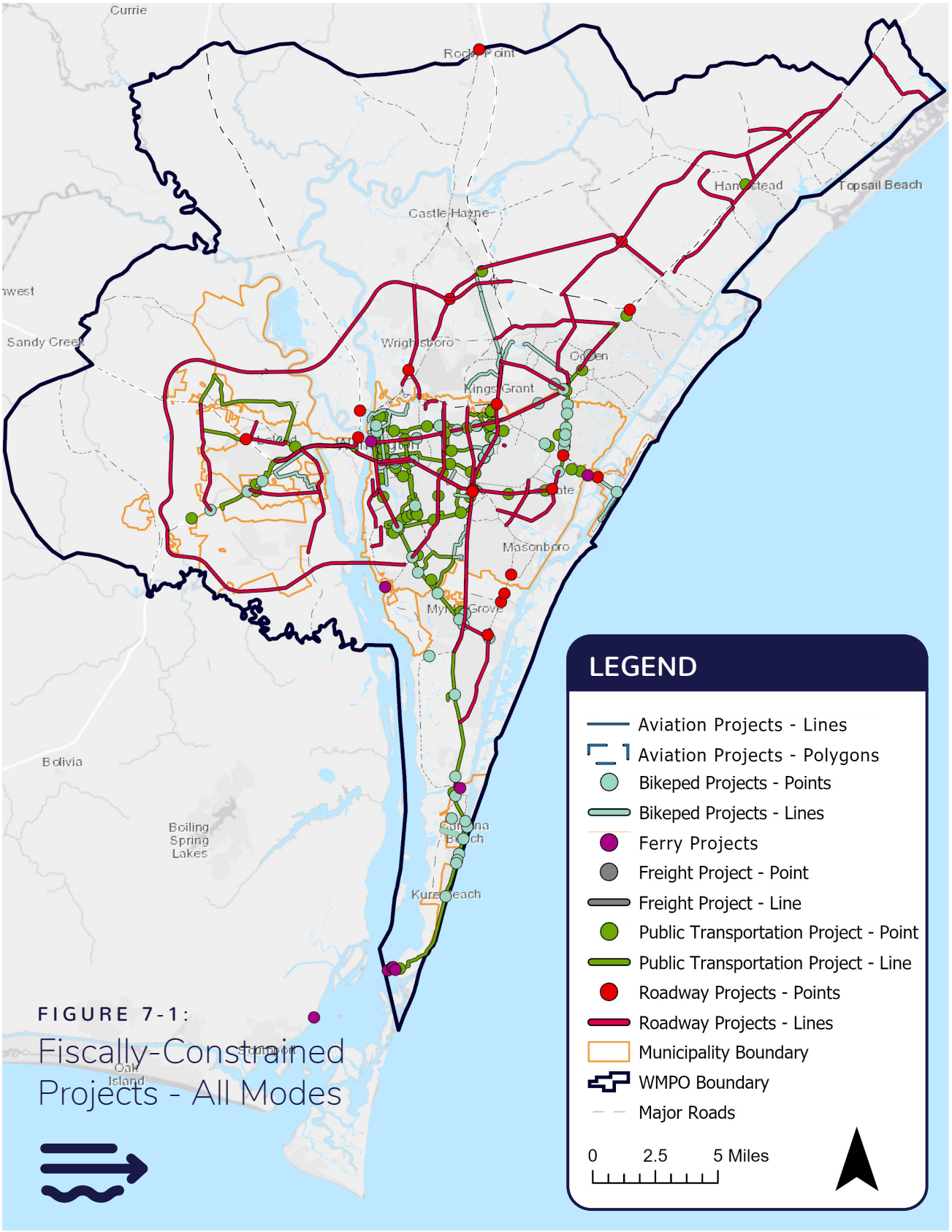


FIGURE 7-1:
Fiscally-Constrained Projects - All Modes

Fiscally-Constrained Aviation Project List

** Not shown on map for clarity*

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
1	ILM CIP1	Terminal Improvements Part 3 (Construction)	2020	$16,400,000
2	ILM CIP2	Air Carrier Expansion	2025	$4,000,000
3	ILM CIP3	Taxiway B Improvements adjacent to Terminal Apron and Rename Taxiways	2025	$7,000,000
4	AV-5730	Extend Runway 6-24 (Phase 1)	2025	$5,000,000
5	AV-5795	Expand the General Aviation Apron	2025	$500,000
6	AV-5801	Expansion of Carrier Apron	2025	$500,000
7	AV-5798	Taxiway Improvements	2030	$500,000
8	AV-5799	Widen North-South Taxiway System	2030	$500,000
9	AV-5796	Increase Width of all Taxiways*	2030	$500,000
10	A-21	Expand Air Carrier Auto Parking	2025	$4,878,770
11	A-22	Rehabilitate Runway 6-24 and Taxiway B	2025	$16,482,957
12	A-23	Perimeter Road Development (Phase II)	2025	$1,532,190
13	A-25	Overlay Airport Boulevard, Building Circulation, and Surrounding Roadways	2025	$1,334,708
14	A-33	Perimeter Road Improvements	2025	$1,433,024
15	A-36	2nd GA Hangar Aircraft Taxi Lane (North GA #2)	2025	$1,738,911
16	A-24	Airline and Customs Apron - Clean/Seal Joints and Repair Pavements	2030	$1,381,511
17	A-29	Runway 17/35 Extension and Safety Area Improvements	2030	$9,032,362
18	A-31	Roadway 17/35 Taxiway System Maintenance, Overlay, and Widening	2030	$6,870,447
19	A-7	GA Apron Development (Phase II)	2030	$2,012,039
20	A-14	Extend Runway 24 (Phase II of IV)	2035	$10,163,971
21	A-26	Northside FBO #2 GA Apron and Hangar Development (Phase I)	2035	$14,041,878
22	A-19	Apron Maintenance	2035	$2,593,989
23	A-30	Upgrade Visual Approach Aids & Runway Lighting	2035	$397,818
24	A-37	Runway 35 Wind Cone/PAPI Replacement	2035	$778,984
25	A-39	1st Paved Aircraft Taxi Lane (East Ramp Lane #1)	2040	$8,232,816
26	A-18	Land Acquisition for ASR Site Relocation	2040	$1,639,143
27	A-38	Emergency Boat Ramp Access Launch Rwy 6	2040	$180,611
28	A-27	Map Utilities and Provide Geographic Information System (GIS) Airport Interface	2040	$257,508

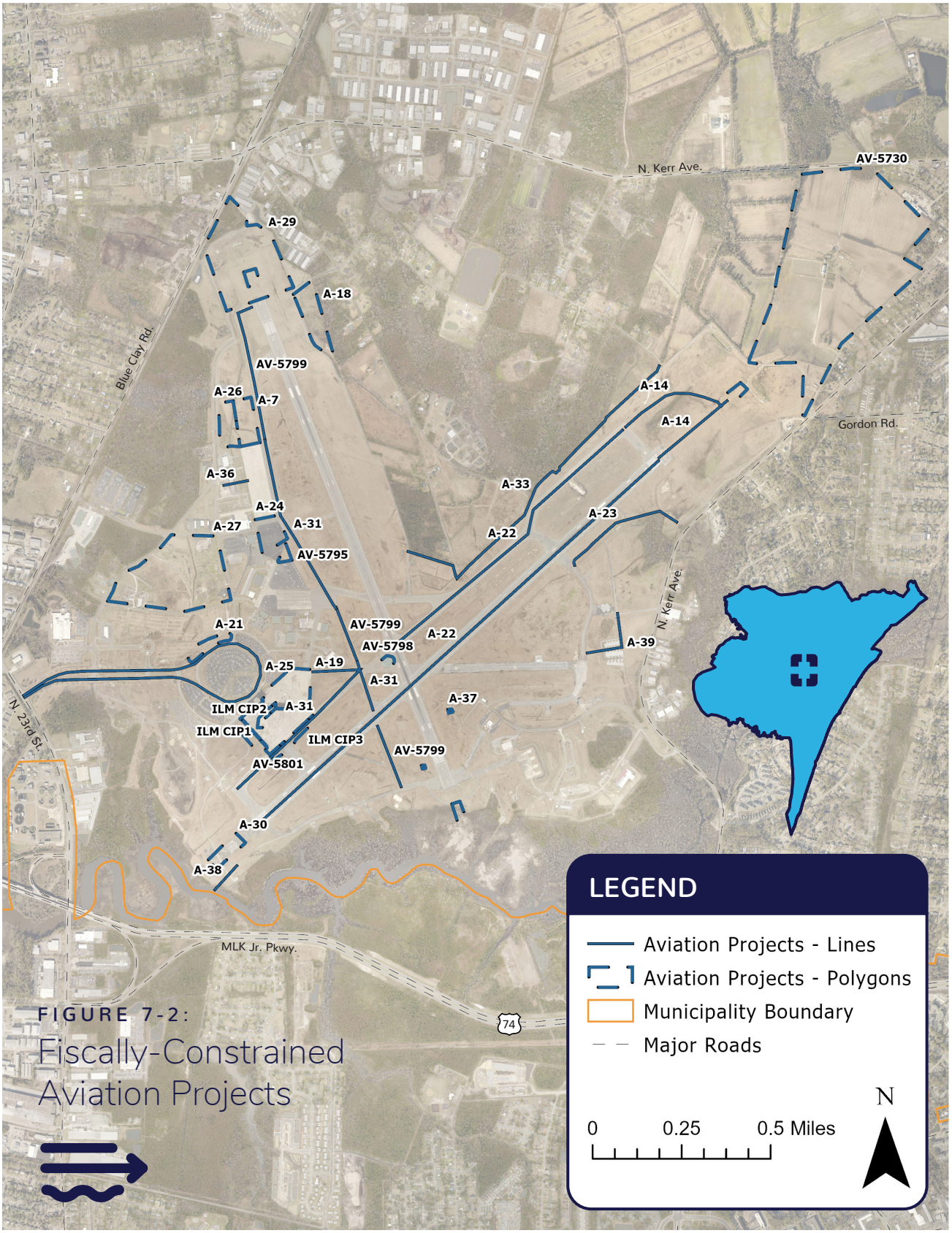


FIGURE 7-2:
Fiscally-Constrained Aviation Projects

Fiscally-Constrained Bicycle and Pedestrian Project List

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
1	EB-6029	Clarendon Avenue	2025	$645,000
2	EB-6028	Market St Signalized Pedestrian Crossing	2025	$125,000
3	EB-5719	Peachtree Avenue Bicycle Lane	2025	$187,000
4	BP-700	Market St & Lullwater Dr	2025	$28,300
5	BP-35	College Rd MUP (Phase I)	2025	$2,920,000
6	BP-559	Cross City Trail MUP Extension	2025	$2,750,000
7	BP-52	Oleander Dr BikePed Improvements	2025	$1,770,000
8	BP-36	College Rd MUP (Phase II)	2025	$2,480,000
9	BP-788	3rd St and Brunswick St	2025	$28,300
10	BP-16	Independence Blvd Extension MUP	2025	$4,410,000
11	BP-681	Oleander Dr & Dawson St	2025	$74,000
12	BP-233	Floral Pkwy BikePed Improvements	2025	$850,000
13	BP-619	Carolina Beach Rd & Antoinette Dr	2025	$75,700
14	BP-661	College Rd & Randall Pkwy	2025	$28,300
15	BP-589	Carolina Beach Rd and Shipyard Pedestrian Crossing Improvements	2025	$53,400
16	BP-649	New Centre Dr & N College Rd	2025	$53,800
17	BP-722	3rd St N & Red Cross St	2025	$28,300
18	BP-604	Lewis Dr & Lake Park Blvd	2025	$63,200
19	BP-846	Saint Joseph and Lake Park Intersection Improvements	2025	$29,200
20	BP-765	10th St & Wooster St	2025	$61,200
21	BP-636	University Drive & S College Rd	2025	$47,400
22	BP-560	US 421/Carolina Beach Rd and Halyburton Pkwy BikePed Crossing Improvements	2025	$75,100
23	BP-698	Market St and Barclay Hills Dr Pedestrian Crossing Improvements	2025	$39,800
24	BP-744	10th St & Dawson St	2025	$61,200
25	BP-775	Military Cutoff Rd & Destiny Way/Fresco Dr	2025	$50,800
26	BP-581	Carolina Beach Rd & College Rd	2025	$81,300
27	BP-774	Military Cutoff Rd & Sir Tyler Dr/Main St	2025	$50,800
28	BP-591	Greenville Loop Rd & Oleander Dr	2025	$40,100
29	BP-646	College Rd & Oleander Dr	2025	$77,400

