



APRIL 2015

2040 Jacksonville Urban Area Metropolitan Planning Organization LONG RANGE TRANSPORTATION PLAN



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ACKNOWLEDGEMENTS

The Jacksonville Urban Area Metropolitan Planning Organization thanks the diverse group of participants whose input was instrumental in creating a blueprint for a coordinated transportation system that provides real choice among modes of travel. The JUMPO 2040 Long Range Transportation Plan is the direct result of a collaborative effort between the City of Jacksonville, Onslow County and the North Carolina Department of Transportation. We extend our sincere appreciation to the elected officials, residents, stakeholders, and local staff who participated in the planning process and guided the development of this plan. Everyone's time, input, and energy are greatly appreciated.

Table of Contents

Chapter 1 – Introduction

Chapter 2 – Existing System

Chapter 3 – Public Transportation

Chapter 4 – Active Transportation

Chapter 5 – Future System

Chapter 6 – Financial Plan



Introduction

As a central component of daily life and something that affects everyone, transportation represents a critical component of an area's social and man-made infrastructure. The *Jacksonville Urban Area Metropolitan Planning Organization 2040 Long Range Transportation Plan (JUMPO 2040 LRTP)* defines the community's strategy for creating a regional transportation system that accommodates the current mobility needs of residents and looks to the future to anticipate where new needs may arise. The *JUMPO 2040 LRTP* is a financially constrained plan, meaning it identifies projects and programs that can reasonably be implemented within the years of the plan. In response to federal mandates and the desires of local residents, the long range transportation plan addresses all modes of transport, including automobile, bicycle, pedestrian, transit, air, and rail movements.

The *JUMPO 2040 LRTP* is the largest planning effort required by the Jacksonville Urban Area Metropolitan Planning Organization (JUMPO). It is also the most far-reaching. The plan fulfills federal requirements and serves as the region's transportation vision. It seeks to characterize current and future transportation needs, outline the region's long-range transportation vision, document multi-modal transportation strategies to address needs through the year 2040, and identify long-term opportunities beyond the current ability to fund projects. Federal funding cannot be allocated to transportation projects unless they are included in this financially-constrained plan.

Background

The scope for the *JUMPO 2040 LRTP* includes establishing goals for the region, reviewing current plans and studies, analyzing transportation and land use conditions, engaging stakeholders and the community, identifying multimodal recommendations, and developing a financially-constrained plan. The planning process was guided by a Steering Committee that offered feedback throughout the plan development.

Reason for the Plan

The Jacksonville Urban Area Metropolitan Planning Organization (JUMPO) is the regional transportation planning organization for the Jacksonville, NC metropolitan area. JUMPO consists of representatives from the City of Jacksonville, Onslow County, the North Carolina Department of Transportation, and area military bases. JUMPO facilitates a regional, cooperative planning process that serves as the basis for spending the region's state and federal transportation funds for improvements to streets, highways, bridges, public transit, bicycle and pedestrian networks.

The long range transportation plan characterizes current and future transportation needs and provides multimodal transportation strategies to address these needs. The plan must be reviewed and updated every five years; a minor update occurred in 2010. The *JUMPO 2040 LRTP* outlines the region's long-range transportation vision and identifies the projects that are necessary through the year 2040 in order to attain that vision. Most importantly, federal funding cannot be allocated to transportation projects unless they are included within the list of projects in the long range transportation plan. The projects must be fiscally constrained, meaning that JUMPO cannot plan to spend more money than it reasonably expects to receive.

Federal Transportation Requirements (MAP-21)

The *JUMPO 2040 LRTP* is governed by the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was signed into law on July 6, 2012. MAP-21 allocated \$105 billion for surface transportation programs in its first two fiscal years (FY2013 and FY2014). The goals of MAP-21 include strengthening America's highways, establishing a performance-based program, creating jobs and supporting economic growth, supporting the United States Department of Transportation's aggressive safety agenda, streamlining Federal Highway transportation programs, and accelerating project delivery and promoting innovation. These goals are illustrated through eight broad planning factors identified for special focus within the metropolitan planning organization's (MPO) long range transportation planning program.

The *JUMPO 2040 LRTP* addresses the following planning factors.

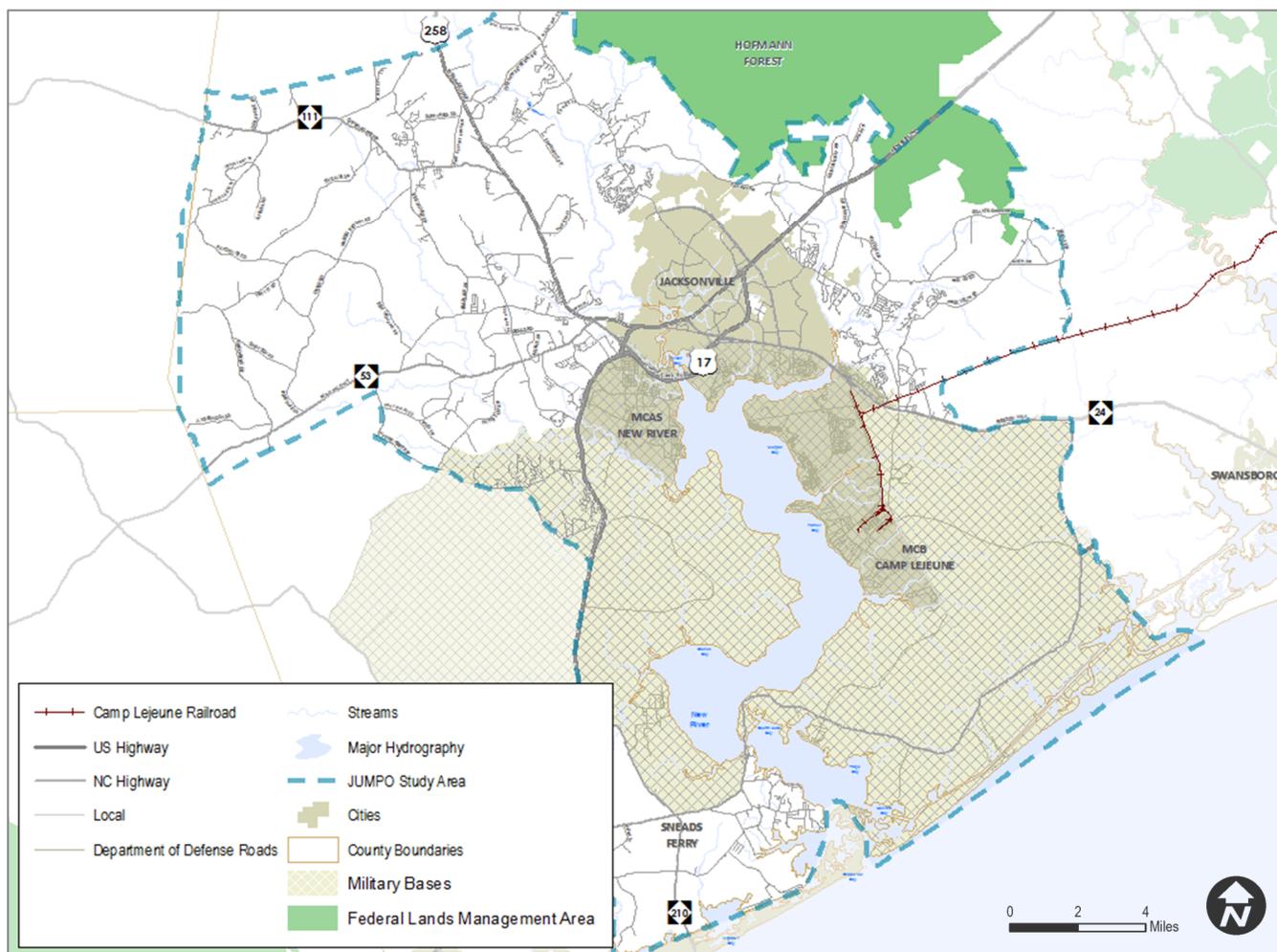
1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
2. Increase the safety of the transportation system for motorized and non-motorized users
3. Increase the security of the transportation system for motorized and non-motorized users
4. Increase the accessibility and mobility of people and for freight
5. 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
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
7. Promote efficient system management and operation
8. Emphasize the preservation of the existing transportation system

Transportation infrastructure in the Jacksonville area offers a significant resource that can be leveraged in a competitive marketplace. The challenge is to enhance transportation infrastructure by making thoughtful decisions regarding needs today and those that can realistically be anticipated in the future. Since the last plan update, roads have been constructed, the off-street trail network has expanded, and socioeconomic trends and travel patterns have shifted. Given the increasing competition for limited transportation funds, it is imperative to outline a list of priorities and develop an implementation plan to see those projects to completion. The long range transportation plan is shaped by several elements, primarily federal legislation, but also the direction of state and local agencies.

The Study Area

The Jacksonville Urban Area Metropolitan Planning Organization (JUMPO) covers a large portion of Onslow County, which is located in southeastern North Carolina. The county is bound by the Atlantic Ocean to its south. JUMPO is responsible for transportation policy development, planning, and programming for the City of Jacksonville and surrounding areas of unincorporated Onslow County.

In general, the planning boundary covers locations in which growth is likely to occur during the timespan of the long range transportation plan. MPOs are required to evaluate their boundary after each U.S. Census to ensure the planning area is inclusive of all future urbanized areas. As a result of the Census evaluation, JUMPO's boundary expanded to include areas near the airport and Sneads Ferry in 2012.

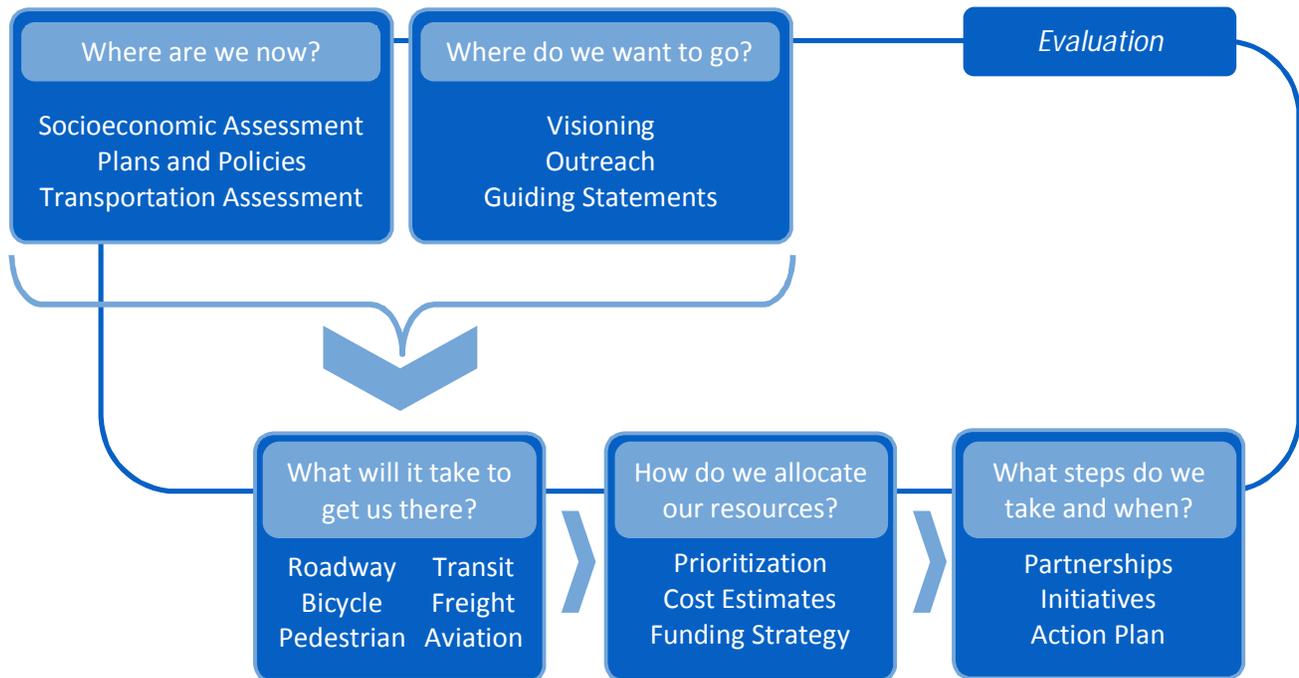


Planning Process

The *JUMPO 2040 LRTP* represents a collaborative effort to establish a vision for the Jacksonville area's transportation network and identify a coordinated set of multimodal projects to achieve it. The plan addresses existing issues and anticipated concerns for congestion, safety, access, and connectivity. The planning process requires a cooperative process between multiple jurisdictions, key stakeholders, and citizens, and is designed to create an open dialogue among the larger community. The *JUMPO 2040 LRTP* answers the following questions:

- Where are we now?
- Where do we want to go?
- What will it take to get us there?
- How do we allocate our resources?
- What steps do we take and when?

The process began with an explanation of socioeconomic conditions, a review of plans and policies, and an assessment of the current transportation network. A set of guiding statements were developed ahead of creating a coordinated set of multimodal recommendations. Once the full set of recommendations were developed, a prioritization process was created and available resources through the year 2040 were identified. The financially constrained plan provides a blueprint of transportation projects over the next 25 years.



Community Outreach

Citizen involvement—whether through direct contact or by the input of community representatives—is an important part of successful transportation planning. The *JUMPO 2040 LRTP* relies on the notion that fully understanding the community’s vision for transportation and the dynamics involved in achieving it requires a collaborative approach. As a result, local staff and the project team reached out to the community throughout the planning process. Along the way, several overarching issues emerged:

- *The plan should provide strategies to address the area’s most important corridors and its worst performing intersections.*
- *The plan should offer strategic bicycle, pedestrian, and transit recommendations.*
- *The plan should consider previous planning efforts. Emphasis should be placed on consolidating plans, rectifying discrepancies, and modifying recommendations where necessary.*
- *The plan should address the financial constraints that the region and state will face over the next 25 years.*
- *The plan should acknowledge that the movement of people and goods to, from, and within the Jacksonville area directly affects economic competitiveness.*

These issues as well as others surfaced during the four categories of community engagement activities described below. Staff also gathered input as part of Jacksonville’s National Night Out event on August 5, 2014. Issues are reflected in the Guiding Statements (later in this chapter) and the plan’s recommendations.

Steering Committee

The Steering Committee included local officials, staff, agency representatives, and stakeholders. The group—representing the needs of the community—assisted with the development of the Guiding Statements, reviewed preliminary recommendations, and offered feedback on the prioritization process. Meetings were held on March 20, July 8, and October 14, 2014.

Online Survey

An interactive online survey was available beginning on May 5, 2014. Over the next three months, more than 100 participants offered input on community preferences, opinions, and issues for the various transportation modes. Participants also identified issues and potential solutions by placing icons on a map. The online survey yielded more than 2,000 data points for consideration during the development of the plan.

Stakeholder Interviews

Information was gathered through several stakeholder interviews. These included small group discussions with city and county staff, elected officials, MCB Camp Lejeune, Onslow Memorial Hospital, Jacksonville Transit, Onslow United Transit System, and NCDOT. The meetings shed light on issues and needs of the transportation system relative to each organization’s interests.

Community Workshops

The *JUMPO 2040 LRTP* process included three workshops designed to gather community input. At the first workshop participants viewed existing conditions exhibits and offered feedback on the plan’s vision. The second workshop was held in the center court of Jacksonville Mall and preliminary recommendations were displayed. The final workshop provided formal input during the plan’s public review period.

Guiding Statements

The first step in developing a long range transportation plan is to establish goals and objectives to provide direction for the plan. The *JUMPO 2040 LRTP* guiding statements reflect the community's vision for the transportation system. The guiding statements also help identify ways to prioritize potential recommendations, an important step as the Jacksonville area faces a shortage of transportation dollars to fund identified needs.

Guiding Statements

The Steering Committee assisted in creating the following guiding statements for use throughout the development of the *JUMPO 2040 LRTP*. The guiding statements provide direction for the long range transportation plan, notably as projects are prioritized, and respond to MAP-21 planning factors, local context, and regional needs. Each statement consists of a key phrase (i.e. guiding principle) with supporting description. The principles are further clarified by a trio of planning goals. The guiding statements represent a set of value statements for six major transportation priorities identified for the long range transportation plan. The statements outline strategies that aim to guide regional growth. As multi-modal strategies were developed, the project team revisited the guiding principles to determine which principles a given project or strategy addresses. The result of this analysis provides a portion of the project evaluation process.

A. Congestion Reduction



Create a more efficient transportation system through improved connectivity, capacity, and operations.

Congestion typically occurs from bottlenecks (primarily at intersections) or when too many people travel on a route that already operates at or over capacity. Congestion often is the side effect of deliberate growth, and responses to congestion sometimes can make it worse. Best practices suggest addressing congestion through improvements to existing roads, strategic construction of new roads, interconnectivity, opportunities for safe and convenient walking and bicycling, improved transit opportunities, and mutually supportive transportation and land use initiatives. Congestion Mitigation projects seek to:

- Address issues identified in the travel demand model;
- Advocate strategic capacity improvements (i.e. widening existing roads and constructing new facilities);
- Implement operational improvements and access management on key corridors; and
- Improve connectivity through collector streets.

Planning Goals:

- A.1 Promote reductions in recurring congestion through transportation capacity, access management, and policy improvements.
- A.2 Recognize savings (e.g. time and fuel consumption) by minimizing vehicle miles traveled through enhanced integration and connectivity of the transportation system, across and between modes, for people and freight.
- A.3 Promote efficient system management and operation, and support measures that reduce single occupant vehicle travel during peak demand hours.

B. Economic Vitality



Support regional growth through a transportation network that serves inter- and intra-regional accessibility and mobility needs for both people and goods.

Ensuring transportation investments support economic vitality in the Jacksonville area is critical. Good transportation investments address industry needs such as shipping goods, encouraging economic growth, and improving access to regional assets such as MCB Camp Lejeune and MCAS New River. The intent is to identify transportation improvements that position the region to be competitive in local, regional, and national markets. Economic Vitality projects seek to:

- Improve road and rail connections to industrial assets;
- Enhance access to interstate highways beyond the study area;
- Address congestion on strategic corridors and at important nodes; and
- Promote system management strategies.

Planning Goals:

- B.1 Identify transportation recommendations that enable global competitiveness, productivity, and efficiency.
- B.2 Increase the accessibility and mobility of people and freight, both civilian and military-related, within the region and to other areas.
- B.3 Leverage gateways and aesthetics to create an atmosphere that fosters economic investment.

C. Environmental Sustainability



Preserve the social and environmental character of the region through an integrated transportation and land use strategy that addresses transportation solutions.

Local, state, and federal planning guidelines have evolved over recent decades to place additional emphasis on the role transportation planning plays in conserving the environment, preserving our neighborhoods, and protecting quality of life. For the Jacksonville area, this process has been aided through land use planning, developmental controls, environmental planning, and socioeconomic awareness. Environmental Sustainability projects seek to:

- Minimize impacts to natural resources by enhancing current transportation infrastructure;
- Promote the active use of appropriate natural areas;
- Maximize existing roadway capacity by improving connectivity; and
- Avoid unnecessary or disproportionate impacts to minority and low-income communities.

Planning Goals:

- C.1 Protect and enhance the natural and social environment using context-sensitive transportation strategies.
- C.2 Minimize direct and indirect environmental impacts of the transportation system while planning and prioritizing transportation recommendations.
- C.3 Promote consistency between transportation improvements, land use decisions, and economic development patterns.

D. Multimodal Integration



Provide an integrated transportation network that encourages use of all modes by offering travel choices that are accessible to all segments of the region's population.

Planning transportation infrastructure to guide growth in a way that enhances quality of life is not easy. In the past, transportation planning focused on improving highways and major roads, but these improvements can help only so much. Strategic investment in major roadways must be balanced with improvements to the bicycle, pedestrian, transit, rail, and aviation networks to keep people and goods moving, allow better access for residents and visitors, and enhance the quality of life in the Jacksonville area. Multimodal Integration projects seek to:

- Develop bicycle and pedestrian priorities in concert with transit and roadways;
- Create coordinated transit improvements and strategies for system maintenance;
- Promote the expansion of passenger rail and intercity bus; and
- Support economic vitality.

Planning Goals:

- D.1 Provide desirable and user-friendly transportation options for all user groups regardless of socioeconomic status or physical ability.
- D.2 Support a fully integrated multimodal network that advances the concept of complete streets.
- D.3 Expand and maintain a network of bicycle, pedestrian, and transit facilities that connects homes, activity centers, and complementary amenities.

E. Safety and Security



Promote a safer and more secure transportation network through crash reduction, enhanced reliability and predictability, and improved emergency coordination.

Through MAP-21, the federal government re-affirmed safety and security as independent planning factors for consideration in long range transportation plans. The area's location along the coast, the military presence, and natural resources requires the long range transportation plan to consider safety and security for all modes that move people and freight. Safety and Security projects seek to:

- Provide safety countermeasures for high risk locations;
- Improve conditions of bridges;
- Increase route choice during evacuations and when primary corridors are impassable; and
- Promote systems management initiatives.

Planning Goals:

- E.1 Improve the safety of the transportation system for all user groups regardless of socioeconomic status or physical ability.
- E.2 Increase the reliability, predictability, and efficiency of the transportation experience through system improvements and enhanced communication.
- E.3 Improve safety and security by enhancing the evacuation route network for natural events and protecting access to military assets.

F. System Preservation



Extend the life of the transportation system by fostering a sustainable and maintainable system that addresses the long-term needs of the region.

A transportation network with high mobility is critical for sustaining and extending economic development. The New River and its network of tributaries and drainage basin create natural barriers that challenge local and regional mobility. Overcoming these barriers in part is an exercise in maximizing the capacity of the existing transportation system through systems management approaches. These approaches include monitoring and addressing pavement quality and ensuring that ancillary facilities such as traffic signals and ITS infrastructure are properly deployed.

System Preservation projects seek to:

- Improve bridges and critical infrastructure;
- Provide intersection-level improvements that increase the functionality of the larger corridor;
- Encourage systems management through access management and technology; and
- Improve system connectivity.

Planning Goals:

- F.1 Limit expansion of the roadway network to the most necessary projects that best address identified issues.
- F.2 Increase the lifespan of existing infrastructure and ensure transportation facilities are used optimally.
- F.3 Maintain the transportation network by identifying and prioritizing infrastructure preservation and rehabilitation projects such as pavement management and signal system upgrades.

Document Overview

Transportation has long been the driving force behind economic and population growth in the Jacksonville area. Today more than ever, citizens, elected officials, local staff, and community stakeholders must work together to plan a transportation system that guides growth in a way that empowers the local economy and enhances quality of life. The *JUMPO 2040 LRTP* blends the community's vision for transportation and a review of existing conditions with a detailed list of policies, operational strategies, and projects to achieve this vision. The document provides a brief overview of existing conditions and describes a coordinated set of recommendations over the course of three chapters—public transportation, active transportation, and future multimodal transportation system. The final chapter describes the financial analysis. The visioning, analysis, and recommendations were created concurrently to ensure individual projects lead to an integrated intermodal transportation system that efficiently moves people and goods within and beyond the Jacksonville area.

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Introduction

Decisions made as part of the long range transportation plan process must consider the area's existing resources such as the social and cultural elements unique to Jacksonville and the surrounding areas of Onslow County. Identifying potential impacts helps to balance the often competing interests of improving mobility and preserving a community's important natural and historical features. The earlier these features are identified, the more likely sustainable solutions will arise to minimize or avoid impacts and reduce unnecessary delays and expenses.

This chapter includes five sections:

Planning
Considerations

Environmental
Conditions

Socioeconomic
Conditions

Transportation
Conditions

Planning
Document Review

A review of existing conditions in the JUMPO study area provides an understanding from which transportation recommendations can be identified, evaluated, and prioritized. When overlaid with proposed transportation projects, this information provides a frame of reference to help assess the relative impacts of these projects on the community.

Planning Considerations

Transportation projects can disrupt communities and significantly affect natural resources. Today's transportation planning process includes a system of checks and balances designed to mitigate unfair and disproportionate impacts of these projects on a community. The Federal government requires the planning process be cooperative, continuous, and comprehensive to ensure disadvantaged communities receive fair consideration regarding the benefits and impacts of transportation projects. The planning process for the *JUMPO 2040 LRTP* included a review of social and environmental resources to ensure proposed transportation projects do not lose sight of the plan's guiding statements.

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 effect their policies and activities had on minority and low-income communities. The U.S. Department of Transportation (USDOT) promotes environmental justice as an integral part of the long range transportation planning process and through individual project planning and design. According to the 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.

Environmental justice within the *JUMPO 2040 LRTP* is based on three fundamental principles derived from guidance issued by the USDOT:

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

For more information, please visit www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/.

Environmental Mitigation

Protecting and enhancing the environment is a concern shared throughout the transportation community. MAP-21 planning factors provide guidance to protect the environment, integrate the planning and environmental processes, and promote a streamlined process for reviews and permitting. By doing so, the legislation emphasizes environmental mitigation. The coordinated effort of long range transportation plan supports the protection and enhancement of the environment and sets the stage for the streamlined process outlined by NEPA regulations. Although the integration will vary by project, initiating the environmental assessment and mitigating environmental concerns should occur as early in the project developmental phase as practical.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA), signed into law January 1, 1970, establishes national environmental policy and goals to protect, maintain, and enhance the environment. Transportation projects using federal funds must include a NEPA review. The NEPA process involves investigating environmental impacts of transportation-related projects, usually prior to engineering and design. Identified issues are addressed during the engineering phase. The NEPA review results in one of three levels of assessment, depending on the severity of the impact:

- **Categorical Exclusion**—This first level allows a project to be categorically excluded from detailed environmental analysis if it meets criteria previously determined by a federal agency as having no significant environmental impact. Several agencies have developed lists of actions normally categorically excluded from environmental evaluation under their NEPA regulations.
- **Environmental Assessment/Finding of No Significant Impact (EA/FONSI)**—For the second level, a federal agency prepares a written environmental assessment (EA) to determine if the project would significantly affect the environment. If it will not, the agency issues a finding of no significant impact (FONSI). The FONSI may address ways the agency can mitigate potential significant impacts.
- **Environmental Impact Statement (EIS)**—If the EA determines significant environmental consequences may occur, an EIS is prepared. An EIS is a more detailed evaluation of the proposed action and alternatives. The EIS process includes the opportunity for the public, other federal agencies, and outside parties to provide comments during preparation as well as once the draft EIS is completed. (If a federal agency anticipates the project may have a significant impact or if the project is environmentally controversial, the agency may choose to prepare an EIS without first preparing an EA.) Once the EIS is finalized, a federal agency prepares a public record of its decision that addresses the findings of the EIS, including how consideration of alternatives weighed into the agency's decision.

Best Practices

An early assessment as part of the long range transportation plan process was intended to lessen environmental impacts and reduce potential conflicts during construction of the projects. Several best practices should continue to factor into the decision-making process for new roadways and major widening projects:

- Minimize impacts to the natural and built environments.
- Avoid unnecessary or disproportionate impacts to minority and low-income communities.
- Minimize impacts to parks, designated open spaces, schools, and historic resources.
- Capitalize on street connectivity opportunities.
- Promote pedestrian, bicycle, and transit networks.
- Minimize stream, wetland, and watershed impacts.
- Avoid FEMA designated floodplains.
- Minimize impacts to threatened and endangered species.

Environmental Conditions

Natural Heritage and Cultural Resources

The JUMPO study area has a diversity of Natural Heritage Areas and cultural resources within Jacksonville and MCB Camp Lejeune and throughout unincorporated areas outside of the major activity centers.

Historic Districts

- Avirett-Stephens Plantation
- Catherine Lake Historic District
- Futral Family Farm
- Mill Avenue Historic District
- Southwest Historic District
- Venters Farm Historic District
- Bank of Onslow and Jacksonville Masonic Temple

Cultural Sites

- Freedom Fountain
- Lejeune Memorial Gardens (Beirut and Vietnam memorials)

Natural Heritage Building

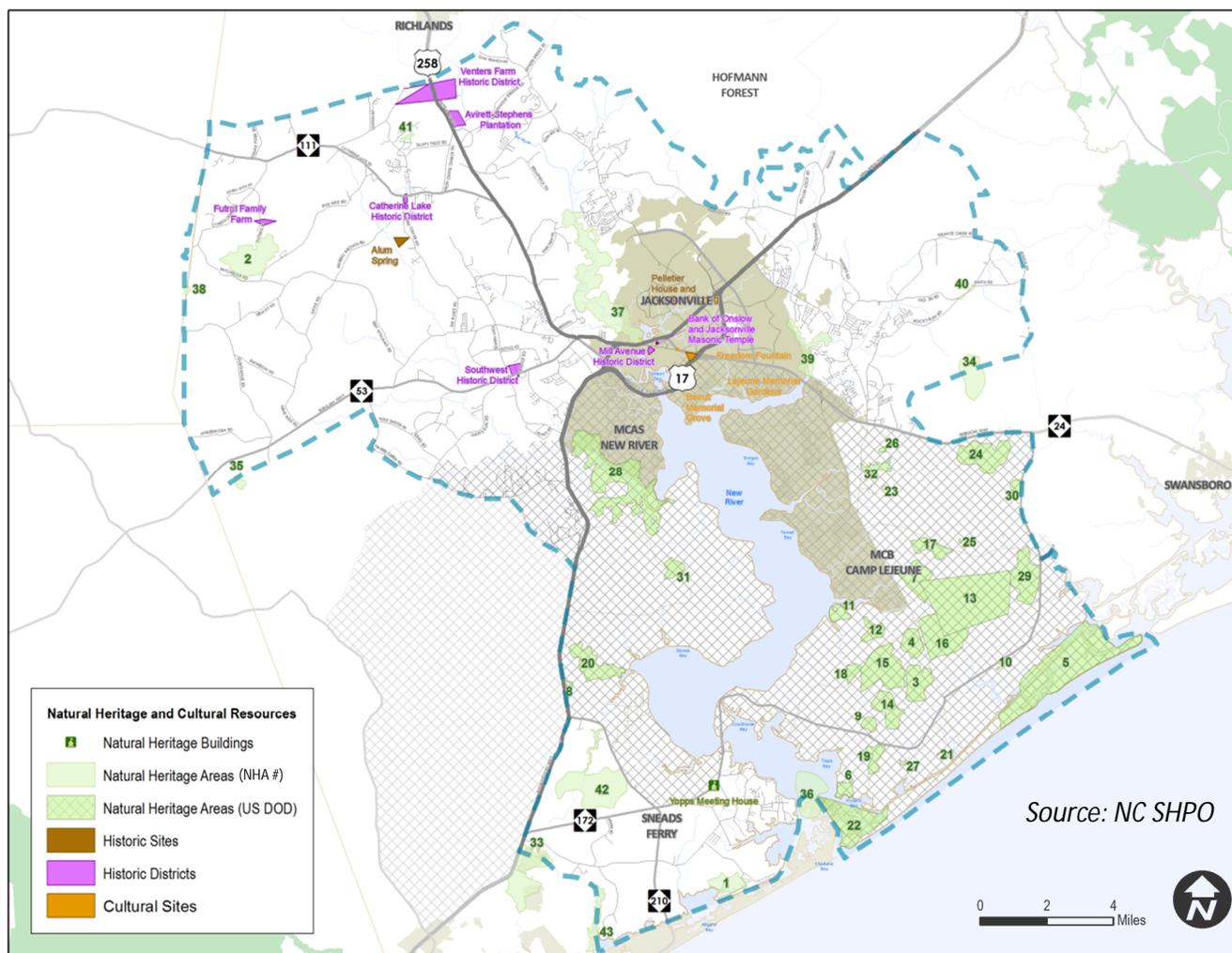
- Yopp's Meeting House (Natural Heritage Building)

Natural Resources

- Hofmann Forest

Historic Sites

- Alum Spring
- Pelletier House and Wantland Spring



Natural Heritage Areas have significant presence in and around the Camp Lejeune military base. Therefore, the heritage areas are listed separately here for those that pertain to the US Department of Defense and those that do not have a DOD affiliation.