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
30	BP-648	Military Cutoff Rd & Eastwood Rd	2025	$28,300
31	BP-584	College Rd & Monkey Junction Shopping Center Entrance	2025	$65,500
32	BP-590	Military Cutoff Rd & Wrightsville Ave	2025	$40,000
33	BP-597	17th St & Glen Meade Rd	2025	$75,400
34	BP-639	S 21st St & Market St	2025	$48,700
35	BP-669	3rd St & Dawson St	2025	$62,500
36	BP-635	Parker Farm Dr & Military Cutoff Rd	2025	$41,000
37	BP-574	Drysdale Dr & Military Cutoff Rd	2025	$31,000
38	BP-546	College Rd Central Trail	2030	$2,490,000
39	BP-15	Independence Blvd MUP (Phase II)	2030	$2,240,000
40	BP-28	Causeway Dr Bicyclist Improvements	2030	$1,160,000
41	BP-381	John D. Barry Bike Lanes	2030	$2,500,000
42	BP-361	College Rd Central Trail Ext.	2030	$2,420,000
43	BP-754	Princess Place Dr and 30th St	2030	$78,600
44	BP-281	Waynick Blvd	2030	$1,090,000
45	BP-594	Carolina Beach Rd & Independence Blvd	2030	$75,900
46	BP-633	Military Cutoff Rd & Cayman Court	2030	$58,300
47	BP-647	Market St & Gordon Rd	2030	$91,100
48	BP-579	Military Cutoff Rd & Station Rd	2030	$58,500
49	BP-642	Eastwood Rd & Bay Creek Dr	2030	$32,800
50	BP-795	Gordon Rd & Netherlands Dr	2030	$59,500
51	BP-839	US17 & W Gate Dr/Grandiflora Dr	2030	$75,900
52	BP-563	Causeway Dr & Salisbury St	2030	$60,600
53	BP-855	Echo Farms and George Anderson Crossing Improvements	2030	$91,100
54	BP-468b	Downtown Trail Greenway (Phase II, Nutt St to Burnt Mill Creek)	2035	$6,840,000
55	BP-556	17th St NHC Library Connection	2035	$2,650,000
56	BP-860	Wrightsville Beach Sidewalk Realignment	2035	$3,790,000
57	BP-12	US17 MUP	2035	$530,000
58	BP-849	S Lake Park Blvd Access to Carolina Beach Lake Park	2035	$39,300
59	BP-468a	Downtown Trail Greenway (Phase I, Riverfront Boardwalk to Bess St)	2040	$8,310,000

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
60	BP-49	Peachtree Ave BikePed Improvements	2040	$2,760,000
61	BP-193	Lake Ave BikePed Improvements	2040	$1,410,000
62	BP-298	Chappell Loop	2040	$250,000
63	BP-580	Carolina Beach Rd and Mateo Dr Pedestrian Crossing Improvements	2040	$120,000
64	BP-577	Bayshore Dr & Market St	2040	$100,000
65	BP-626	River Rd & Carolina Beach Rd	2040	$99,300
66	BP-644	Causeway Dr & Lumina St	2040	$44,100
67	BP-838	US17 & Olde Waterford Way/Ploof Rd SE	2040	$84,300
68	BP-842	US17 & Lanvale Rd NE (Provision Parkway)	2040	$160,000
69	BP-851	North Carolina Ave and Lake Park Blvd Intersection	2040	$45,500
70	BP-792	US17/Market St & N Green Meadows Dr	2040	$80,000
71	BP-845	Harper and Canal Intersection Improvements	2040	$59,200
72	BP-572	US421 & Isabel Holmes Bridge	2040	$65,900
73	BP-854	Harper Ave and 7th St Intersection Improvements	2040	$45,500
74	BP-625	Sanders Rd & River Rd	2040	$93,000
75	BP-843	K Ave & US421	2040	$110,000
76	BP-852	South Carolina Ave and Lake Park Blvd Intersection	2040	$45,500
77	BP-131	Lossen Lane BikePed Improvements	2040	$1,500,000
78	BP-627	Piner Rd & Myrtle Grove Rd	2040	$93,700
79	BP-853	Texas Ave and Lake Park Blvd Intersection Improvements	2040	$45,500
80	BP-1	5th Ave Bike Lane	2045	$2,600,000
81	BP-432	South Smith Creek Trail	2045	$10,130,000
82	BP-322	Carolina Beach Waterfront Trail	2045	$4,710,000