Natural Heritage Areas

- (1) Alligator Bay Marshes and Forests
- (2) Batchelor Road Flatwoods
- (33) Folkstone Savannas
- (34) Horse Swamp Savannas and Woodlands
- (35) Maple Hill Limesink Complex
- (36) New River Inlet Bird Nesting Islands
- (37) New River Swamps and Marshes
- (38) Nine Mile Creek Flatwoods
- (39) Northeast Creek Tidal Forests
- (40) Old 30 Road Powerline Savanna
- (41) Rock House Cave Natural Area
- (42) Stones Creek Sandhills
- (43) Turkey Creek Marshes

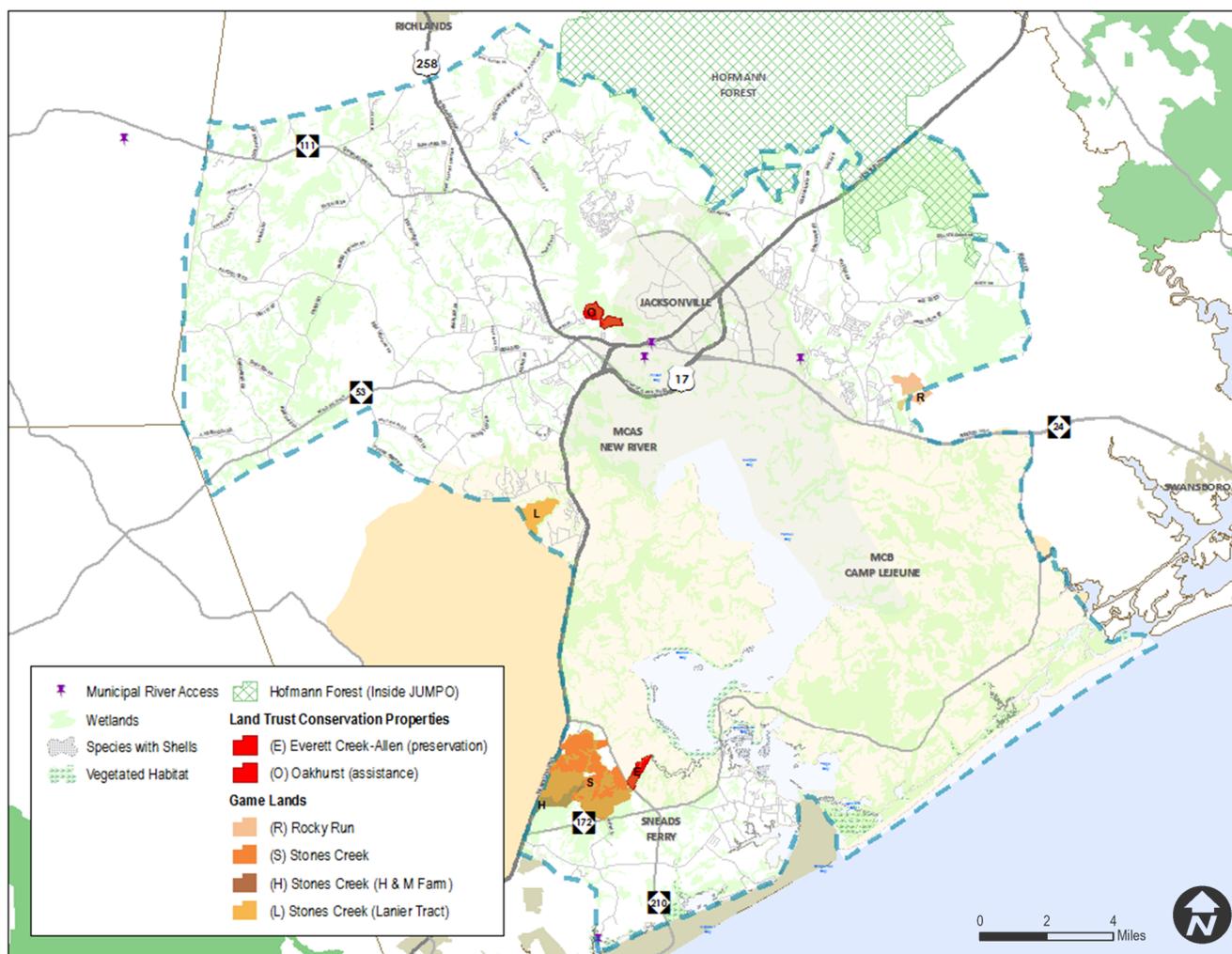
US DOD Natural Heritage Areas (Camp Lejeune)

- (3) Africa Pond Limesinks
- (4) Alligator Meadow Limesinks
- (5) Browns Island
- (6) Corn Landing
- (7) Cowhead Creek Limesinks
- (8) Dixon Pine Savanna
- (9) Dove Road Pocosin
- (10) Freeman Creek Meadow
- (11) Frenchs Creek Coastal Goldenrod Site
- (12) Frenchs Creek Limesinks
- (13) G-10 Impact Area
- (14) Hog Pen Road Flatwoods and Pocosin
- (15) Longleaf Pine Ridge
- (16) Loosestrife Pocosin
- (17) Lyman Road Cypress Savanna
- (18) Marines Road Sandhills
- (19) Mile Hammock Bay Sandhills
- (20) Millstone Creek Swamp
- (21) Mockup Road Coastal Goldenrod Site
- (22) New River Inlet
- (23) Old Bear Creek Road Pond
- (24) Pocosin Road Flatwoods
- (25) Pondspice Meadow
- (26) Powerline Road Sandhill
- (27) Salliers Bay Coastal Goldenrod Site
- (28) Southwest Creek
- (29) Spring Branch Limesinks
- (30) Starretts Meadow
- (31) Verona Loop Flatwoods
- (32) Wallace Creek Swamp

Natural Resources

The JUMPO study area has a rich diversity of environmental capital centered on the New River and its watershed. Highlights include:

- Three municipal river access points located along the New River basin.
- Two Land Trust Conservation Properties—the Everett Creek-Allen property (currently being preserved) and the Oakhurst property
- 116 square miles (more than 25% of the total JUMPO study area) in the wetland inventory
- Four Game Land areas—The Lanier Tract, H&M Farm, and an unnamed area directly adjacent to the H&M Farm in Stones Creek and the Rocky Run habitat area



Socioeconomic Conditions

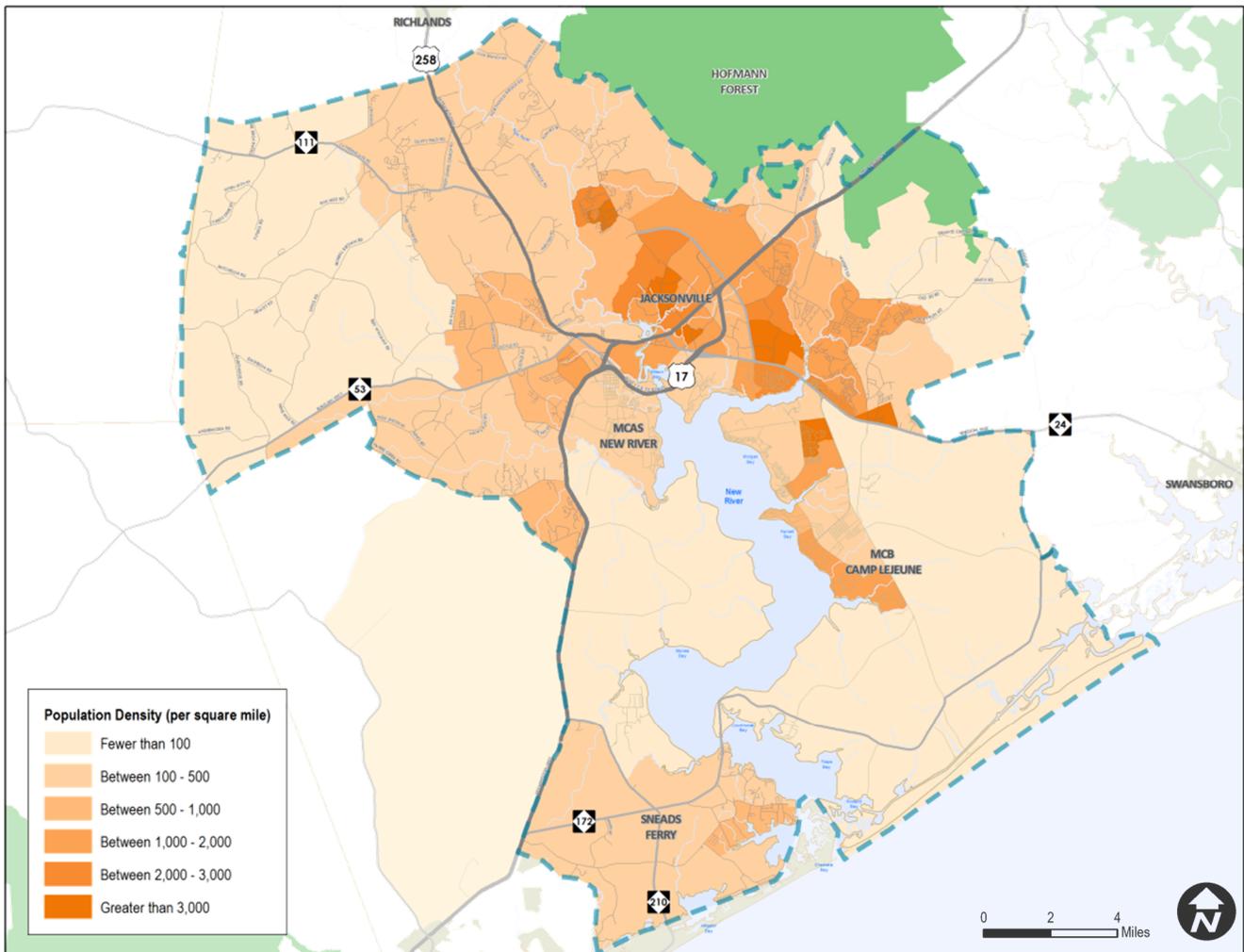
Population Characteristics

Population Density (JUMPO Study Area)

According to 2012 American Community Survey (ACS) 5-Year Estimates at the block group level, the JUMPO study area's population is 137,999 people with an average population density of 323.3 persons per square mile. This state average population density is 196.3 persons per square mile. The most densely populated areas within the study area are centered primarily across the northeastern portions of Jacksonville. The eastern bank of the New River onboard MCB Camp Lejeune is home to a higher than average population density. Piney Green between the Camp Lejeune Railroad and NC 24 is another densely populated area.

Population Projections (Onslow County)

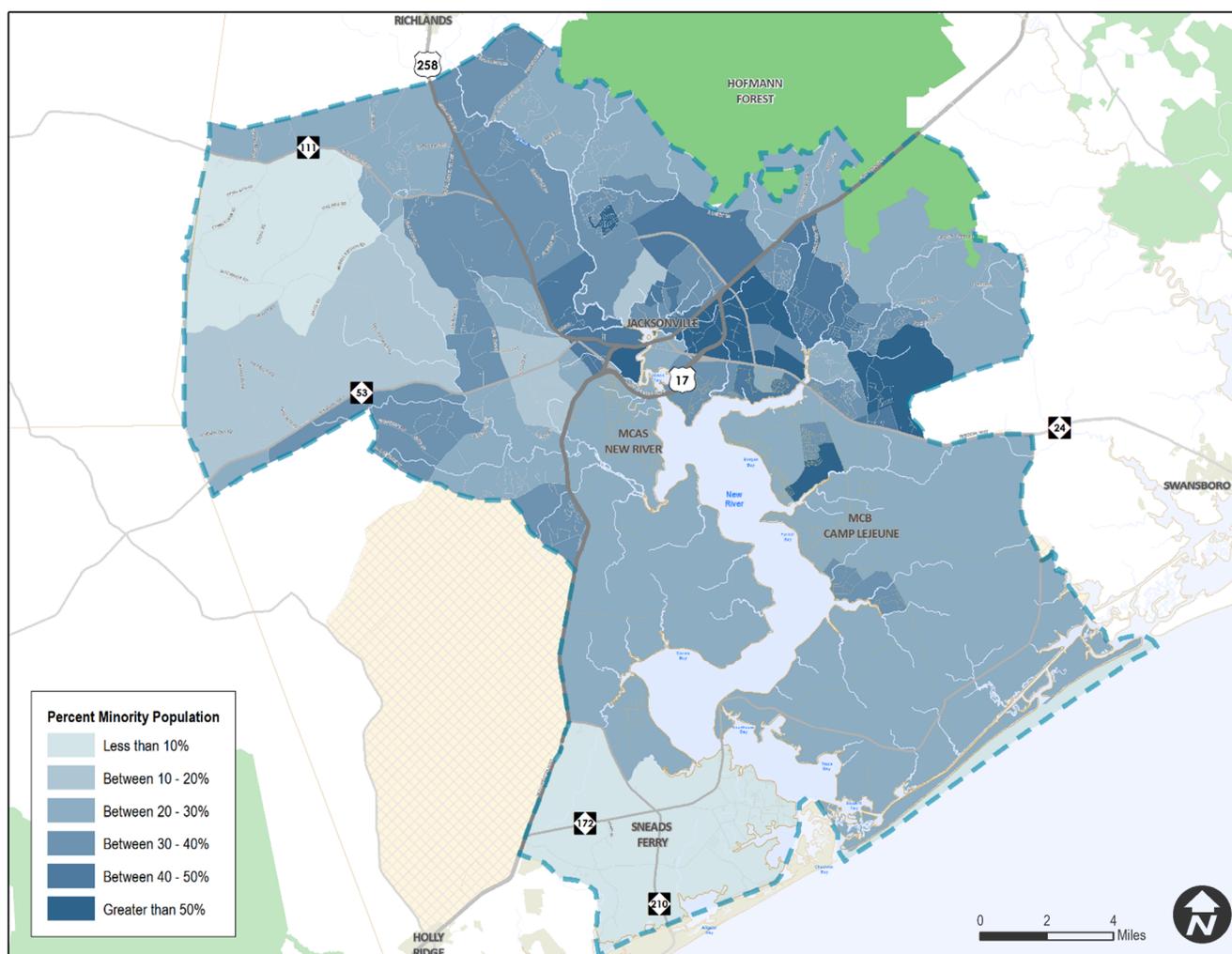
From 2000 to 2010, the state grew by approximately 18.5% and Onslow County grew by 24.2%. Based on North Carolina Office of State Budget and Management (OSBM) population projections, the state's population in 2040 is expected to be 12.6 million (0.9% growth per year). Onslow County's population is expected to grow 1.4% to approximately 285,400. Note: Population projections are shown for Onslow County rather than the JUMPO study area due to reporting limitations by the OSBM.



Minority

The ACS also collects detailed demographic information regarding racial identity and cultural origin. Survey participants are asked to indicate race by choosing one or more of the following: White, Black or African American, American Indian and Alaska Native, Asian, or Native Hawaiian and Other Pacific Islander. Additionally, participants are asked to indicate whether or not they have a Hispanic, Latino, or Spanish origin. The Minority population includes all persons who indicated Hispanic, Latino, or Spanish origin, as well as all persons who indicated a race other than white only.

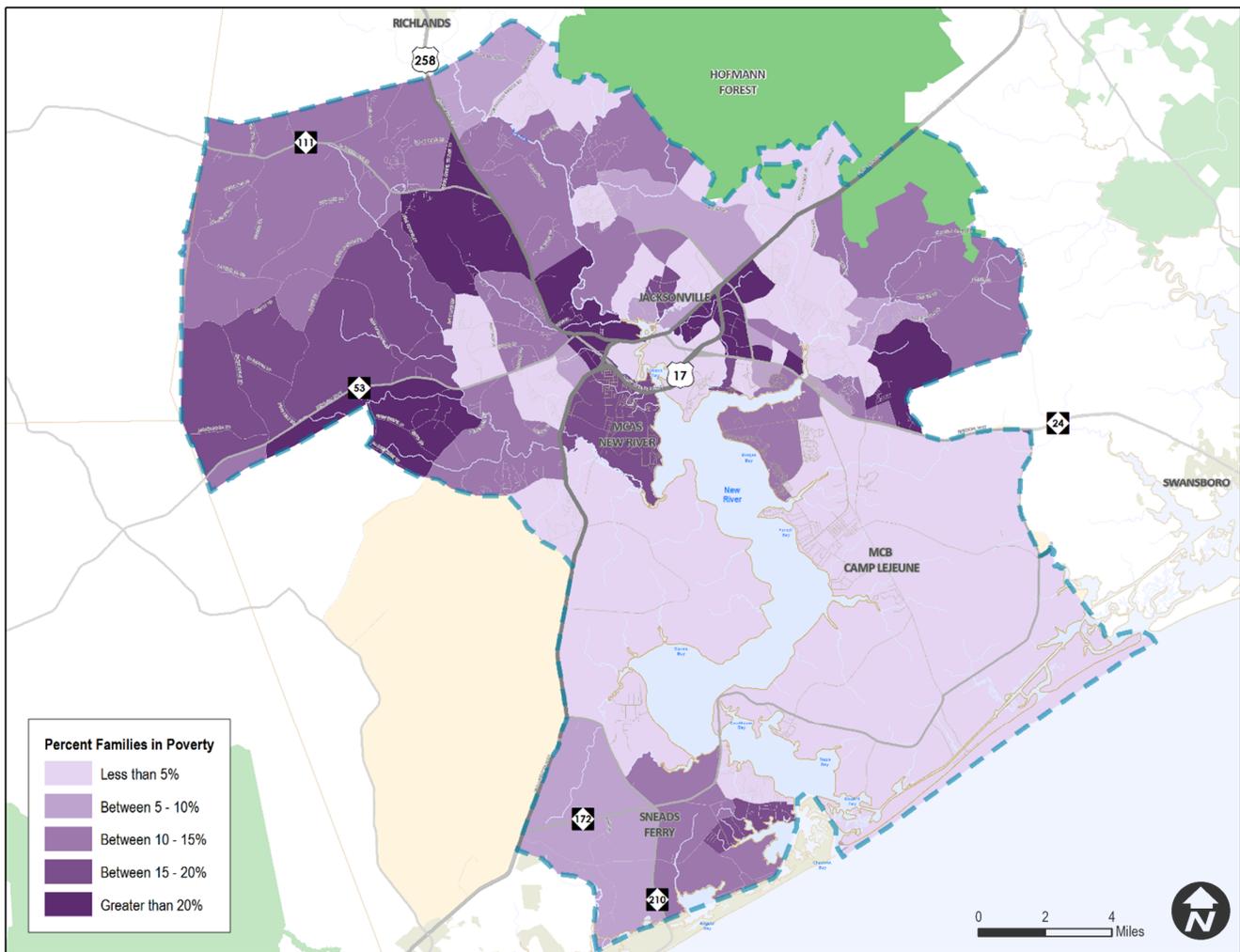
Minority populations in the JUMPO study area are most prominent within the City of Jacksonville and within Camp Lejeune, specifically near Hadnot Point. According to the 2012 American Community Survey data at the block group level, the minority population of the study area is approximately 34.5% of the total population. This is consistent with the statewide minority population, which is approximately 34.7%.



Poverty and Income

In 2012, the poverty threshold for a family of four was an annual income of \$23,492. The threshold annual income for an individual was \$11,720. For the population for whom poverty status was determined through the 2012 ACS block group level estimates, the JUMPO study area included 12.97% of families below the poverty threshold. This percentage is approximately 4% less than the statewide average of 16.83% of families in poverty. Families below the poverty threshold generally are distributed across the northern half of block groups in the JUMPO study area.

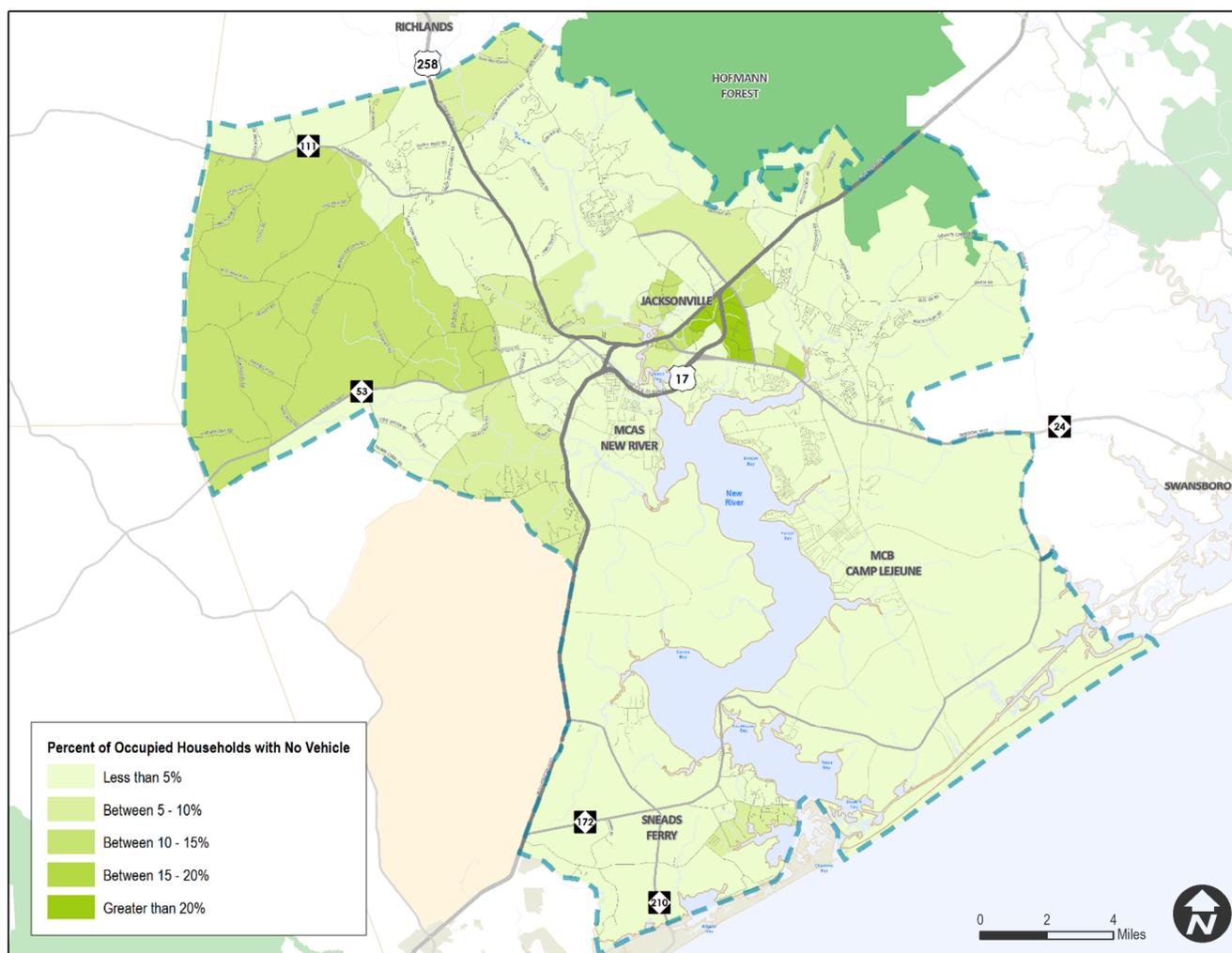
According to 2012 ACS block group data, the study area's average median family income was \$47,303 and the per capita average median income was \$20,539. These average median incomes are slightly lower than North Carolina average median family incomes of \$57,999 and \$24,706, respectively.



Households with No Vehicles

The American Community Survey considers household access to a vehicle to help determine the need for special transportation services for the elderly and disabled, but also to plan for emergency transportation services for areas with high concentrations of households with no vehicle available. Of the total 44,565 occupied households in the JUMPO study area, 1,922 do not have access to a vehicle. However, the average number of households in the JUMPO study area without a vehicle is much less than the statewide average. Within the study area, only 4.3% are zero vehicle households as opposed to 6.5% of households with no vehicle statewide.

High concentrations of households with no vehicles are found within Jacksonville where transit service is available. Other areas that have relatively high concentrations of zero vehicle households are the more rural areas directly west of Jacksonville as well as rural/agricultural areas on the outskirts of the JUMPO study area.



Workforce Characteristics

Major Employers

The table to the right shows the 25 largest employers in Onslow County at the end of 2013 and their rankings from the previous four years. The top 7 employers have maintained the same rank for the past five years. According to the MCB Camp Lejeune Training Management Resources Division, the area's Department of Defense population, which includes active duty (48,634), reservists (19,198), and civilian employees (6,629), totaled 74,461 as of March 2014.

Employment Projections

Employment in the county increased significantly leading up to 2011 due in part to the Grow the Force Initiative. From 2007 to 2011, 9,900 active duty troops and civil servants were added to MCB Camp Lejeune and MCAS New River. Including their families and dependents, approximately 21,000 people moved into Onslow County as part of the Grow the Force Initiative. Military-based employment growth has begun to slow with the January 2012 announcement of substantial cuts in the Defense budget. MCB Camp Lejeune is expected to lose approximately 7,000 troops over an unspecified timeline through a troop reduction effort that will bring national troop numbers from 202,000 to 186,000.

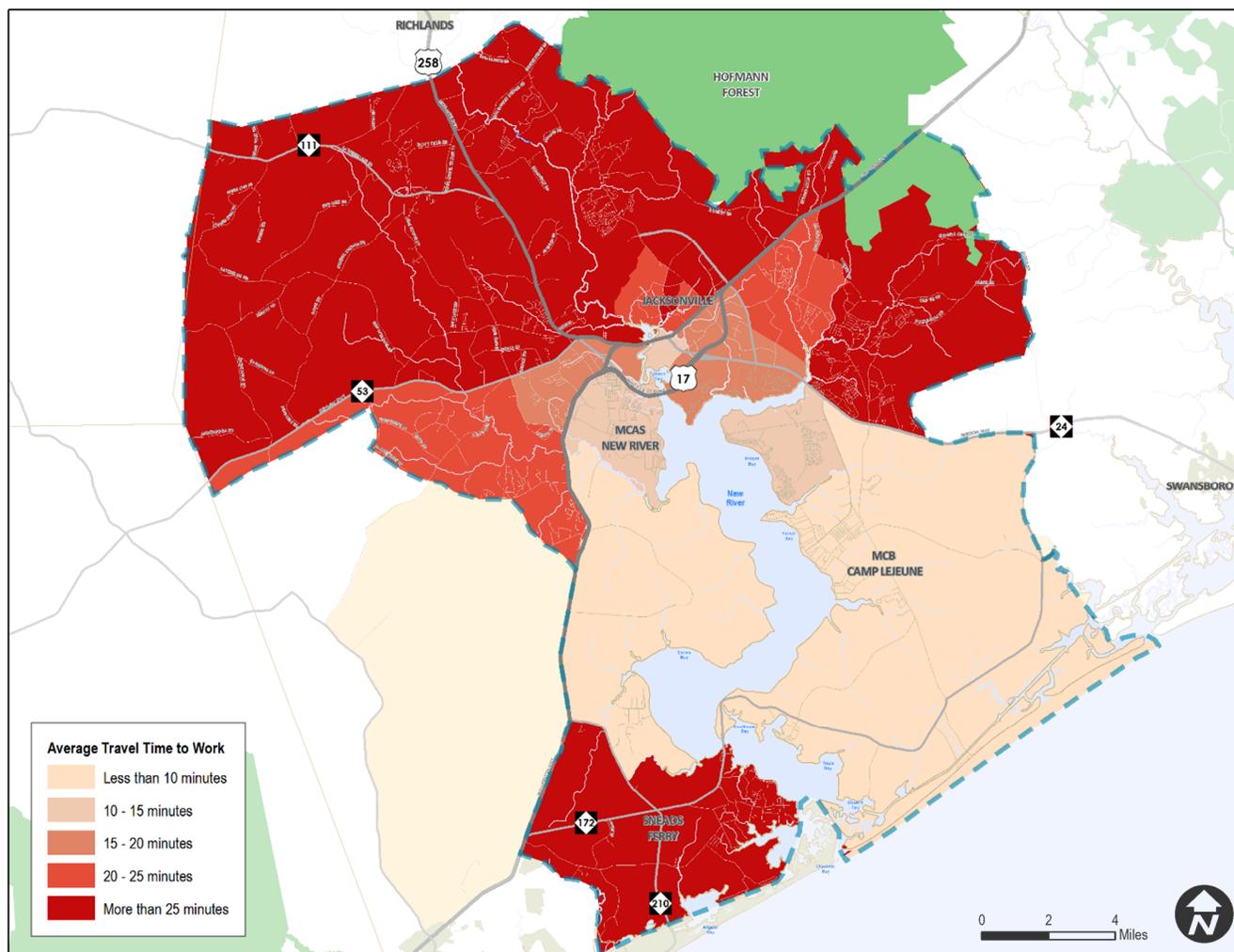
The total number of jobs in Onslow County is anticipated to be 122,000 in 2040, according to Woods & Poole Economics employment projections. The growth rate of jobs is expected to be approximately 1% per year in the short-term, decreasing to 0.5% per year by 2040.