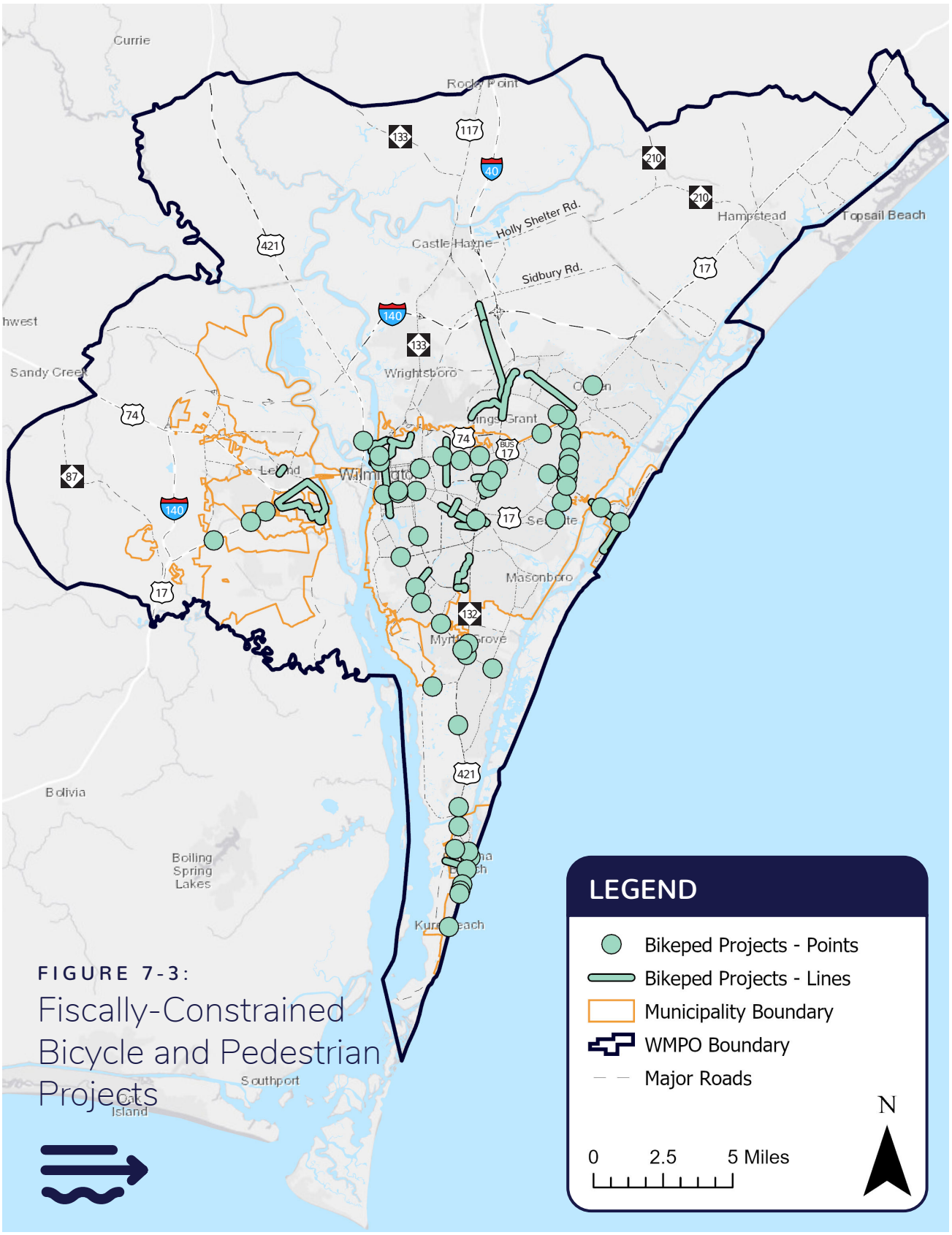
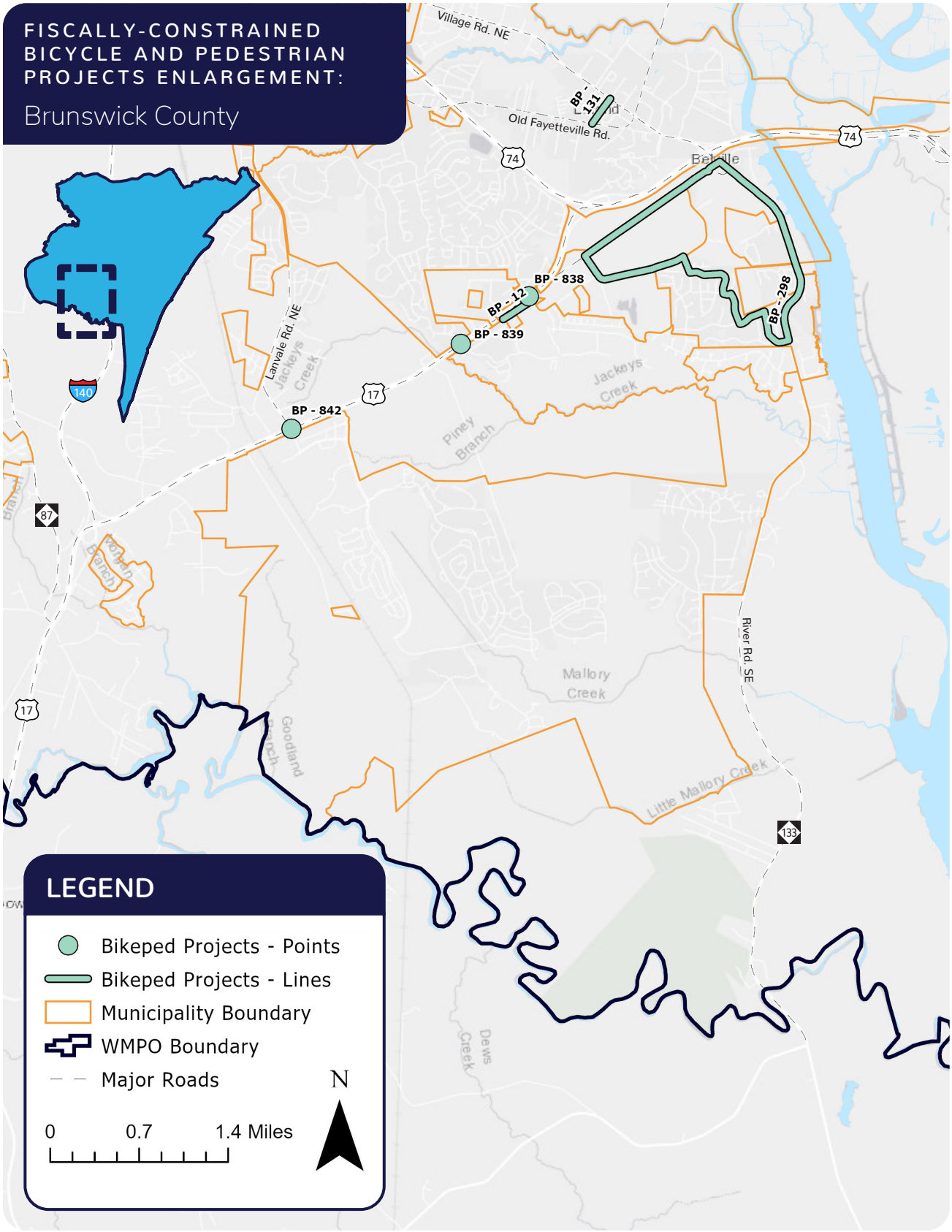
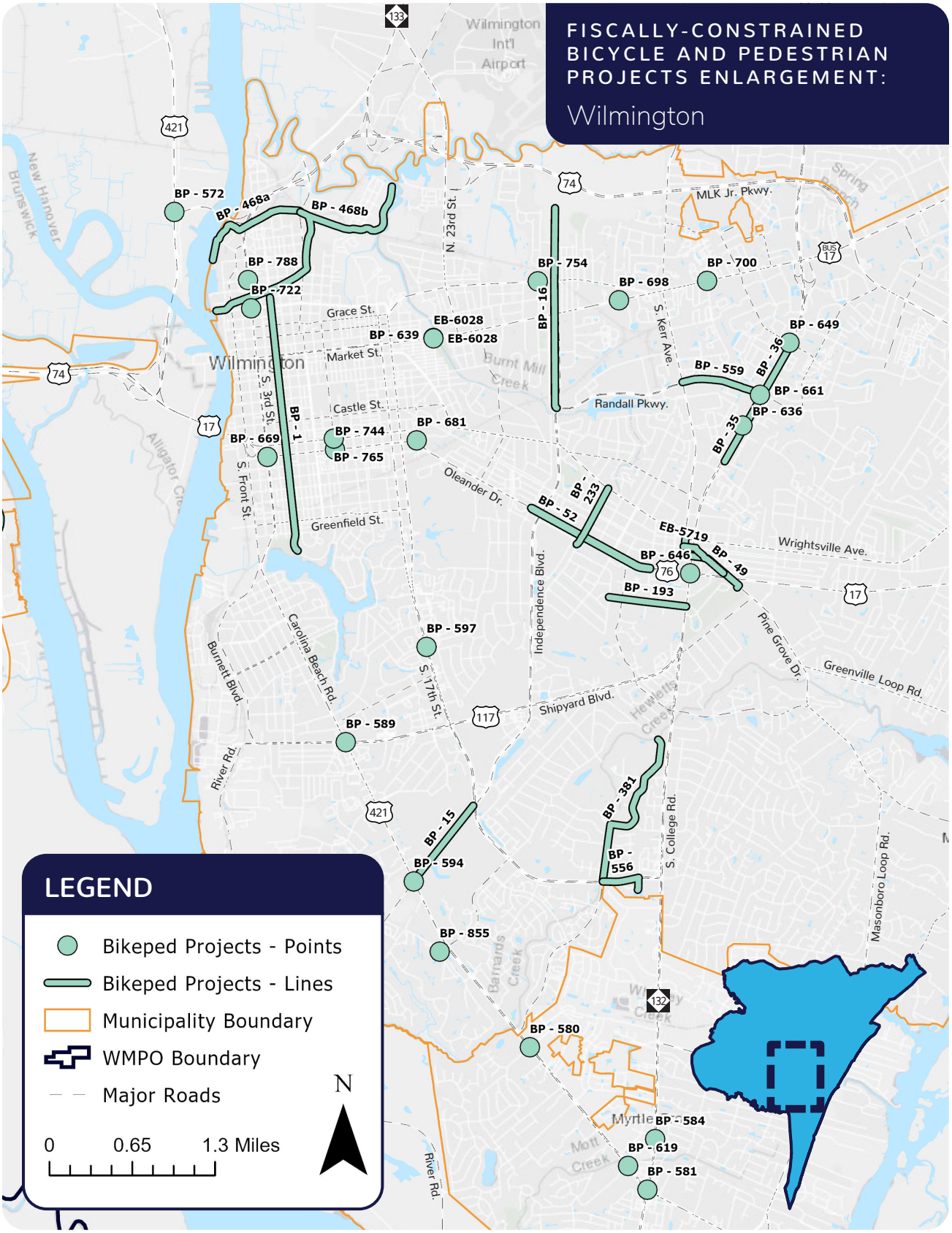
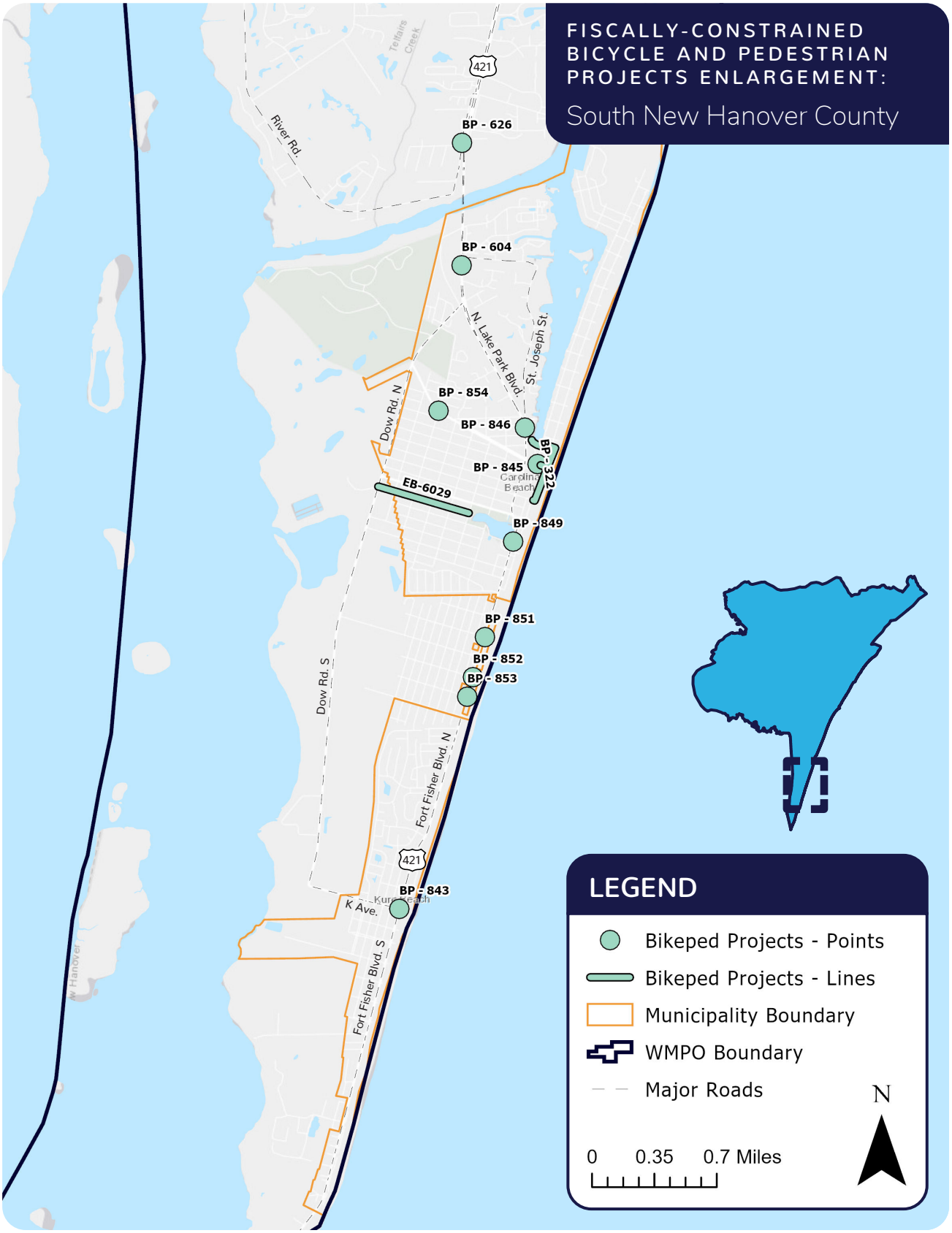


FIGURE 7-3:
Fiscally-Constrained Bicycle and Pedestrian Projects


FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECTS ENLARGEMENT:
Brunswick County
Village Rd. NE
BP - 131
Old Fayetteville Rd.
74
Belville
BP - 838
BP - 12
BP - 839
BP - 298
Lanvale Rd. NE
Jackeys Creek
17
BP - 842
Piney Branch
87
Mallory Creek
River Rd. SE
Goodland
Little Mallory Creek
133
LEGEND
Bikeped Projects - Points
Bikeped Projects - Lines
Municipality Boundary
WMPO Boundary
Major Roads
N
0
0.7
1.4 Miles


FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECTS ENLARGEMENT:
Wilmington
LEGEND
Bikeped Projects - Points
Bikeped Projects - Lines
Municipality Boundary
WMPO Boundary
Major Roads
0
0.65
1.3 Miles
N
BP - 572
BP - 468a
BP - 468b
BP - 788
BP - 722
BP - 669
BP - 1
BP - 744
BP - 765
BP - 681
BP - 639
EB-6028
EB-6028
BP - 754
BP - 16
BP - 698
BP - 700
BP - 649
BP - 36
BP - 559
BP - 661
BP - 636
BP - 35
BP - 233
BP - 52
EB-5719
BP - 646
BP - 49
BP - 193
BP - 597
BP - 589
BP - 15
BP - 594
BP - 855
BP - 381
BP - 556
BP - 580
BP - 584
BP - 619
BP - 581
Wilmington
Wilmington Int'l Airport
Grace St.
Market St.
Castle St.
Greenfield St.
Oleander Dr.
MLK Jr. Pkwy.
Randall Pkwy.
Wrightsville Ave.
Shipyard Blvd.
Greenville Loop Rd.
Pine Grove Dr.
Masonboro Loop Rd.
S. College Rd.
Independence Blvd.
Carolina Beach Rd.
Burnett Blvd.
River Rd.
S. 17th St.
S. 3rd St.
S. Front St.
N. 23rd St.
S. Kerr Ave.
Burnt Mill Creek
Barrards Creek
Myrtle
Mott Creek
Hewletts Creek
421
74
17
133
76
117
132
BUS 17


FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECTS ENLARGEMENT:
NE New Hanover County
Gordon Rd.
BUS 17
BP - 795
BP - 647
Middle Sound Loop Rd.
BP - 792
Market St.
BP - 579
BP - 633
Military Cutoff Rd.
BP - 774
BP - 775
74
BP - 635
BP - 642
BP - 574
BP - 648
Eastwood Rd.
BP - 590
BP - 860
BP - 563
BP - 28
Causeway Dr.
N. Lumina Ave.
Wrightsville Ave.
Greenville Ave.
17
BP - 591
Oleander Dr.
BP - 644
BP - 281
Greenville Loop Rd.
Masonboro
Masonboro Sound Rd.
LEGEND
Bikeped Projects - Points
Bikeped Projects - Lines
Municipality Boundary
WMPO Boundary
Major Roads
N
0
0.45
0.9 Miles


FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECTS ENLARGEMENT:
South New Hanover County
BP - 626
BP - 604
BP - 854
BP - 846
BP - 845
BP - 322
EB-6029
BP - 849
BP - 851
BP - 852
BP - 853
BP - 843
421
River Rd.
Telfairs Creek
N. Lake Park Blvd.
St. Joseph St.
Dow Rd. N
Dow Rd. S
Fort Fisher Blvd. N
Fort Fisher Blvd. S
K Ave.
Carolina Beach
Kure Beach
LEGEND
Bikeped Projects - Points
Bikeped Projects - Lines
Municipality Boundary
WMPO Boundary
Major Roads
N
0
0.35
0.7 Miles

Fiscally-Constrained Ferry and Water Transportation Project List

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
1	F-5703	Replacement Vessel (Support Fleet)*	2025	$3,250,000
2	F-2	Southport Additional Mooring Facility	2025	$5,796,370
3	F-24	Fort Fisher Pedestrian Improvements	2025	$39,006
4	F-22	Fort Fisher Mooring Facility	2030	$6,719,582
5	F-3	New River Class Vessel (3rd Ferry)	2035	$18,883,582
6	F-10	New River Class Vessel (4th Ferry)	2035	$18,883,582
7	F-5	Downtown Wilmington Ferry/Taxi Stop	2045	$444,258
8	F-1	Carolina Beach Ferry/Taxi Stop	2045	$444,258
9	F-6	Central Marina/Independence Terminal	2045	$3,331,934
10	F-4	Wrightsville Beach Ferry/Taxi Stop	2045	$444,258

** Not shown on map*

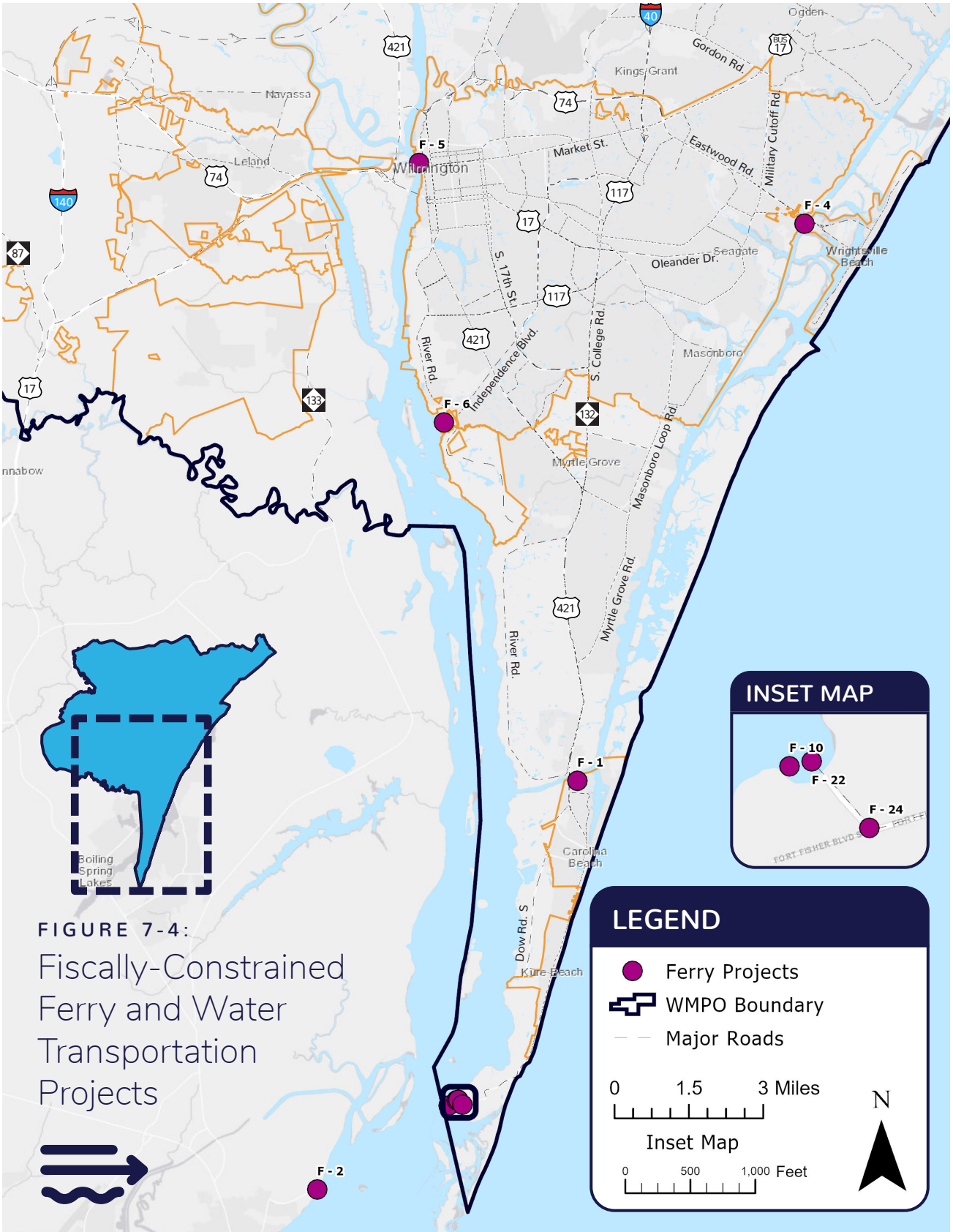


FIGURE 7-4:
Fiscally-Constrained Ferry and Water Transportation Projects

Fiscally-Constrained Freight and Freight Rail Project List

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
1	PROG	Wilmington Beltline Improvements*	2035	$41,400,000
2	FR-18	North Gate Separation	2025	$2,755,652
3	FR-12	Front Street RR Crossings (Meares)	2025	$1,095,000
	FR-13	Front Street RR Crossings (Marstellar)		
	FR-14	Front Street RR Crossings (Kidder)		
4	FR-22	Davis Yard At-grade Crossing (Cedar Hill Rd Safety Improvement)	2025	$365,171
5	FR-15	US421 Railroad Crossing	2025	$365,171
6	FR-21	Extension to Pender Commerce Park	2035	$9,347,804
7	FR-24	Redesign Railroad Interchange near Northwest District Park (CSX/USARMY)	2045	$15,464,046

** Not shown on map*

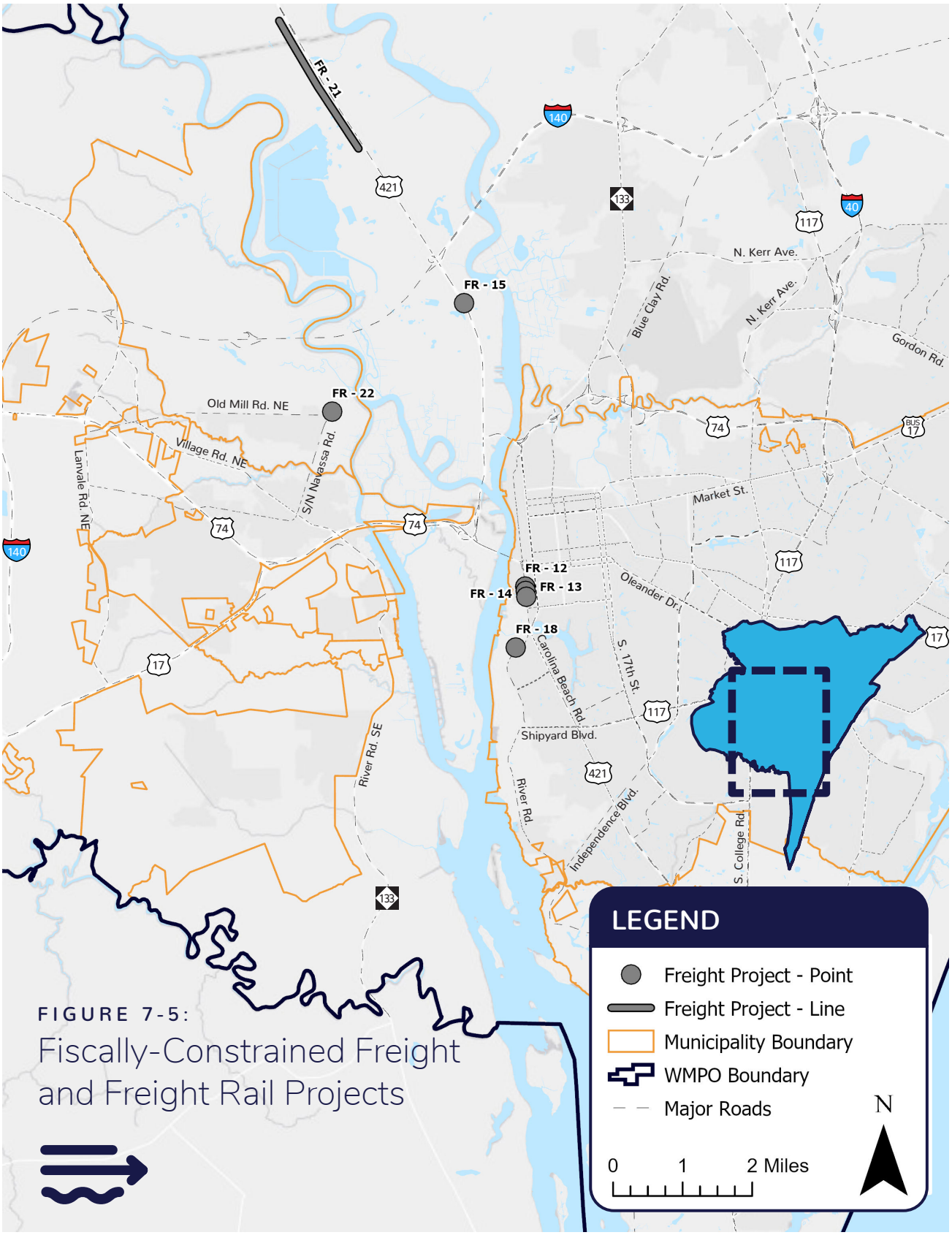


FIGURE 7-5:
Fiscally-Constrained Freight and Freight Rail Projects

Fiscally-Constrained Public Transportation Project List

Final Rank	Project ID	Project Name	Project Type	Planning Year	Planning Year Cost
1	TA-5222	Replacement LTV*	Vehicle Update	2025	$624,000
2	TA-5221	Replacement LTV*	Vehicle Update	2025	$226,000
3	TA-5223	Replacement Bus*	Vehicle Update	2025	$3,234,000
4	TG-6178	Route 201 Upgrade Amenities and Bus Stops	Amenity Upgrades	2025	$66,000
5	TD-5291	Route 204 Amenity Upgrades (Brunswick Connector)	Amenity Upgrades	2030	$136,000
6	TD-5292	Route 202 Amenity Upgrades (Oleander West)	Amenity Upgrades	2030	$136,000
7	TD-5296	Route 205 Amenity Upgrades (Long Leaf Park)	Amenity Upgrades	2030	$166,000
8	TD-5298	Route 101 Amenity Upgrades	Amenity Upgrades	2030	$196,000
9	TD-5290	Route 106 Amenity Upgrades (Shipyard Boulevard)	Amenity Upgrades	2030	$76,000
10	TG-4797	Routine Capital - Bus Stop Shelters, Benches, Shop Equipment, Spare Parts, Engines, Farebox, Service Vehicles, etc.*	Maintenance	2030	$420,000
11	PT-40	Independence Blvd at Park Ave	Amenity Upgrades	2025	$2,275
12	PT-17	Sigmon Rd at Walmart (Wilmington)	Park and Ride	2025	$25,028
13	PT-33	Military Cutoff Rd at Old Macumber Station Rd	Route	2025	$25,028
14	PT-65	Dawson St at 9th St	Amenity Upgrades	2025	$25,028
15	PT-94	17th St at Food Lion Plaza	Amenity Upgrades	2025	$25,028
16	PT-152	Earlier Weekday Service on High Ridership Routes (108)	Park and Ride	2025	$42,655
17	PT-15	Market St & Kerr Ave	Amenity Upgrades	2025	$25,028
18	PT-28	Randall Pkwy at Brailsford Dr	Amenity Upgrades	2025	$25,028
19	PT-29	Market St at Covil Ave	Park and Ride	2025	$25,028
20	PT-73	S 5th St at Dawson St	Amenity Upgrades	2025	$2,275

Final Rank	Project ID	Project Name	Project Type	Planning Year	Planning Year Cost
21	PT-74	S 10th St at Meares St	Amenity Upgrades	2025	$2,275
22	PT-151	Earlier Weekday Service on High Ridership Routes (105)	Park and Ride	2025	$63,427
23	PT-153	Earlier Weekday Service on High Ridership Routes (201)	Park and Ride	2025	$80,025
24	PT-21	Oleander Dr at Hawthorne Dr	Park and Ride	2025	$2,275
25	PT-154	Earlier Weekday Service on High Ridership Routes (205)	Park and Ride	2025	$36,910
26	PT-160	Wifi on Buses	Amenity Upgrades	2025	$144,504
27	PT-79	Wellington Ave at Flint Dr	Amenity Upgrades	2025	$2,275
28	PT-80	Greenfield St at S 13th St	Amenity Upgrades	2025	$25,028
29	PT-26	NHC Government Center at Government Center Dr	Vehicle Update	2025	$25,028
30	PT-77	Wellington Ave at Silver Stream Ln	Amenity Upgrades	2025	$2,275
31	PT-155	Upgrade Route 107 to Hourly to Align with Route 301	Route	2025	$209,079
32	PT-90	Wellington at 17th St	Amenity Upgrades	2025	$2,275
33	PT-30	New Centre Dr at Bob King Buick	Route	2025	$2,275
34	PT-41	Wilshire Blvd at Berkshires at Pelican Cove	Amenity Upgrades	2025	$2,275
35	PT-99	Carolina Beach Rd at S College Rd	Park and Ride	2025	$6,149
36	PT-104	US17 at Walmart	Park and Ride	2025	$6,149
37	PT-45	Marion Dr at Rutledge Dr	Amenity Upgrades	2025	$2,275
38	PT-13	Nixon St at N 5th St	Amenity Upgrades	2025	$861
39	PT-12	Nixon St & N 8th St	Amenity Upgrades	2025	$861
40	PT-146	Route 301 Hourly Frequency	Route	2030	$1,268,927
41	PT-159	Creekwood On-Demand Service Off Peak Hours	Park and Ride	2030	$881,120

Final Rank	Project ID	Project Name	Project Type	Planning Year	Planning Year Cost
42	PT-150	Rush Hour Service on High Ridership Routes 8-11am and 3-5pm (205)	Park and Ride	2030	$840,034
43	PT-27	S College & Randall Pkwy	Route	2030	$29,014
44	PT-64	S 5th St at Castle St	Amenity Upgrades	2030	$29,014
45	PT-42	Wilshire Blvd at S Kerr Ave	Amenity Upgrades	2030	$2,638
46	PT-135	Extend Trolley Service Frequency	Route	2035	$2,942,069
47	PT-148	Rush Hour Service on High Ridership Routes 8-11am and 3-5pm (108)	Route	2035	$1,125,428
48	PT-9	Route 104, 30 Minute Frequency	Route	2035	$1,471,034
49	PT-91	Village Road at Food Lion	Amenity Upgrades	2035	$33,635
50	PT-44	Carolina Beach Rd at Roses	Amenity Upgrades	2035	$33,635
51	PT-16	Market St at Lullwater Dr	Park and Ride	2035	$33,635
52	PT-35	S 16th St at Wright St	Facility	2035	$33,635
53	PT-18	S College Rd (SB) at University Dr	Amenity Upgrades	2035	$33,635
54	PT-118	Galleria Mall	Park and Ride	2035	$8,264
55	PT-119	Mayfaire Mall	Park and Ride	2035	$8,264
56	PT-22	Oleander Dr at Giles Ave	Park and Ride	2035	$3,058
57	PT-11	Princess Place Dr at N 25th St	Amenity Upgrades	2035	$1,157
58	PT-147	Rush Hour Service on High Ridership Routes 8-11am and 3-5pm (105)	Route	2040	$1,940,010
59	PT-149	Rush Hour Service on High Ridership Routes 8-11am and 3-5pm (201)	Route	2040	$2,447,704
60	PT-157	Pleasure Island Trolley, with Bus Stop at Ferry, and Amenities	Park and Ride	2040	$1,705,332
61	PT-19	S College Rd at Wilshire Blvd	Park and Ride	2040	$38,993
62	PT-132	Satellite Beach Parking with Bus Station Hub	Park and Ride	2040	$237,180

Final Rank	Project ID	Project Name	Project Type	Planning Year	Planning Year Cost
63	PT-156	Route 204 Extended Service to 9pm and Weekends	Park and Ride	2040	$130,295
64	PT-25	S College Rd (NB) at University Dr	Route	2040	$38,993
65	PT-53	Carolina Beach Rd at Tennessee Ave (BOA)	Amenity Upgrades	2040	$38,993
66	PT-103	Market St at Porters Neck Rd	Park and Ride	2040	$9,581
67	PT-100	I-40 at Cape Fear Community College North Campus	Park and Ride	2040	$9,581
68	PT-37	Shipyard Boulevard at Commons Dr	Route	2040	$3,545
69	PT-66	Lake Ave at S College Rd	Amenity Upgrades	2040	$3,545
70	PT-98	Carolina Beach Rd at Snow's Cut Bridge	Park and Ride	2040	$9,581
71	PT-102	Market St at Middle Sound Loop Rd	Park and Ride	2040	$9,581
72	PT-105	US17 at Island Creek Rd (NC210)	Park and Ride	2040	$9,581
73	PT-78	Wellington Ave at Troy Dr	Amenity Upgrades	2040	$3,545
74	PT-70	5th St at Ann St	Amenity Upgrades	2040	$3,545
75	PT-5	New Route through Masonboro Loop Rd with Hourly Service, Heavy Duty Bus	Route	2045	$1,976,947
76	PT-8	New Route to Porters Neck, Heavy Duty Bus	Route	2045	$1,976,947
77	PT-112	I-140 at US17	Park and Ride	2045	$274,957
78	PT-162	Military Cutoff Rd High Density Local Route	Park and Ride	2045	$588,642
79	PT-140	Public Transportation to and from the Ferry	Route	2045	$1,976,947
80	PT-107	Wave Central Station - Forden Station	Park and Ride	2045	$274,957
81	PT-10	Princess Place Dr at Montgomery Ave	Amenity Upgrades	2045	$45,203
82	PT-87	Rankin St at 11th St	Amenity Upgrades	2045	$45,203
83	PT-67	Shipyard Blvd at S 41st St	Amenity Upgrades	2045	$45,203
84	PT-161	Solar Lights at Bus Stops	Park and Ride	2045	$330,084

Final Rank	Project ID	Project Name	Project Type	Planning Year	Planning Year Cost
85	PT-34	Gordon Rd at Food Lion	Facility	2045	$45,203
86	PT-38	Independence Blvd at Canterbury Dr	Route	2045	$45,203
87	PT-47	Market St at N 16th St	Amenity Upgrades	2045	$45,203
88	PT-121	Fairfield Park	Park and Ride	2045	$11,106
89	PT-120	Barclay West	Park and Ride	2045	$11,106
90	PT-31	Eastwood Rd at Rogersville Rd	Amenity Upgrades	2045	$4,109
91	PT-82	Wilmington Multimodal Transportation Center (Phase 1B)**	Facility	2025	$1,700,000