Name	Industry	Employees	Rank				
			'13	'12	'11	'10	'09
Department of Defense	Public Administration	1000+	1	1	1	1	1
Onslow County Board of Education	Education & Health Services	1000+	2	2	2	2	2
Camp Lejeune Marine Corps Community Services	Trade, Transportation & Utilities	1000+	3	3	3	3	3
Onslow Memorial Hospital	Education & Health Services	1000+	4	4	4	4	4
County of Onslow	Public Administration	1000+	5	5	5	5	5
Wal-Mart Associates, Inc.	Trade, Transportation & Utilities	1000+	6	6	6	6	6
Coastal Carolina Community College	Education & Health Services	500-999	7	7	7	7	7
Food Lion	Trade, Transportation & Utilities	500-999	8	9	10	11	11
Convergys Customer Management Group	Professional & Business Services	500-999	9	n/a	n/a	n/a	n/a
City of Jacksonville	Public Administration	500-999	10	10	9	9	9
McDonald's Restaurants of NC, Inc.	Leisure & Hospitality	250-499	11	11	12	12	12
Sag Payroll, LLC	Professional & Business Services	250-499	12	13	n/a	n/a	n/a
Coastal Enterprises of Jacksonville	Education & Health Services	250-499	13	12	11	10	10
New River Marine Corps Community Services	Leisure & Hospitality	250-499	14	15	17	17	17
Stanadyne Corporation	Manufacturing	250-499	15	n/a	15	23	23
Marine Federal Credit Union, Inc.	Financial Activities	250-499	16	16	16	14	15
Lowe's Home Centers, Inc.	Trade, Transportation & Utilities	250-499	17	17	13	13	13
Wendy's Old Fashioned Hamburgers	Leisure & Hospitality	250-499	18	21	25	20	n/a
Nexlink of North Carolina, Inc.	Professional & Business Services	100-249	19	18	20	n/a	n/a
Principle Long Term Care, Inc.	Education & Health Services	100-249	20	19	19	n/a	n/a
General Mills Restaurants, Inc.	Leisure & Hospitality	100-249	21	n/a	n/a	n/a	n/a
Humphrey Mechanical, Inc.	Construction	100-249	22	n/a	n/a	n/a	n/a
The Wood Company (A Corp)	Leisure & Hospitality	100-249	23	22	22	n/a	n/a
United States Postal Service	Trade, Transportation & Utilities	100-249	24	24	n/a	21	22
American Services Technology, Inc.	Leisure & Hospitality	100-249	25	n/a	n/a	n/a	n/a

Source: North Carolina Department of Commerce's Labor & Economic Analysis Division

Travel Time to Work

The American Community Survey tracks travel time to work at the Census Tract level. For residents in the JUMPO study area, the average approximate travel time to work was 22.5 minutes in 2012. The shortest commute times, with an average of approximately 8 minutes, fell within the Camp Lejeune military base. Travel times increased in duration fanning out from Camp Lejeune into Jacksonville and then the surrounding unincorporated areas of Onslow County. The longest average commute for a particular census tract was approximately 32 minutes for populations living at the northwestern edge of the JUMPO study area between NC 111 and NC 53.

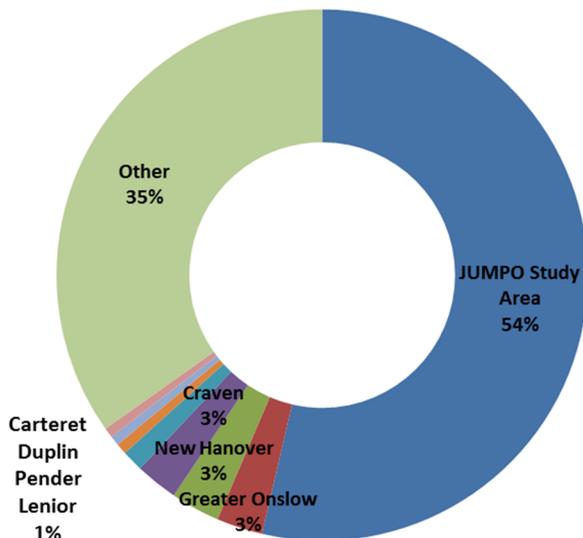


Commute Patterns

Jacksonville’s role as a regional employment center is evident in the percentage of the study area’s population that also works in the study area. Likewise, more than half of study area employees travel from homes outside the study area.

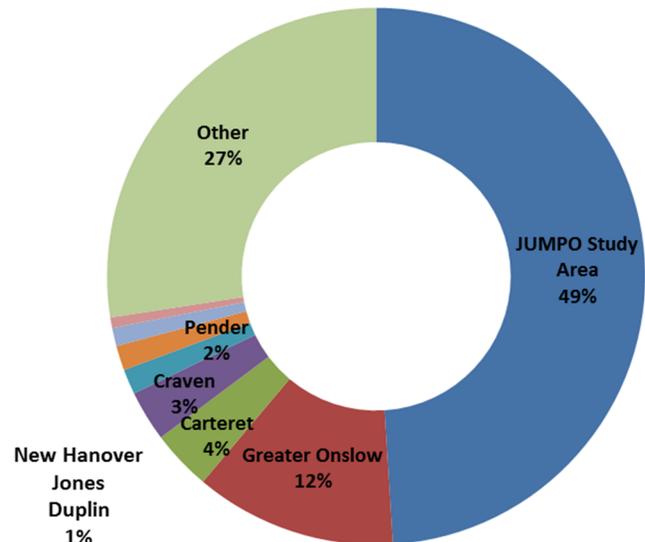
Where Residents in the Study Area Work

Based on commute flows reported through the American Community Survey, approximately 54% of residents in the study area work in the study area. Three percent of the residents live in the study area but work in other parts of Onslow County. New Hanover and Craven Counties are the most likely employment destination outside the county, though these counties only represent a total of 6% of the working population that resides in the study area.



Where Workers in the Study Area Live

Approximately half of the jobs within the JUMPO study area are filled by workers who also live within the study area. Residents in Onslow County as a whole (including areas within and outside the JUMPO study area) account for 61% of the study area’s jobs. Carteret and Craven County account for the largest share of residents from external counties commuting to the study area residents at 4% and 3%, respectively.



Mode Choice

Compared with the rest of North Carolina, JUMPO study area commute patterns suggest a higher than average level of transportation demand management. Twice as many workers in the JUMPO study area work from home than the state average. Of the workers who do not work at home, nearly 10% fewer workers than the statewide average commute by driving alone. While small numbers of people walk and bike to work (approximately 4,500 and 350, respectively), walkers in the JUMPO study area account for more than triple the statewide average percent of walk commutes and bicycle riders more than double the percent of overall North Carolinians who bike to work. Transit is the only mode of transportation that lags, as compared to the state.

	All Workers	JUMPO	North Carolina
Work at Home		8.9%	4.3%
Commuters		91.1%	95.7%
Drive Alone		74.2%	84.5%
Carpool		16.2%	11.2%
Transit		0.29%	1.14%
Bike		0.54%	0.26%
Walk		7.16%	1.86%
Other		1.66%	1.08%

Transportation Conditions

Functional Classification

Functional classifications categorize roadways based on speeds, vehicular capacities, and relationships with adjacent existing and future land utilizations. Federal funding and aid programs through the Federal Highway Administration (FHWA) use roadway functional classification to assist with funding eligibility. Functional classifications also account for the inverse relationship between access and mobility. Functional classifications found in the JUMPO study area include:

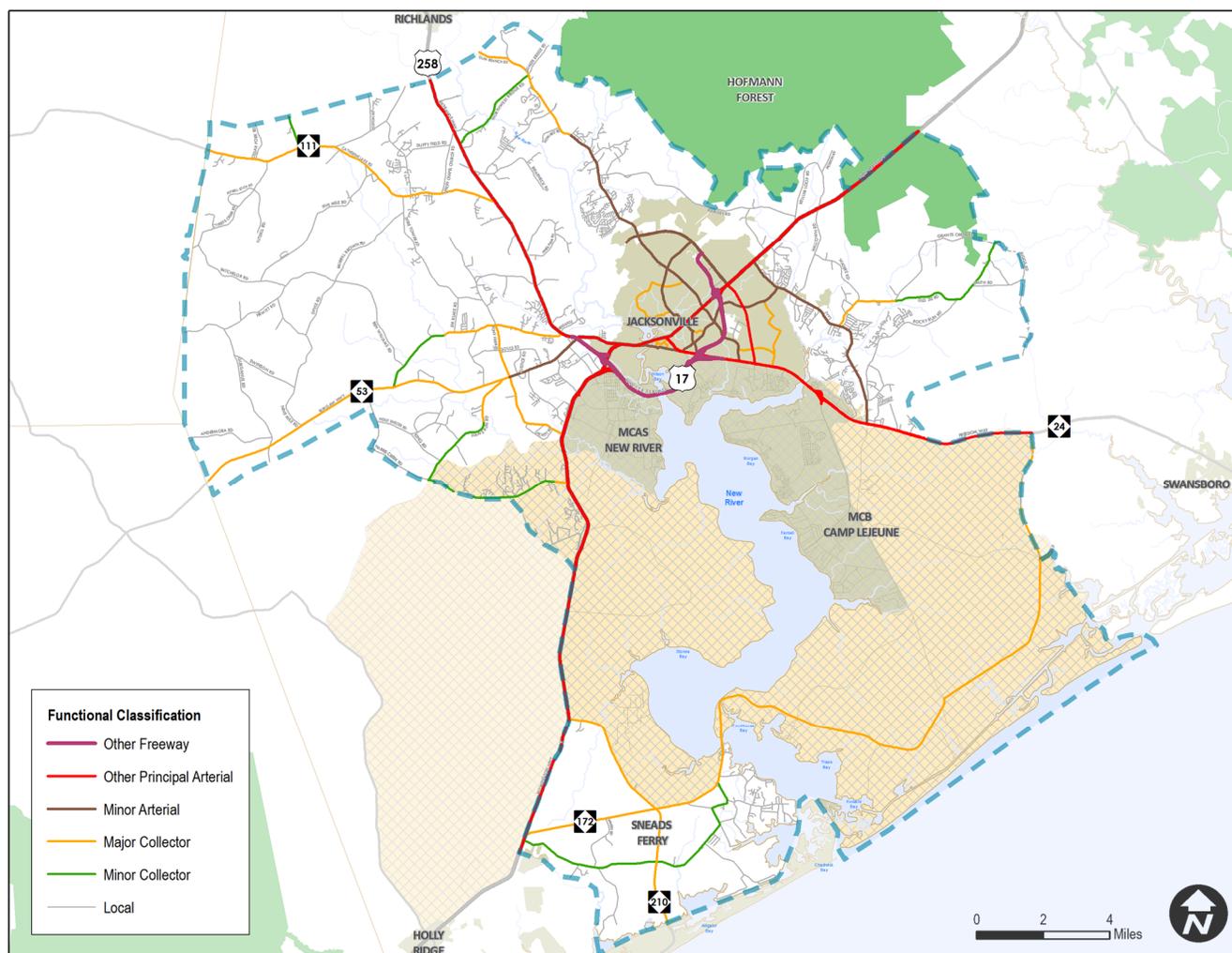
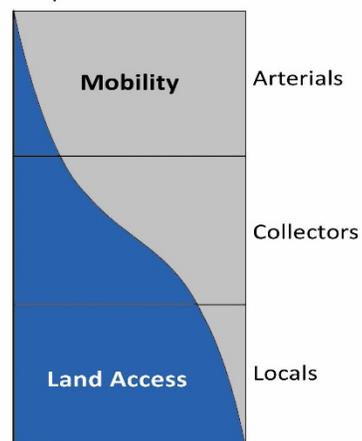
Arterials:

- Principal Arterial – Urban/Rural
Serve major activity centers; Link urban areas; High connectivity
- Minor Arterial – Urban/Rural
Connect principal arterials; High accessibility

Non-Arterials:

- Collector – Urban/Rural - Serve high density areas; Intra-county travel
- Local - No through traffic; Adjacent land access
- Military Roads - Limited access facilities

Proportion of Service



Bridge Condition

The JUMPO study area includes 81 of the 145 NCDOT bridge structures in Onslow County. Structures in the JUMPO study area include 59 bridges, 17 pipes, 5 culverts, and one vehicular underpass. An additional 14 bridges are owned and maintained by the Department of Defense. As of the June 2014 bridge inventory update for the NCDOT bridges, five functionally obsolete bridges are located in the JUMPO study area and two are considered both structurally deficient as well as functionally obsolete. These bridges are identified in the map by the last three digits of its six-digit NCDOT Bridge ID.

Functionally Obsolete

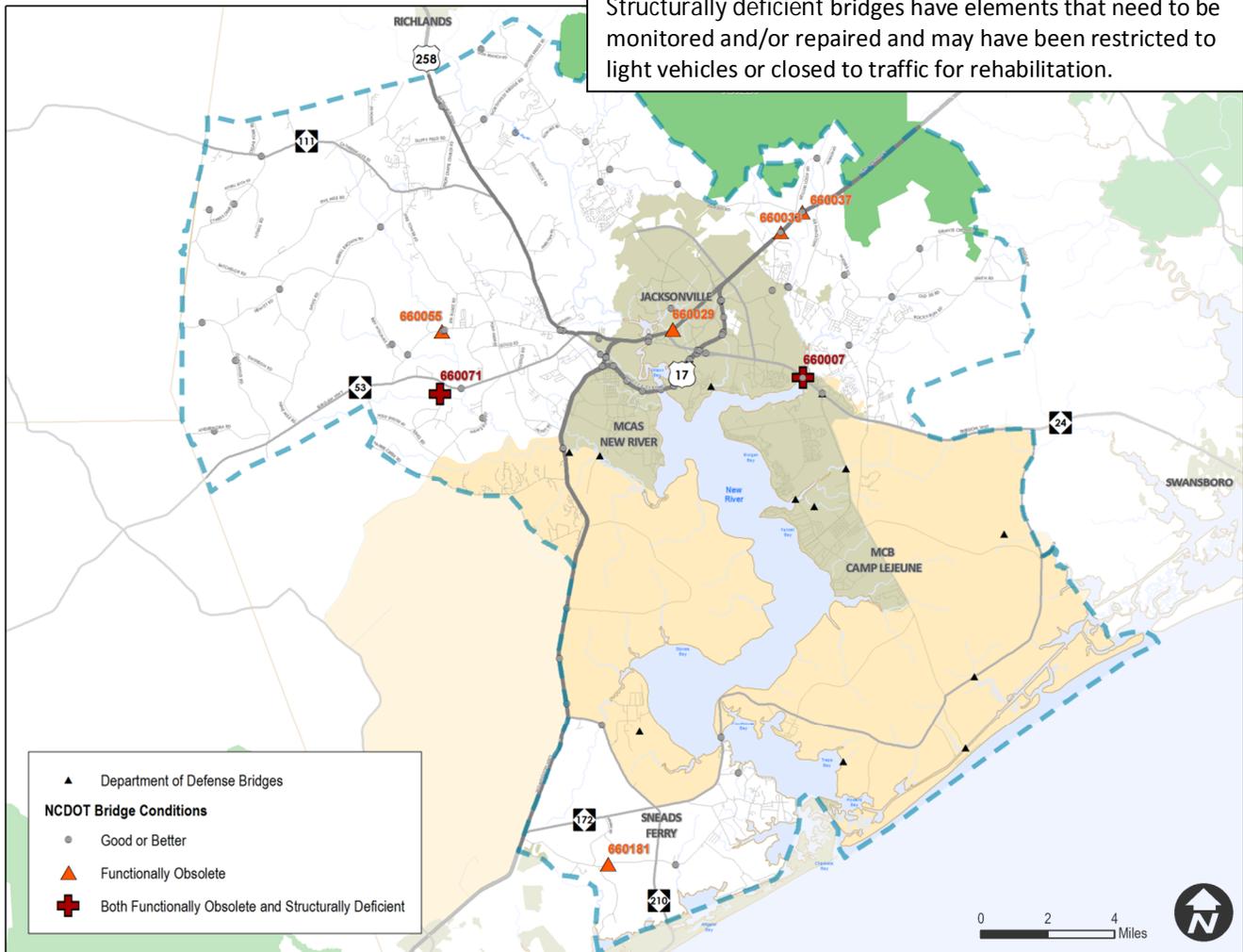
- 660029 – US 17 over Chaney Creek
- 660033 – US 17 (NB) over Wolf Swamp
- 660037 – US 17 (NB) over Northeast Creek
- 660055 – SR 1213 over Southwest Creek
- 660181 – SR 1518 over Turkey Creek (branch of)

Both Structurally Deficient and Functionally Obsolete

- 660007 – NC 24 (WB Lanes) over Northeast Creek
- 660071 – SR 1109 over Harris Creek

Functionally obsolete bridges were built to standards that are not used today; these are not inherently unsafe, but may not have adequate lane, shoulder widths or vertical clearances or may be occasionally flooded.