* *Not shown on map*

** Alternative funding from WMPO's Direct Attributable program identified after the financial forecast was developed

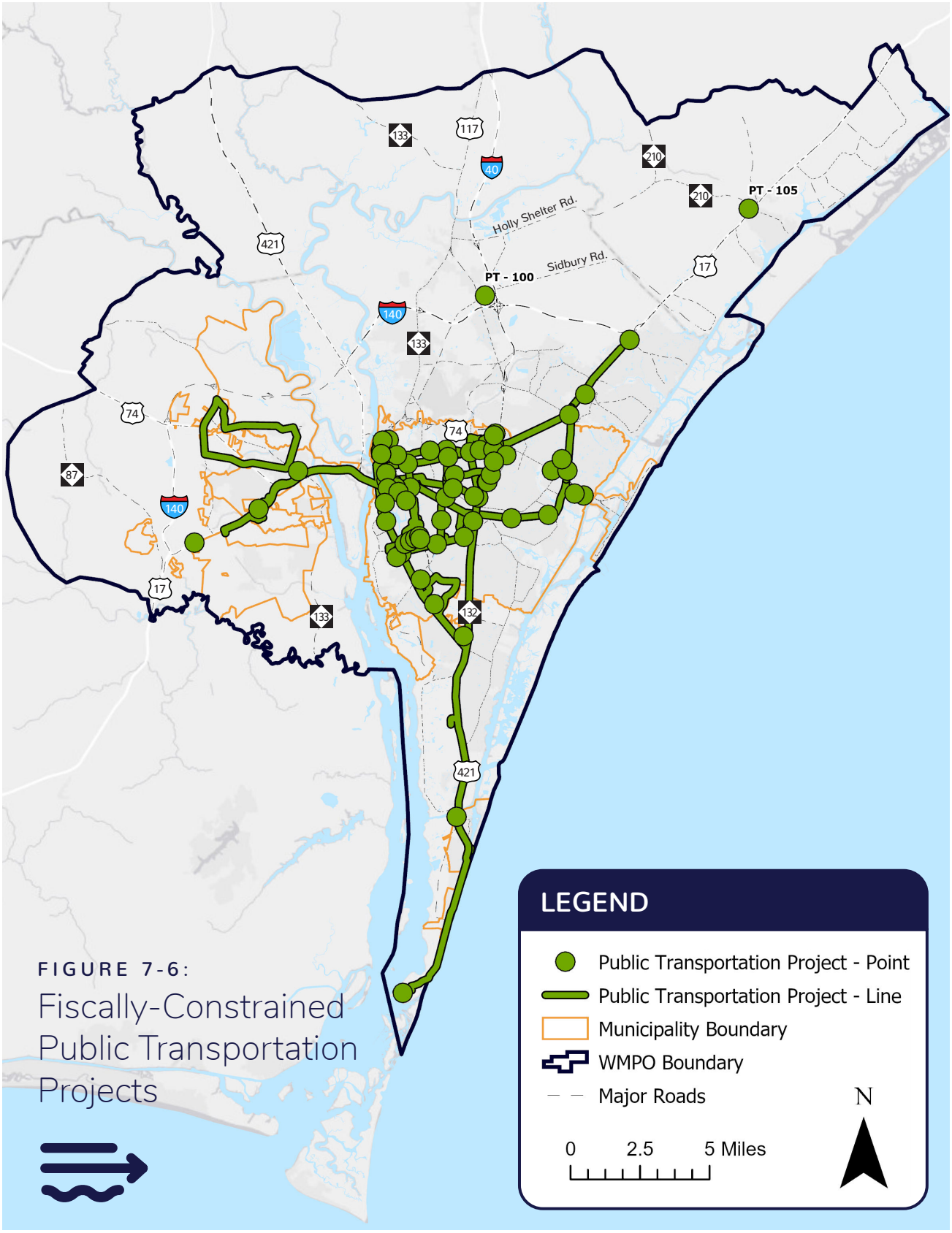
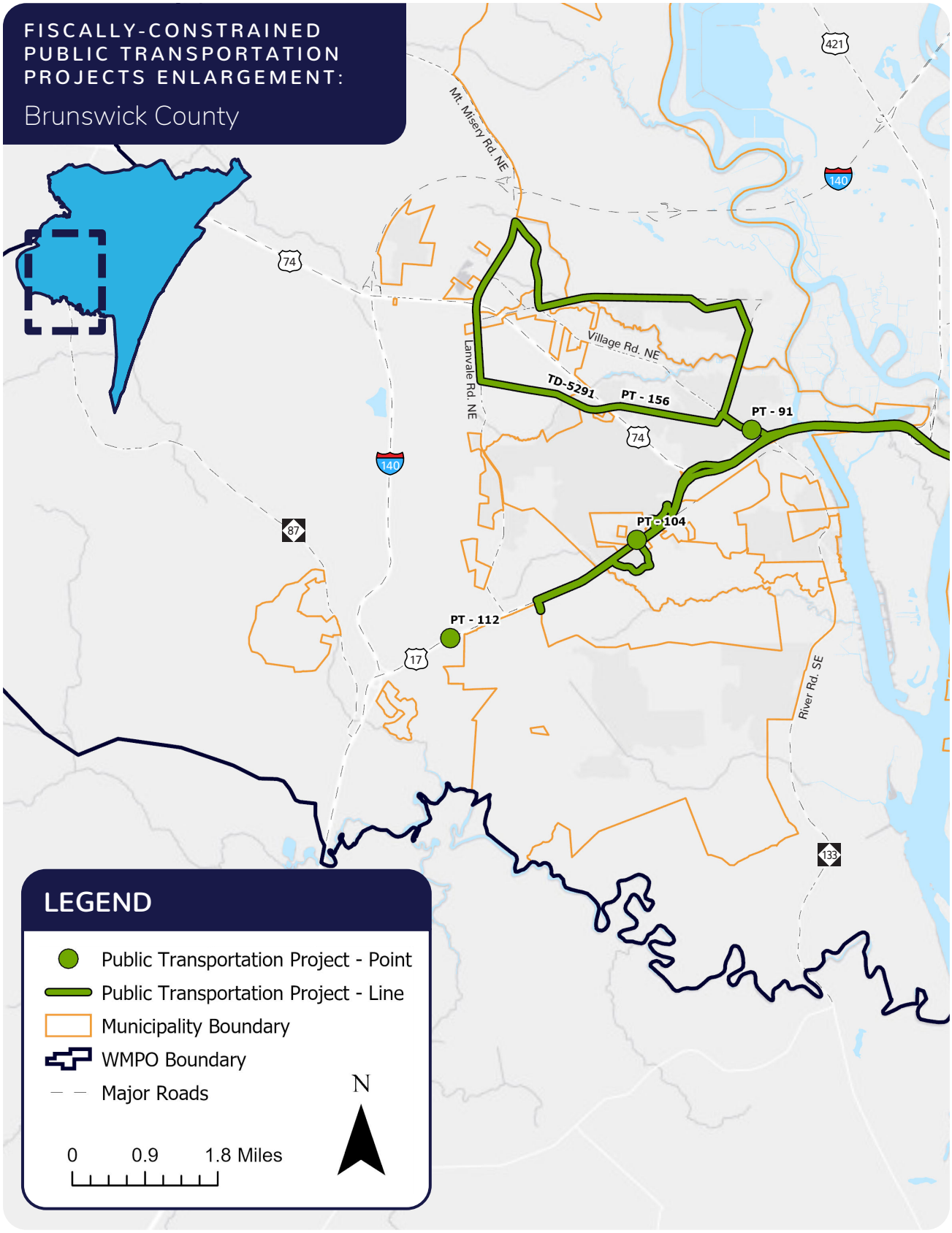
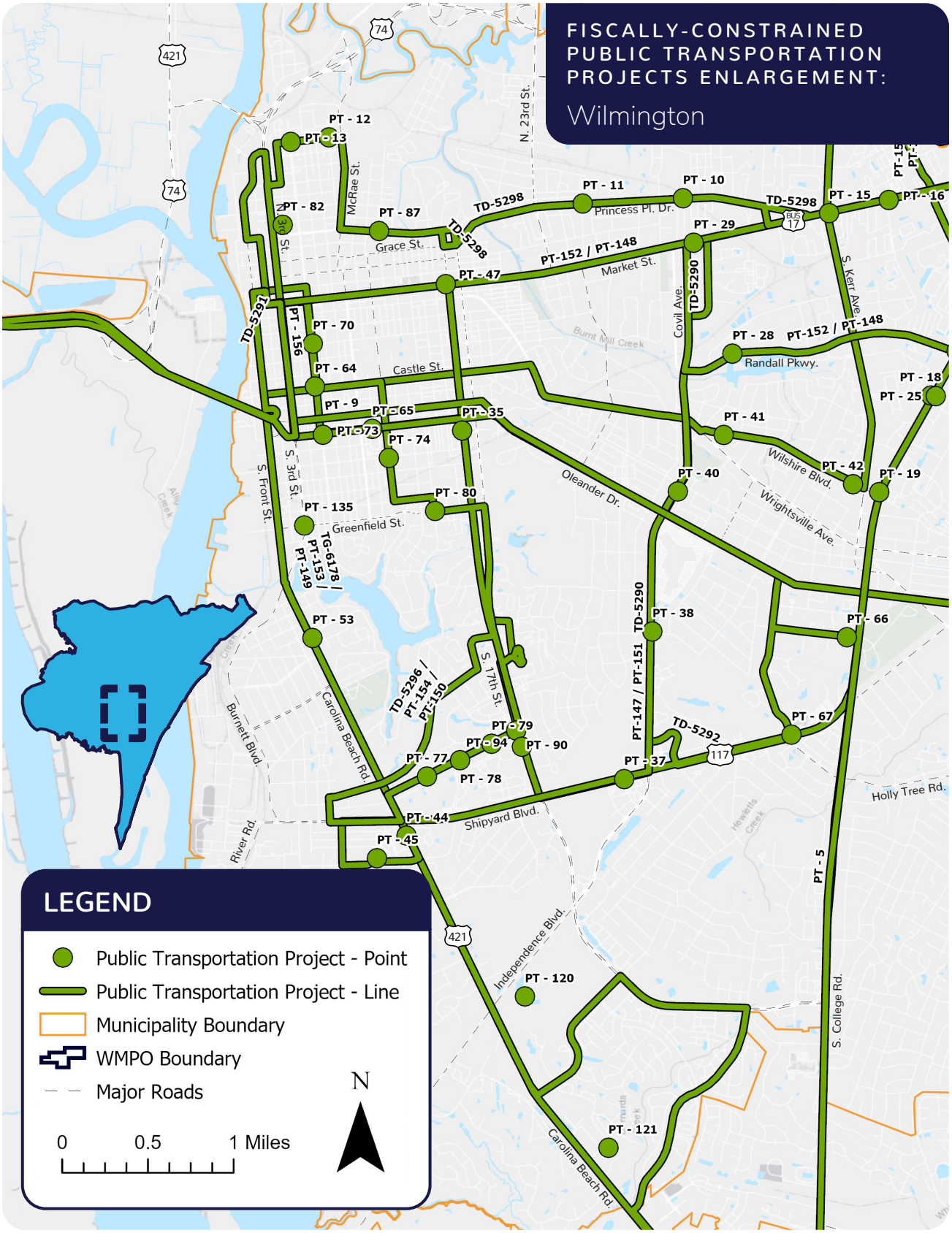
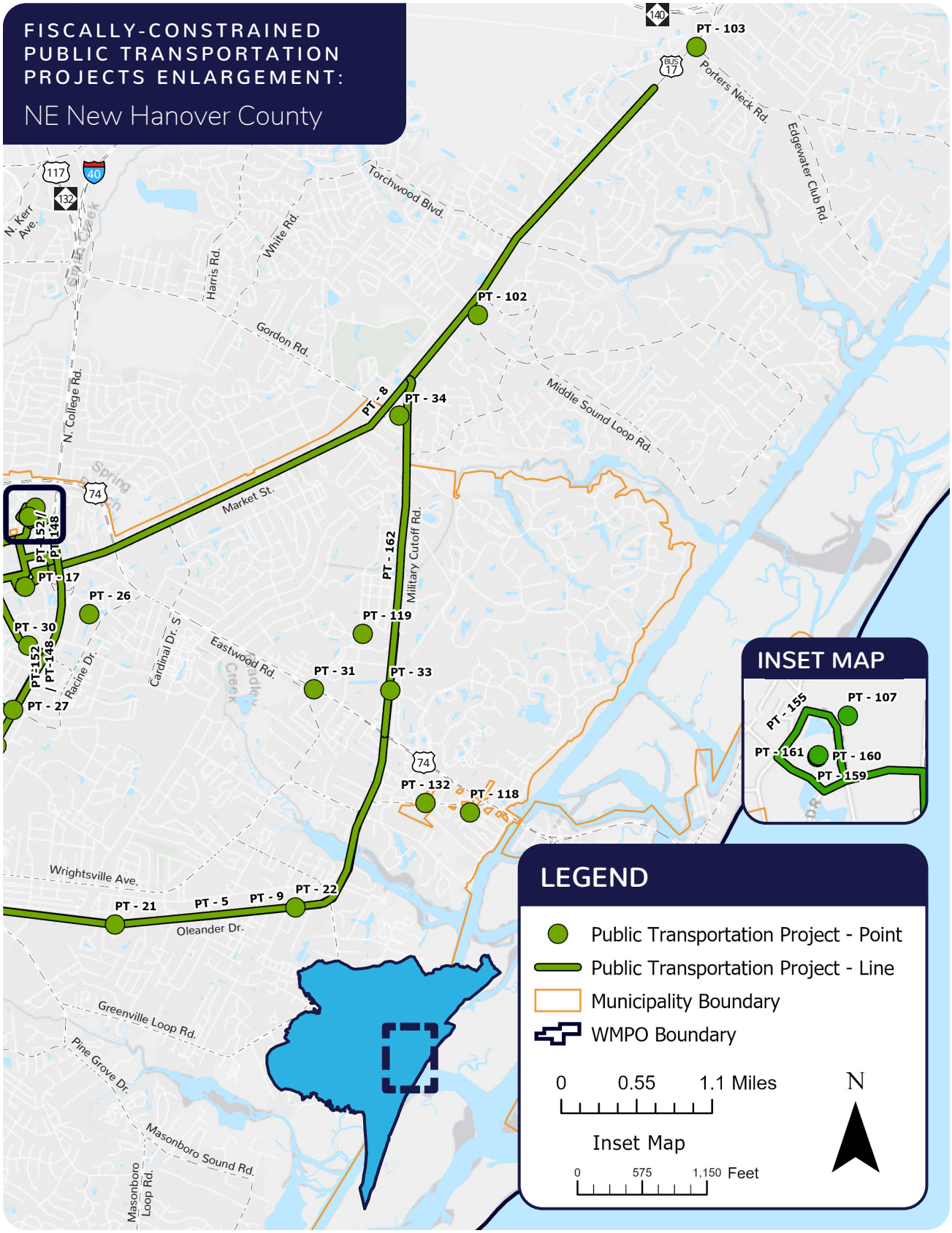
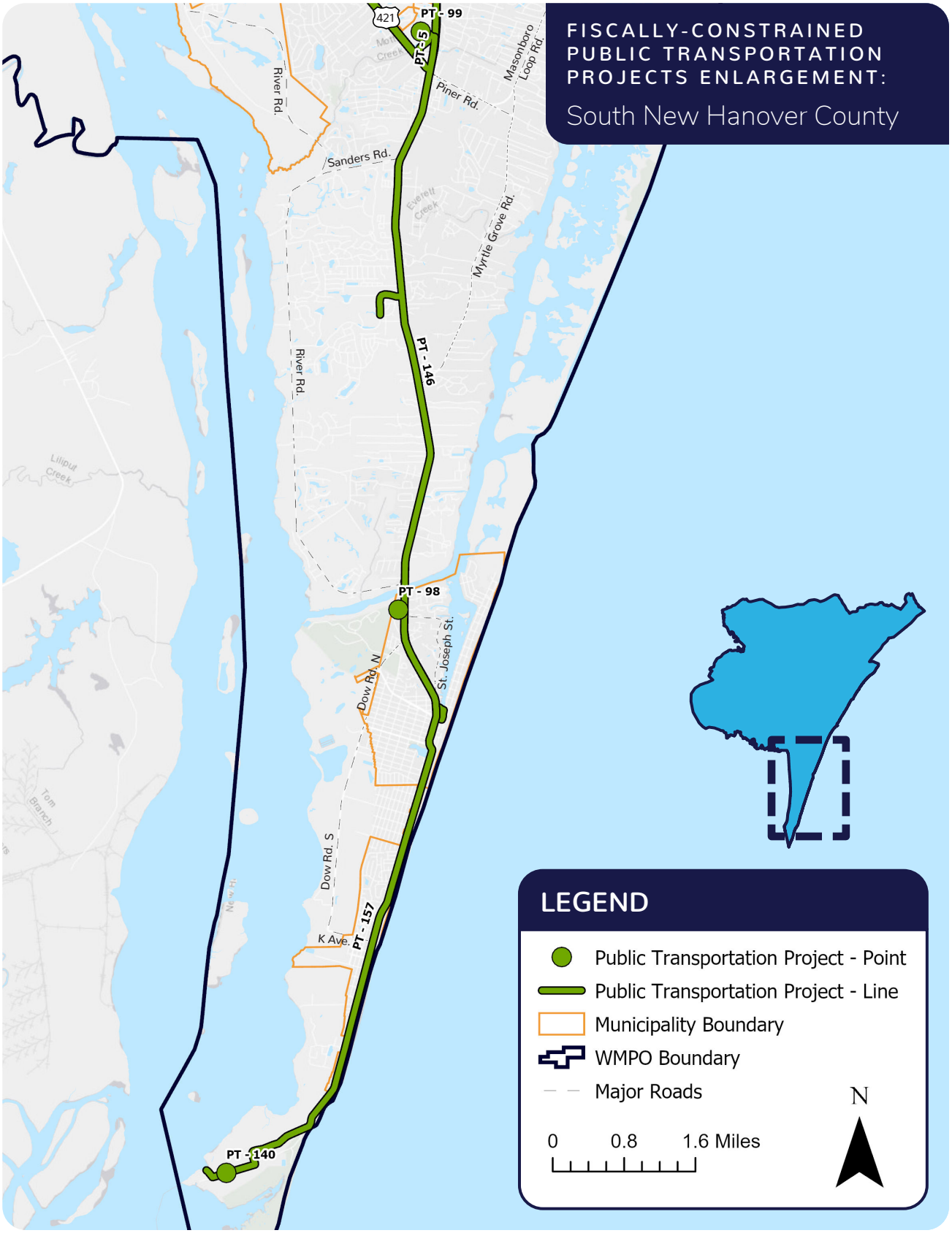


FIGURE 7-6:
Fiscally-Constrained Public Transportation Projects


FISCALLY-CONSTRAINED PUBLIC TRANSPORTATION PROJECTS ENLARGEMENT:
Brunswick County
Mt. Misery Rd. NE
Village Rd. NE
Lanvale Rd. NE
TD-5291
PT - 156
PT - 91
PT - 104
PT - 112
River Rd. SE
421
140
74
87
17
133
LEGEND
Public Transportation Project - Point
Public Transportation Project - Line
Municipality Boundary
WMPO Boundary
Major Roads
0
0.9
1.8 Miles
N


FISCALLY-CONSTRAINED PUBLIC TRANSPORTATION PROJECTS ENLARGEMENT:
Wilmington
LEGEND
Public Transportation Project - Point
Public Transportation Project - Line
Municipality Boundary
WMPO Boundary
Major Roads
0
0.5
1 Miles
N
PT - 12
PT - 13
PT - 82
PT - 87
PT - 11
PT - 10
PT - 15
PT - 16
PT - 29
PT - 47
PT - 70
PT - 64
PT - 9
PT - 65
PT - 35
PT - 73
PT - 74
PT - 80
PT - 135
PT - 53
PT - 41
PT - 40
PT - 42
PT - 19
PT - 18
PT - 25
PT - 28
PT - 38
PT - 66
PT - 67
PT - 79
PT - 94
PT - 90
PT - 77
PT - 78
PT - 37
PT - 44
PT - 45
PT - 120
PT - 121
PT - 5
TD-5298
TD-5291
TD-5290
TD-5296 / PT-154 / PT-150
TD-6178 / PT-153 / PT-149
PT-147 / PT-151
TD-5292
PT-152 / PT-148
PT-156
Princess Pl. Dr.
Grace St.
Market St.
Castle St.
Burnt Mill Creek
Randall Pkwy.
Wilshire Blvd.
Oleander Dr.
Wrightsville Ave.
Greenfield St.
Carolina Beach Rd.
Burnett Blvd.
River Rd.
Shipyard Blvd.
Holly Tree Rd.
Independence Blvd.
S. College Rd.
McRae St.
N. 23rd St.
S. 3rd St.
S. Front St.
S. 17th St.
Covil Ave
S. Kerr Ave.
74
421
117
BUS 17


FISCALLY-CONSTRAINED PUBLIC TRANSPORTATION PROJECTS ENLARGEMENT:
NE New Hanover County
PT - 103
PT - 102
PT - 8
PT - 34
PT - 162
PT - 119
PT - 31
PT - 33
PT - 132
PT - 118
PT - 22
PT - 21
PT - 5
PT - 9
PT - 17
PT - 26
PT - 30
PT - 27
PT - 152 / PT - 148
PT - 52 / PT - 148
Porters Neck Rd.
Edgewater Club Rd.
Torchwood Blvd.
White Rd.
Harris Rd.
Gordon Rd.
Middle Sound Loop Rd.
N. College Rd.
N. Kerr Ave.
Market St.
Military Cutoff Rd.
Eastwood Rd.
Cardinal Dr. S
Racine Dr.
Wrightsville Ave.
Oleander Dr.
Greenville Loop Rd.
Pine Grove Dr.
Masonboro Sound Rd.
Masonboro Loop Rd.
INSET MAP
PT - 107
PT - 155
PT - 161
PT - 160
PT - 159
LEGEND
Public Transportation Project - Point
Public Transportation Project - Line
Municipality Boundary
WMPO Boundary
0 0.55 1.1 Miles
Inset Map
0 575 1,150 Feet
N


FISCALLY-CONSTRAINED PUBLIC TRANSPORTATION PROJECTS ENLARGEMENT:
South New Hanover County
421
PT - 99
PT - 5
Piner Rd.
Masonboro Loop Rd.
River Rd.
Sanders Rd.
Everett Creek
Myrtle Grove Rd.
PT - 146
River Rd.
Lilliput Creek
PT - 98
St. Joseph St.
Dow Rd. N
Tom Branch
Dow Rd. S
K Ave.
PT - 157
PT - 140
LEGEND
Public Transportation Project - Point
Public Transportation Project - Line
Municipality Boundary
WMPO Boundary
Major Roads
0
0.8
1.6 Miles
N

Fiscally-Constrained Roadway Project List

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
1	R-3300	Hampstead Bypass	2025	$81,600,000
2	U-5863	NC133/Castle Hayne Rd Widening	2025	$30,374,000
3	U-5704	US76 (Oleander Dr) & NC132 (College Rd) Interchange	2025	$55,300,000
4	U-5790	US421/Carolina Bead Rd Widening and Intersection Improvements	2025	$25,094,000
5	U-5734	US421/Front St Widening	2025	$26,000,000
6	U-5729	US421/Carolina Beach Rd Upgrade	2025	$13,000,000
7	U-4751	Military Cutoff Rd Extension	2025	$47,650,000
8	U-4434	Independence Blvd Extension	2025	$100,433,000
9	U-5732	US17 Superstreet	2025	$19,389,000
10	R-2633***	I-140 Wilmington Bypass	2025	$88,810,000
11	U-5731	Isabel Holmes Bridge Flyovers	2025	$36,000,000
12	U-5792	US74/MLK & College Rd Intersection	2025	$25,110,000
13	U-5710	US74/Eastwood Rd & Military Cutoff Rd	2025	$29,637,000
14	U-4902	Market St (US17) Access Management improvements (includes US74 & Market Interchange and RW-142)	2025	$59,300,000
15	U-3338	Kerr Ave Widening	2025	$20,500,000
16	U-5702	College Rd Access Management	2025	$100,966,000
17	U-5881	College Rd Upgrade Roadway	2025	$81,700,000
18	U-5914	NC133 Modernize Roadway	2025	$1,800,000
19	U-5926	New Route 23rd St to 26th St	2025	$5,322,000
20	U-6083	North 23rd Street Widening	2030	$23,000,000
21	U-6080	Kerr Ave Widening	2030	$25,900,000
22	U-5954	NC133 and North 23rd St Roundabout	2030	$2,350,000
23	U-6201	Kerr Ave Extension	2030	$5,400,000
24	U-6199	Wilmington Citywide Signal System	2030	$15,960,000
25	U-6128	US76/Oleander Dr & Greenville Loop Rd/ Greenville Ave Intersection	2035	$9,500,000
26	U-6202	Gordon Rd Widening	2035	$85,115,000
27	RW-216*	CoW Signal Ethernet Improvements	2025	$338,604

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
28	RW-124	US117/Shipyard Boulevard Speed Sensors and Warning	2025	$20,000
29	RW-219	US17 BUS/Market Street Road Diet (I of II)	2025	$2,620,000
30	RW-227	US74/Salisbury Street & Lumina Avenue Streetscape	2025	$705,257
31	RW-10	New Centre Drive Extension to Clear Run	2025	$1,290,000
32	RW-137	US117 and NC210 Intersection Improvements	2025	$1,260,000
33	RW-176	Old Fayetteville Road Interchange	2030	$43,410,000
34	RW-17	US17/76 (Oleander) Access Management Improvements	2030	$20,860,000
35	RW-220	US17 BUS/Market Street Road Diet (II of II)	2030	$4,230,000
36	RW-92	Dawson Street Streetscape	2030	$6,370,000
37	RW-106	US17 to NC133 Connector Road	2030	$48,110,000
38	RW-93	Wooster Street Streetscape	2030	$6,280,000
39	RW-26	Blue Clay Rd Improvements	2030	$1,420,000
40	RW-6	Hoover Road Widening	2030	$4,620,000
41	RW-83	Dogwood Lane Extension	2035	$63,220,000
42	RW-20	US17/74/76/Causeway Improvements (Phase 2)	2035	$92,090,000
43	RW-115	Internal Port Access Road	2035	$34,010,000
44	RW-77	Basin Street Extension	2035	$39,430,000
45	RW-13	Godfrey Creek Road Extension to NC210	2035	$25,780,000
46	RW-181	Blue Clay Road Interchange	2035	$24,870,000
47	RW-99	Murrayville Road Widening	2035	$60,250,000
48	RW-129	Navaho Trail and Masonboro Loop Rd Roundabout (Northern Intersection)	2035	$1,790,000
49	RW-16	Myrtle Grove Road Widening	2035	$79,670,000
50	RW-25	Piner Road Improvements and Intersection Realignment	2035	$21,200,000
51	RW-193	Myrtle Grove/Piner/Masonboro Loop Rd Roundabout	2035	$10,080,000
52	RW-191	Mohican Trail & Masonboro Loop Rd Roundabout	2035	$10,700,000
53	RW-192	Navaho Trail and Masonboro Loop Rd Roundabout (Southern Intersection)	2035	$9,660,000
54	RW-78	Old Fayetteville Road Widening	2035	$35,520,000