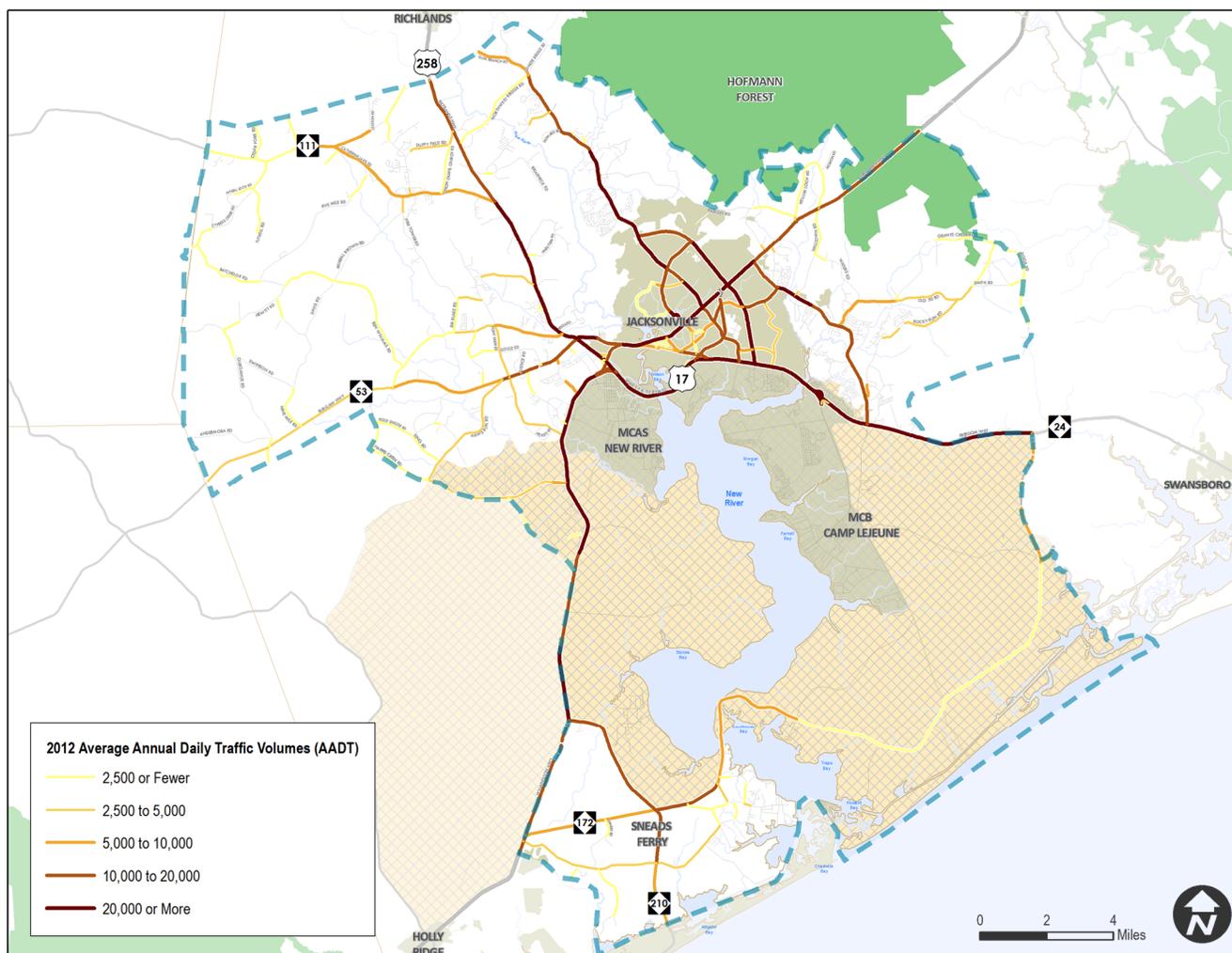
Structurally deficient bridges have elements that need to be monitored and/or repaired and may have been restricted to light vehicles or closed to traffic for rehabilitation.



Daily Traffic Volumes

Annual average daily traffic (AADT) volumes are collected by the North Carolina Department of Transportation (NCDOT) on an annual basis. The most current traffic volumes available are from 2012 along all state-maintained roadways. Within the JUMPO study area, the roads with the highest recorded AADTs include the following:

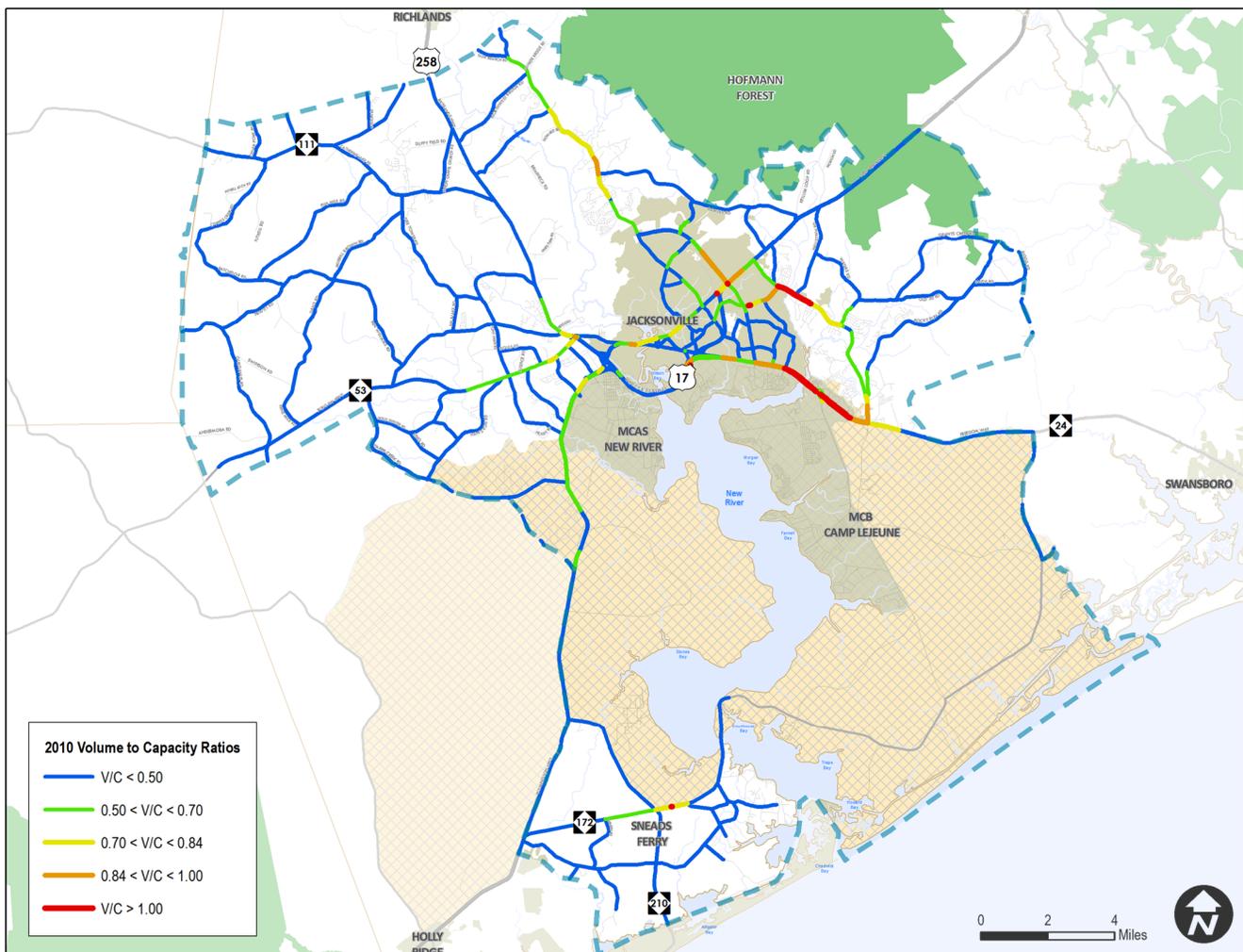
- US 17
- US 17 Business
- US 258
- NC 24
- NC 53
- NC 172
- NC 210
- SR 1308 (Gum Branch Road)
- SR 1406 (Piney Green Road)
- SR 1336 (Henderson Drive)



Traffic Congestion – Base Year 2010

The NCDOT maintains a travel demand model for the Jacksonville Urban Area to understand congestion on non-military roadway segments. The resulting volume to capacity ratios measure anticipated or observed volumes compared to theoretical vehicular capacities based on speed limit, number of lanes, and access conditions (i.e. number of driveways and/or traffic signals). A V/C ratio of 1.0 indicates the roadway segment operates at capacity with high congestion and heavy delay. V/C ratios can exceed 1.0. Most roads in the JUMPO study area show V/C ratios well below 1.0. The 2010 base-year model shows the most severe congestion for east-west travel crossing Northeast Creek between Holcomb Boulevard and Corbin Street on NC 24 and on Piney Green Road. Corridors that have V/C ratios greater than 0.84 but less than 1.0 include:

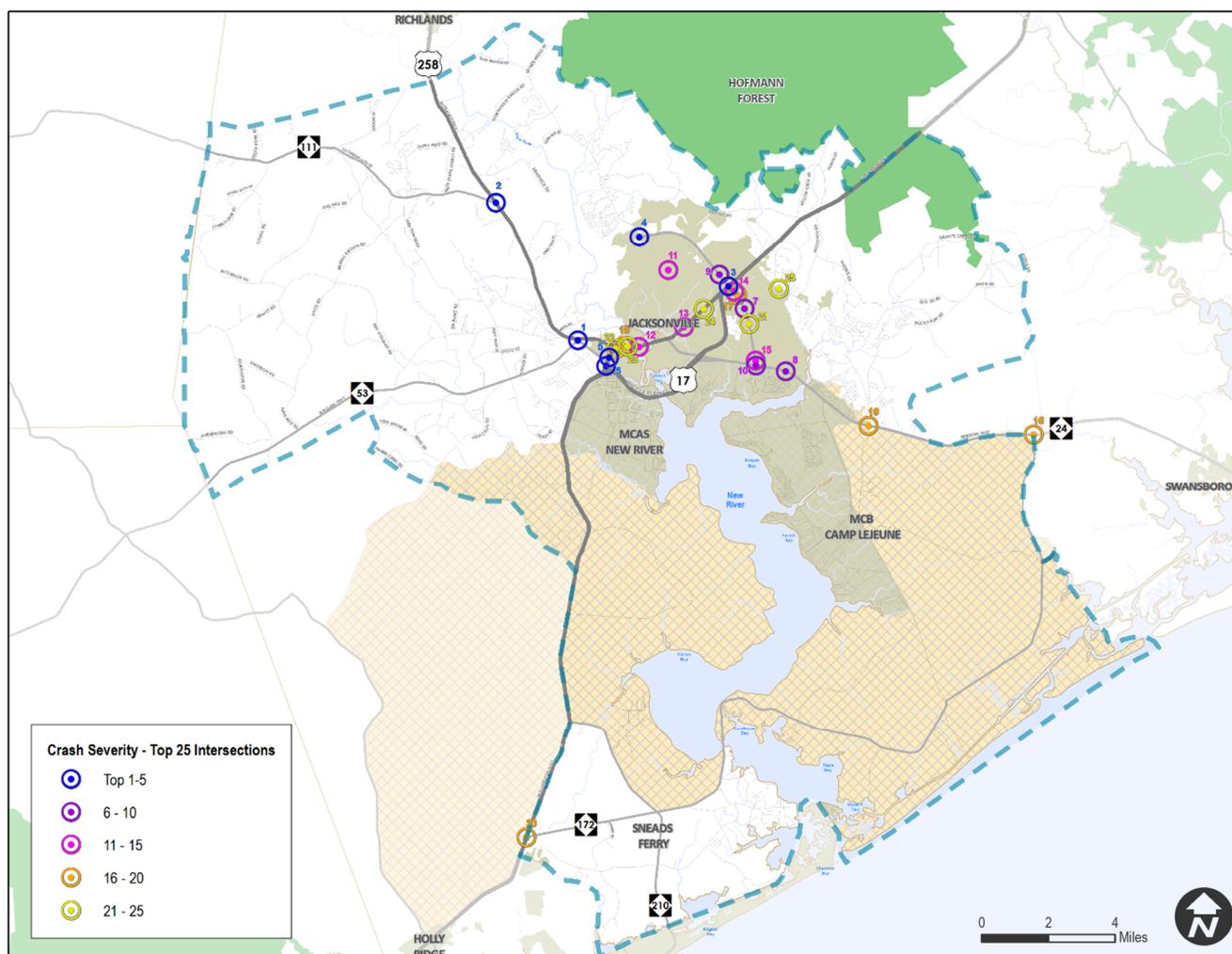
- NC 24 – on either side of the Northeast Creek Bridge and within Jacksonville City limits
- NC 53 (Western Boulevard) – northwest of US-17 (N Marine Blvd)
- US 17 (N Marine Boulevard) – northeast of NC 53 (Western Boulevard)
- SR 1308 (Gum Branch Road) – north of SR 1324 (Ramsey Road)
- SR 1403 (Country Club Road) – south of SR 1406 (Piney Green Road)
- SR 1406 (Piney Green Road) – north of NC 24
- US 17 Business (S Marine Boulevard) – west of SR 1402 (Old Bridge Street)



Crash History

The NCDOT provided crash data for all crashes in Onslow County from January 2011 through December 2013. Within the JUMPO study area there were 8,171 reported collisions that resulted in 42 fatalities. Collisions that resulted in property damage only were most prevalent and accounted for nearly 70% of the total collisions. Minor injuries, Type C, accounted for the next largest share, 20%, of the study area collisions. There were 30 collisions that involved a bicyclist and there were 56 collisions with a pedestrian.