Final Rank	Project ID	Project Name	Planning Year	Planning Year Cost
55	RW-166	Sidbury Road/Hampstead Bypass Interchange	2035	$22,340,000
56	RW-127	Cape Fear Memorial Bridge Replacement	2040	$377,480,000
57	RWT-223	Independence Blvd Access Management	2040	$89,110,000
58	RWT-221	US421/Snow's Cut Bridge Replacement	2040	$149,090,000
59	RW-7	Lanvale Road Widening	2040	$64,620,000
60	RW-18	Sloop Point Road Widening	2040	$8,870,000
61	RW-226	US74/421 and US17/76 Merge Lane Addition	2040	$20,660,000
62	RW-123	Burnett Boulevard Widening	2045	$123,830,000
63	RW-102	Greenville Loop Road Widening	2045	$81,450,000
64	RW-202	Salisbury Street & Causeway Drive Roundabout	2045	$53,290,000
65	RW-51	NC133/River Road Widening	2045	$164,990,000
66	RW-5	Heide Trask Bridge Replacement	2045	$234,500,000
67	RW-29	Center Dr Extension Segment 1	2045	$15,080,000
68	RW-30	Center Dr Extension Segment 2	2045	$31,600,000
69	RW-31	Center Dr Extension Segment 3	2045	$12,000,000
70	RW-186	US17/17 BUS & NC140 Interchange Improvements	2045	$21,310,000
71	RW-55	River Road Relocation	2045	$20,270,000
72	RW-23	Sidbury Road Improvements	2045	$19,200,000
73	RW-35	Harrison Creek Road Extension	2045	$45,350,000
74**	U-4738	Cape Fear Crossing (Funded Portion)	2045	$158,670,000

* *Not shown on map for clarity (Citywide improvements)*

** Anticipated toll revenues were included in the financial forecast for this plan in order to fiscally constrain a portion of this project

*** I-140 funded by GARVEE Bonds; Construction complete 2017, to be paid back through 2025

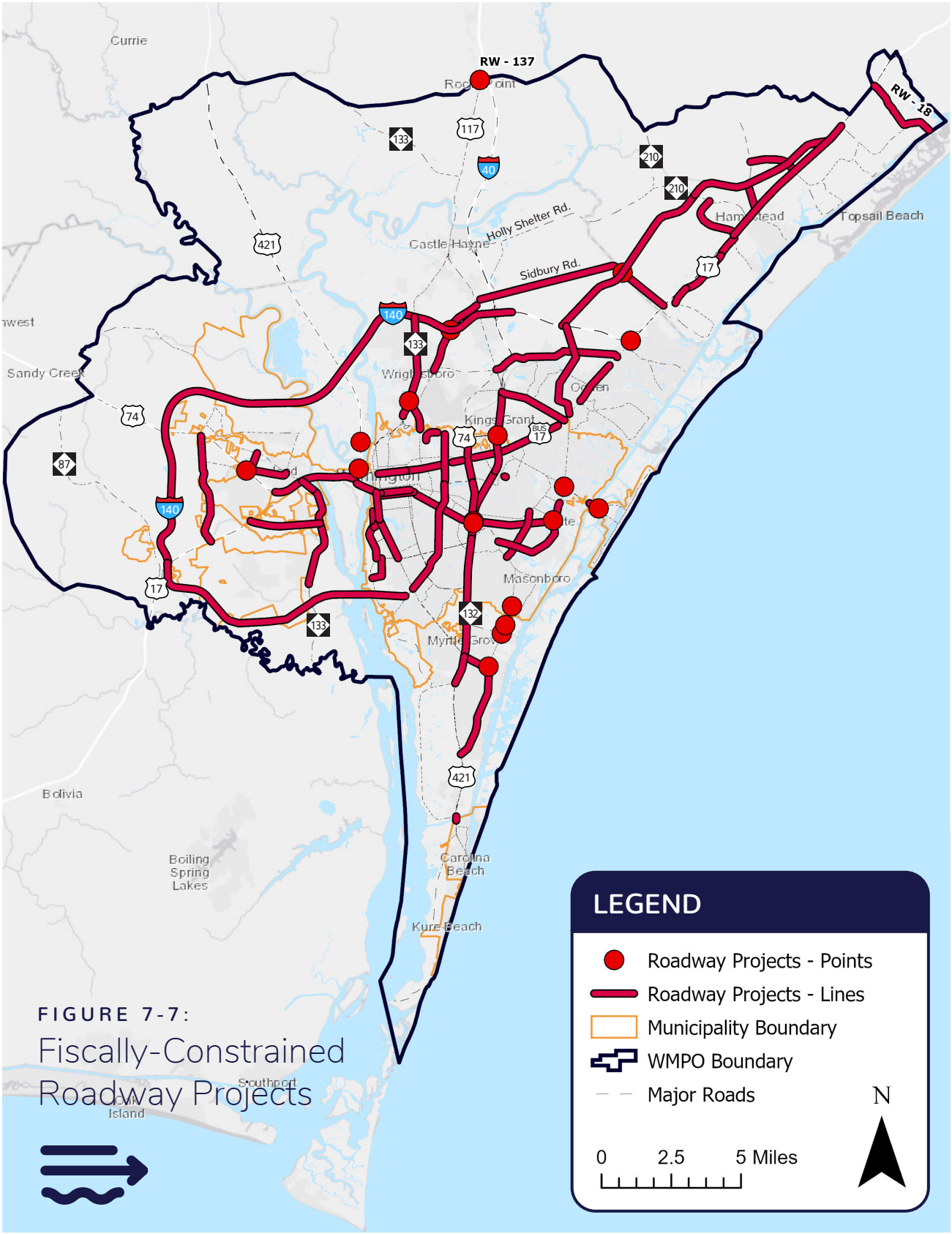
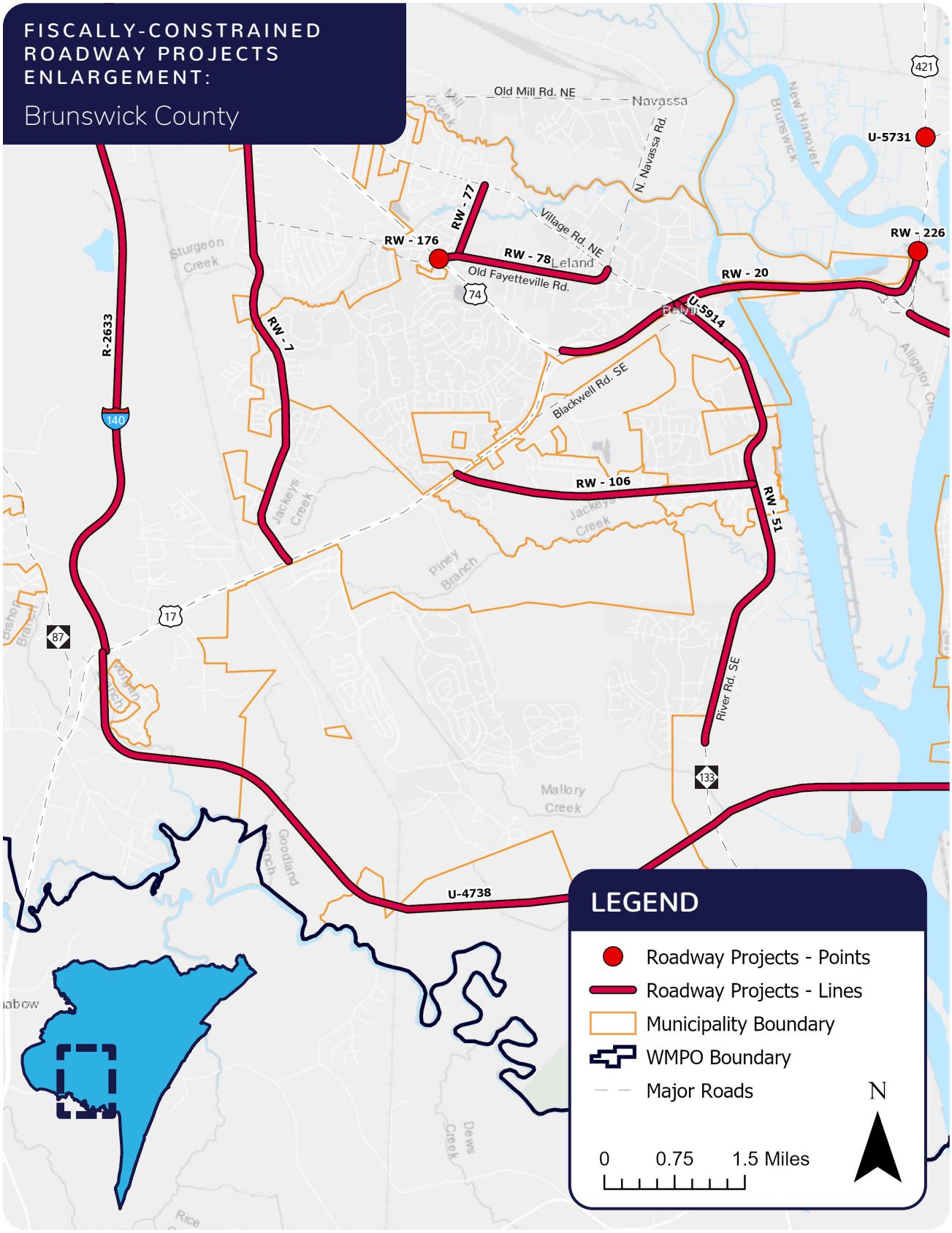


FIGURE 7-7:
Fiscally-Constrained Roadway Projects


FISCALLY-CONSTRAINED ROADWAY PROJECTS ENLARGEMENT:
Brunswick County
Old Mill Rd. NE
Navassa
N. Navassa Rd.
U-5731
421
RW - 77
RW - 176
Village Rd. NE
RW - 78
Leland
Old Fayetteville Rd.
74
RW - 226
RW - 20
U-5914
Belville
Sturgeon Creek
R-2633
140
RW - 7
Blackwell Rd. SE
RW - 106
RW - 51
Jackeys Creek
Piney Branch
17
87
River Rd. SE
133
Mallory Creek
Goodland
U-4738
Dews Creek
Rice
LEGEND
Roadway Projects - Points
Roadway Projects - Lines
Municipality Boundary
WMPO Boundary
Major Roads
N
0
0.75
1.5 Miles


FISCALLY-CONSTRAINED ROADWAY PROJECTS ENLARGEMENT:
Wilmington
U-5792
U-4902C
U-5881
U-4902B
U-5926
U-4434
U-3338B
U-5702A
U-6080
U-5704
U-5710
U-6128
U-6199
U-5734
U-5729REG
U-4738
U-5702B
U-5790
RW - 219
RW - 220
RW - 10
RW - 92
RW - 214
RW - 5
RW - 202
RW - 227
RW - 17
RW - 83
RW - 102
RW - 115
RW - 55
RW-223
RW - 216
RW - 129
RW - 192
RW - 191
RW - 25
RW - 193
RW - 16
RW-221
Eastwood Rd.
Military Cutoff Rd.
Seagate
Greenville Loop Rd.
S. 17th St.
Independence Blvd.
Masonboro
Carolina Beach Rd.
Myrtle Grove
Myrtle Grove Rd.
River Rd.
Dow Rd. S
Carolina Beach
Kure Beach
17
76
74
117
421
BUS 17
LEGEND
Roadway Projects - Points
Roadway Projects - Lines
Municipality Boundary
WMPO Boundary
Major Roads
N
0
1
2 Miles

FISCALLY-CONSTRAINED ROADWAY PROJECTS ENLARGEMENT:

NE New Hanover & Pender Counties