Collision Severity	Number of Collisions	Percent of Total	Collisions with Bicyclists and Pedestrians	Number of Collisions	Percent of Total
Property Damage Only	5,586	68.4%	Bicyclist	30	0.4%
Injury Type C	1,647	20.2%	Pedestrian	56	0.7%
Injury Types A or B	706	8.6%			
Fatality	42	0.5%			
Unspecified	190	2.3%			



Rank	Street 1	Street 2	Crashes						EPDO Rate*
			Total	K	A	B	C	O	
1	US 258 / NC 24 (Richlands Hwy)	US 258 / NC 53 (Richlands Hwy / Burgaw Hwy)	140	1	0	5	35	99	511
2	US 258 / NC 24 (Richlands Hwy)	NC 111 (Catherine Lake Rd)	101	0	1	5	20	75	361
3	US 17 (N Marine Blvd)	NC 53 (Western Blvd)	149	0	0	3	21	125	327
4	NC 53 (Western Blvd)	SR 1308 (Gum Branch Rd)	49	1	1	5	10	32	311
5	US 17 (Wilmington Hwy)	NC 24 EB Off-Ramp	135	0	0	4	16	115	283
5	US 17 (Wilmington Hwy)	NC 24 WB Ramps	135	0	0	4	16	115	283
7	NC 53 (Western Blvd)	SR 1403 (Country Club Rd)	94	0	0	6	15	73	249
8	NC 24 (Lejeune Blvd)	Tarawa Blvd / Corbin St	49	0	1	0	14	34	228
9	NC 53 (Western Blvd)	Circuit Lane	58	0	0	6	11	41	184
10	NC 24 (Lejeune Blvd)	NC 53 (Western Blvd)	98	0	0	1	10	87	179
11	SR 1308 (Gum Branch Rd)	SR 1336 (Henderson Dr)	51	0	0	6	11	34	177
12	US 17 Business (S Marine Blvd)	SR 1402 (Old Bridge St)	27	0	1	4	5	17	169
13	US 17 Business (N Marine Blvd)	SR 1336 (Henderson Dr)	53	0	0	0	15	38	164
14	NC 53 (Western Blvd)	Commerce Rd	63	0	0	2	11	50	159
15	NC 53 (Western Blvd)	Center St / Liberty Dr	46	0	0	4	9	33	142
16	NC 24 (Freedom Way)	NC 172	36	0	0	4	10	22	140
17	NC 53 (Western Blvd)	University Dr	57	0	0	2	9	46	138
18	US 17 Business (Wilmington Hwy)	US 258 (Richlands Hwy)	47	0	0	4	7	36	128
19	NC 24 (Freedom Way)	SR 1406 (Piney Green Rd)	54	0	0	1	9	44	128
20	US 17 (Wilmington Hwy)	NC 172	22	0	0	4	9	9	118
21	NC 53 (Western Blvd)	Huff Dr	40	0	0	2	7	31	107
22	US 17 Business (Wilmington Hwy)	Broadhurst Rd	8	0	1	0	3	4	106
23	US 17 Business (S Marine Blvd)	Georgetown Rd	26	0	0	0	10	16	100
24	US 17 Business (N Marine Blvd)	SR 1308 (Gum Branch Rd / Bell Fork Rd)	40	0	0	1	7	32	99
25	SR 1406 (Piney Green Rd)	SR 1403 (Country Club Rd)	38	0	0	2	6	30	97

Fatal (K)—Death occurring within twelve months of the crash

Disabling (A)—Injury is serious enough to prevent normal activity for at least one day

Evident (B)—Non-fatal or disabling injuries that are evident at the scene of the crash

Possible (C) —No visible injury, but those involved in the crash complain of pain or momentary unconsciousness

None (O)—No injury; property damage only

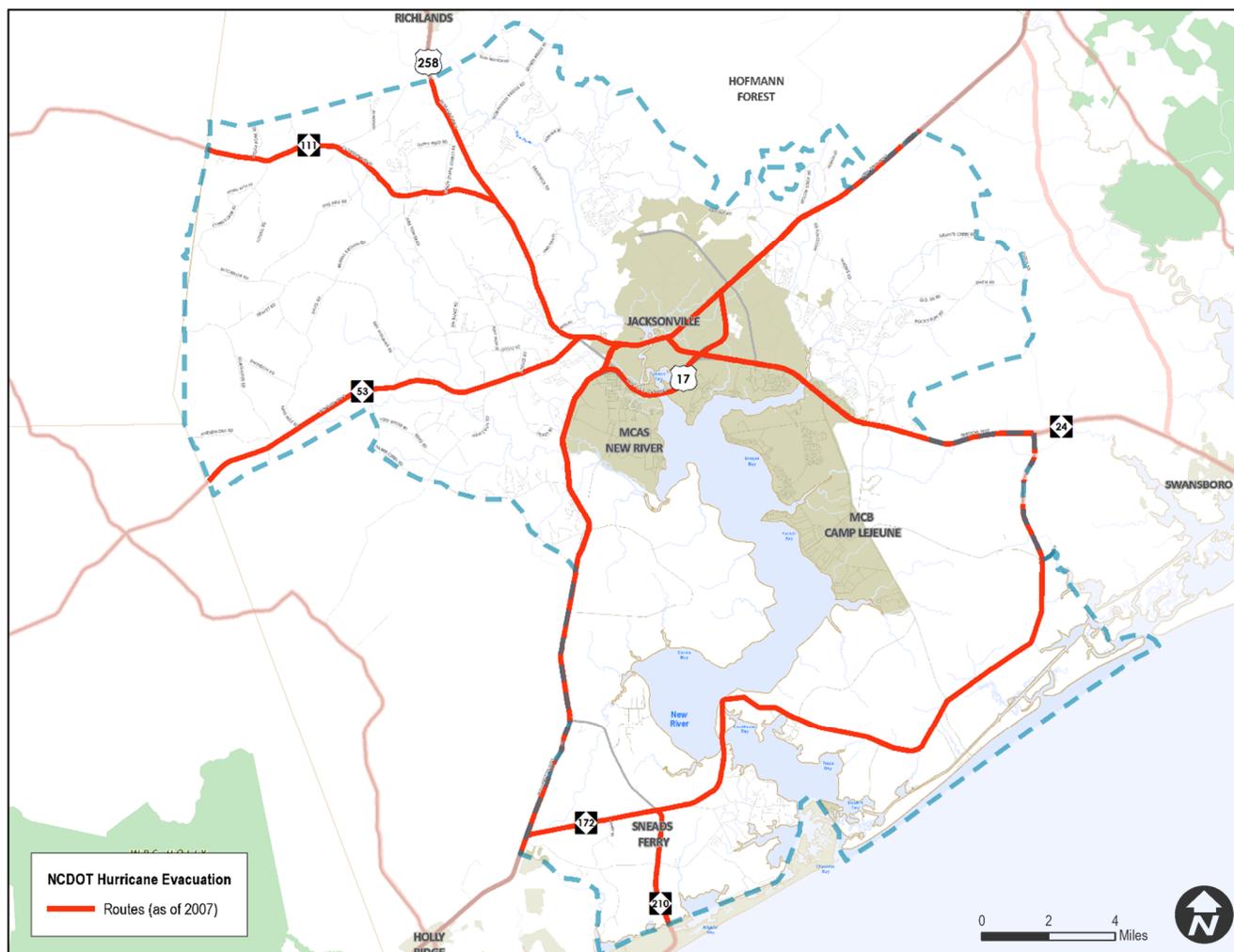
Unknown (U)—Unknown if any injury occurred

*Equivalent Property Damage Only Rate is a measure of severity that places more weight on crashes resulting in a fatality or serious injury, less weight on crashes resulting in minor injuries, and the least weight on crashes resulting in property damage only.

Evacuation Routes

The NCDOT designated a system of hurricane evacuation routes to help residents and visitors stay safe before, during, and after hurricane events. Most evacuation routes are marked with circular blue signs that read “Evacuation Route” and are typically along interstates and major highways in the state’s coastal region, including those in the JUMPO study area. Routes are selected to provide the most direct paths to areas not usually affected by hurricanes where food, water, and shelter would be available, and are chosen based on the ability to accommodate heavy traffic volumes and higher speed limits. Routes are designated not only to provide information to the traveling public, but also to help with the consolidation of emergency responders and emergency resources. The NCDOT strongly encourages travelers to use designated evacuation routes so that they do not get lost or stranded on local routes where emergency personnel may be unable to help.

Designated evacuation routes in the JUMPO study area include US 17, US 258, NC 24, NC 53, NC 111, NC 172, and NC 210 as shown in the map below. The roadway recommendations described in Chapter 5 include safety and operational improvements to all or portions of each of these corridors. These recommendations will improve the safety and security of these facilities.



Bicycle and Pedestrian

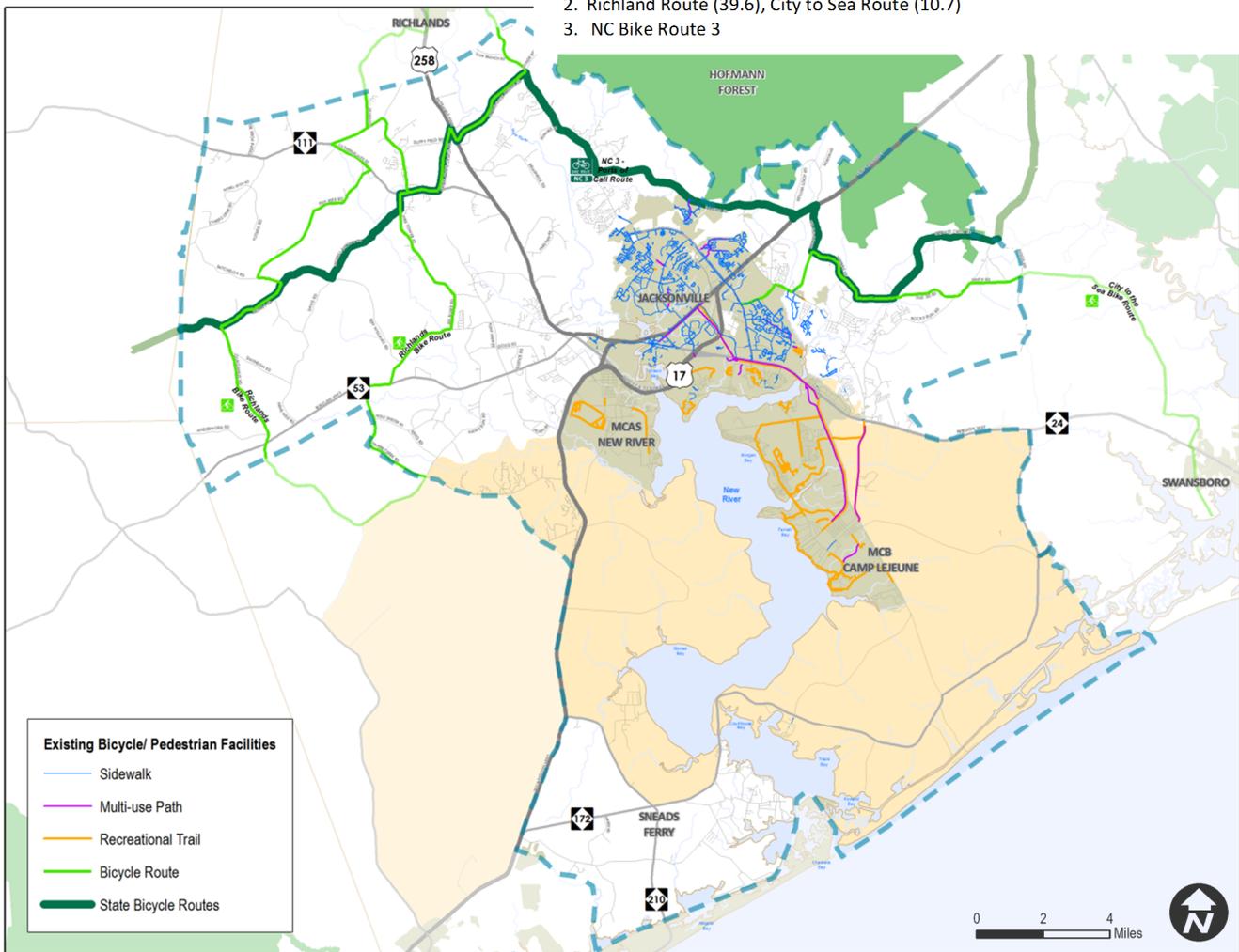
The City of Jacksonville has a comprehensive inventory of sidewalks that identifies sidewalk facilities on either side of a particular roadway. The inventory includes multi-use trails and paths, crosswalks, mid-block crossings, driveway crossings and a number of pedestrian and roadway bridge facilities that carry pedestrian traffic. The inventory includes proposed facilities as well as the existing network. Camp Lejeune also has an inventory of existing, programmed, planned, and recommended bicycle and pedestrian facilities and multi-use trails or paths. The JUMPO study area is crossed by the NC 3 State Bicycle Route along the coastal portion of the study area, and is also home to a portion of the Richlands and City to Sea bicycle routes; all are on-road bicycle facilities.

According to Jacksonville’s inventory, approximately 180 linear miles of sidewalk and just over 100 miles of multi-use paths or trails are located in the JUMPO study area. In addition, the JUMPO study area includes over 74 miles of existing on-road bicycle facilities. These facilities are shown in the table to the right and map below.

Existing Bicycle/Pedestrian Facility Miles in JUMPO

Facility Type	Jacksonville/ JUMPO	Camp Lejeune ¹	State Facilities	Total
Sidewalks	175.7	2.6	0	178.3
Multi-Use Paths / Trails	20.9	81.2	0	102.1
On-Street Bike Facilities	50.3 ²	0	24.4 ³	74.7

1. User must have valid military ID for access
2. Richland Route (39.6), City to Sea Route (10.7)
3. NC Bike Route 3

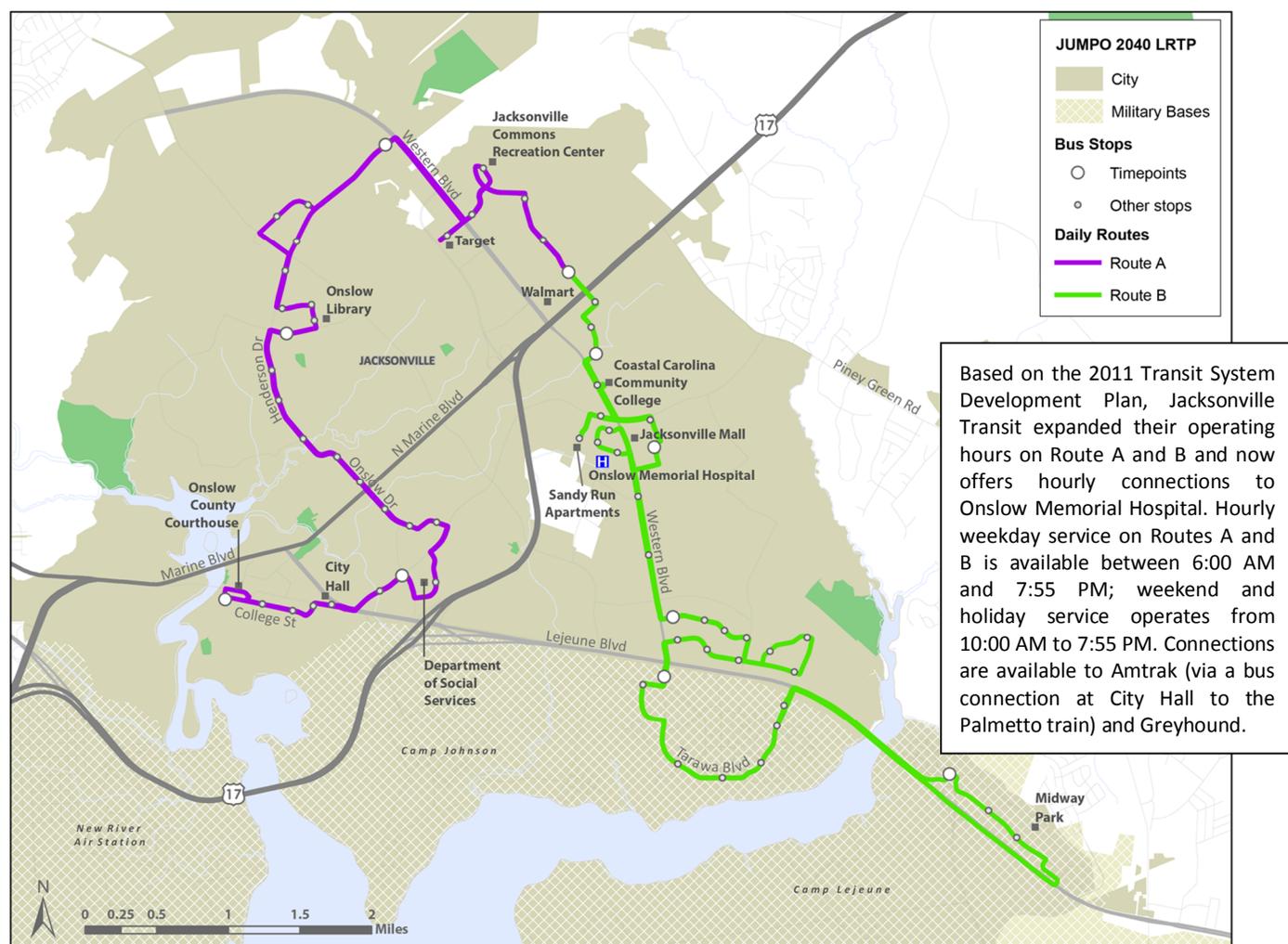


Transit

Jacksonville Transit provides fixed-route bus service within the City of Jacksonville and parts of Onslow County as well as express bus service between the city and adjacent military installations. In Fiscal Year 2010 (FY 10), Jacksonville Transit operated 14,763 hours and 238,996 miles of service and carried 76,605 passengers. Jacksonville Transit grew out of the Onslow United Transit System (OUTS), an agency that continues to provide rural transit service in Onslow County and demand response (dial-a-ride) service for Jacksonville Transit.

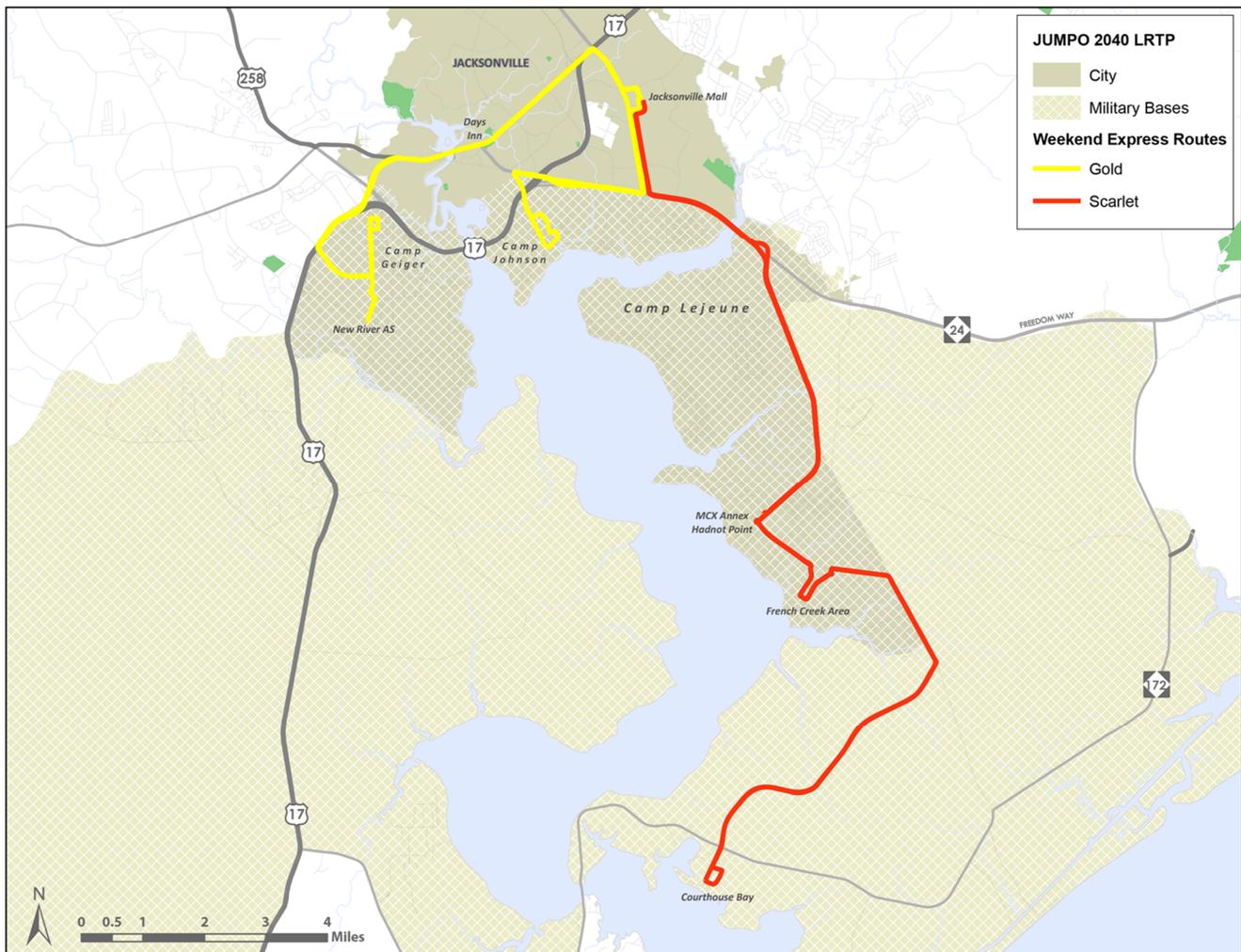
Local Fixed-Route Service

Jacksonville Transit operates two local fixed-route services seven days per week. Route A (the Purple Route) operates from downtown to Walmart on Western Boulevard via Onslow Drive, Henderson Drive, Western Boulevard, and McDaniel Drive. End to end travel time is 36 to 40 minutes depending on direction. Route B (the Green Route) operates from Walmart to Tarawa Terrace and Midway Park. This leg requires 41 to 45 minutes in travel time. On system maps and schedules, the Green and Purple routes are shown as distinct services, but operationally, they are fully interlined with buses changing headsigns at the approximate mid-point of the circuit (near Walmart). Local fixed-route trips cost \$1.25 one-way. Seniors 65 years and older, youths between 6 and 18 years old, and persons with disabilities pay half fare (\$0.60). Express service costs \$3.00 one-way, with a \$0.50 discount to ADA paratransit eligible passengers. Children under 6 years old and personal aides ride free.



Express Route Service

Jacksonville Transit's express routes include the Gold and Scarlet Routes. The Gold Route operates between Camp Johnson, Jacksonville Mall, Days Inn on Marine Boulevard, and Camp Geiger. Service is available on Friday evenings from 5:00 PM to 12:35 AM, on Saturday from 9:15 AM to 12:35 PM, and on Sundays from 9:15 AM to 6:52 PM. The Gold Route also has two variants: regular service that serves all stops, and limited-stop service that skips NRAS, Geiger Tiger, and downtown. Service operates every 31 or 62 minutes depending on the time of day. The Scarlet Route operates between the Jacksonville Mall and Camp Lejeune on Friday evenings from 5:00 PM to 12:49 AM, on Saturdays from 10:00 AM to 12:49 AM, and on Sundays from 10:00 AM to 5:49 PM. Service runs every hour on Fridays, every two hours on Saturdays until 6:00 PM, every hour on Saturdays after 6:00 PM, and every two hours on Sundays.



Paratransit Service

Jacksonville Transit provides complementary paratransit service for individuals who are unable to use the local fixed-route service. This service is offered in accordance with the Federal Americans with Disabilities Act (ADA). Jacksonville Transit meets its ADA obligation through a contract with OUTS. OUTS operates a single call-center for passengers and is responsible for determining eligibility for the service, reservations, scheduling, dispatch, and providing transportation. Complementary paratransit service is not required for express routes.

Demand Response Service

OUTS is a coordinated public transit service provider that operates curb-to-curb demand response services open to all residents in Onslow County and the City of Jacksonville. As part of its service network, OUTS also holds contracts to provide service for several area programs. Service is available Monday through Friday 5:00 AM to 9:00 PM and costs between \$2 and \$5, determined by home location. Jacksonville Transit is closely coordinated with OUTS. Collaboration between agencies is long standing and up until January 2011, both Jacksonville Transit and OUTS procured service through the same contract.

Service	Type	Span and Frequency	Features
Local Fixed-Route Service			
Route A (Purple) Downtown to Wal-Mart	Fixed-Route \$1.25 (free transfers)	Weekdays: hourly (6:00 AM to 7:55 PM) Weekends and holidays: hourly (10:00 AM to 7:55 PM)	Youths, seniors and persons with disabilities pay half fare (\$0.60) Complementary paratransit available
Route B (Green) Wal-Mart to Tarawa Terrace & Midway Park	Same as Route A	Same as Route A	Same as Route A
Express Service			
Gold Route	Weekend Express Service \$3.00 (free transfers)	Fridays: 31 or 62 min. (5:00 PM to 12:35 AM) Saturdays: 31 or 62 min. (9:15 AM to 12:35 AM) Sundays: 31 or 62 min. (9:15 AM to 6:52 PM)	Complementary paratransit not available Reduced fare (\$2.50) for ADA paratransit eligible passengers
Scarlet Route	Weekend Express Service \$3.00 (free transfers)	Fridays: hourly (5:00 PM to 12:49 AM) Saturdays: 120 minutes (10:00 AM to 6:00 PM), hourly (6:00 PM to 12:49 AM) Sundays: 120 minutes (10:00 AM to 5:49 PM)	Complementary paratransit not available Reduced fare (\$2.50) for ADA paratransit eligible passengers
Demand Response Service			
Complementary Paratransit	Demand Response Double fixed-route fare (e.g., \$2.50)	ADA eligible; trips within ¼ mile of fixed route system Weekdays (6:00 AM to 7:55 PM) Weekends (10:00 AM to 7:55 PM)	Available for travel in the fixed-route corridor only (within ¼ miles on either side of route alignment) during fixed-route service hours
Onslow United Transit System (OUTS)	Demand Response \$2 to \$5	Countywide curb-to-curb service Weekdays (5:00 AM to 9:00 PM)	Open to the general public

Other Transportation Modes

Airports

The Albert J. Ellis Airport is a county-owned commercial airport that also provides general and corporate air services for the region. The Marine Corps Air Station New River is the only East Coast rotary wing and tiltrotor air station.

Railroads

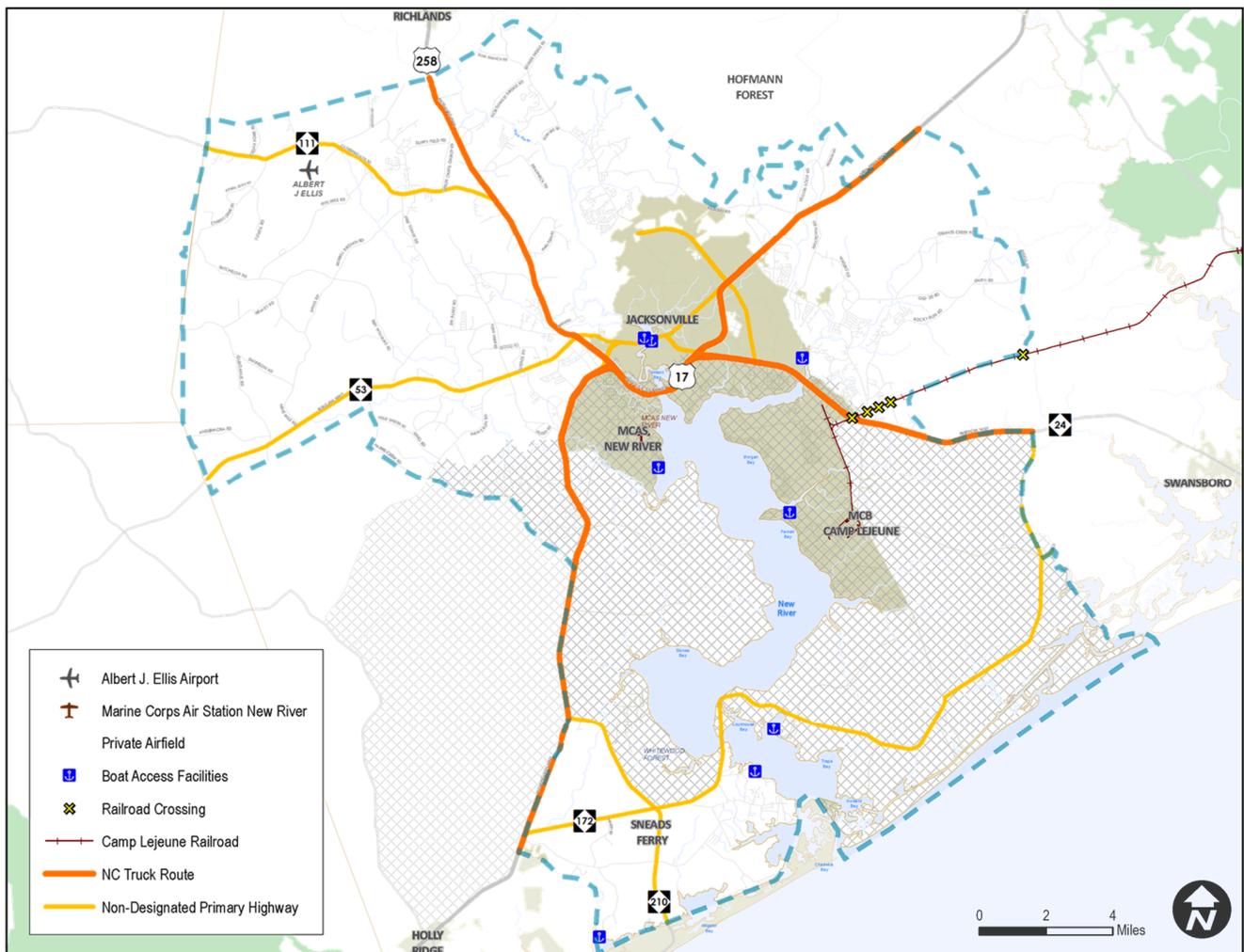
The Camp Lejeune Railroad, was constructed in 1941 to connect Camp Lejeune with the Atlantic Coast Line Railroad in Jacksonville. The railroad, operated by Norfolk Southern, provides access to both the Port of Morehead City and Marine Corps Air Station at Cherry Point. Five at-grade railroad crossings with the Camp Lejeune Railroad are in the study area.

Boat Access

The New River and many of its tributaries are navigable waterways that provide access to the Atlantic Ocean. While Jacksonville is not a major port, commercial, public and private boat launch facilities are located in Jacksonville, Sneads Ferry, Turkey Point, MCB Camp Lejeune and MCAS New River.

Truck Routes

The North Carolina Truck Network (NCTN) includes US 17, US 258, and NC 24. The Surface Transportation Assistance Act (STAA) of 1982 applies to the NCTN and to trucks 53' in length, 102" width, or twin trailers. STAA dimensioned trucks are allowed reasonable access to locations within 3 miles of the NCTN without additional approval. Other trucks are not restricted unless a route is specifically signed.



Planning Document Review

The table below and on the following pages inventories the previous plans and documents completed in the JUMPO study area. Chronologically organized, the inventory summarizes planning efforts as far back as 1994 and includes comprehensive plans, corridor studies, a bicycle/pedestrian plan, feasibility studies, and transit plans.

Name	Adoption Date	Description	Major Recommendations
Thoroughfare Plan for the City of Jacksonville	February 1994	Second revision of the 1985 thoroughfare plan for Jacksonville which recommends improvements to address existing and projected road deficiencies.	<ul style="list-style-type: none"> Develop subdivision ordinance and zoning ordinance Create a capital improvements program to generate municipal funds for street improvements Considering alternative funding sources including user impact fees, transportation bonds, federal demonstration project funds, and utility fees
Piney Green Road Corridor Transportation Plan	April 2001	Corridor study for Piney Green Road from US 17 (Marine Boulevard) to NC 24 (Lejeune Boulevard) that addresses development and traffic concerns along the corridor.	<ul style="list-style-type: none"> Widen Piney Green Road to provide a 4-lane divided or 5-lane cross section Reconfigure lane groups at major intersections Discourage strip developments and expansion of industrial land uses Encourage shared access and site connectivity
Jacksonville Urban Area 2035 Transportation Plan	March 2005	Long range transportation plan for the Jacksonville Urban Area which includes multi-modal transportation recommendations and strategies for funding and implementation.	<ul style="list-style-type: none"> Implement countermeasures at high crash locations Amend Thoroughfare Plan Ensure proposed development applications are consistent with roadway corridor plans
Feasibility Study for the proposed US 258/NC 24 to US 17 connector (FS-0303C)	November 2007	Feasibility study for the proposed connector (Northwest Corridor) from US 258/NC 24 to US 17 in Jacksonville.	<ul style="list-style-type: none"> Construct a four-lane divided shoulder section for section 1 (option B) and section 2 (option B), a diamond interchange with a loop in the southwest quadrant at the intersection of SR 1308 (Gum Branch Road) and SR 1470 (Western Boulevard), and a new bridge over the New River
The Jacksonville Bicycle and Pedestrian Transportation Plan	June 2008	Bicycle and pedestrian plan to increase mode share, improve safety, and to address immediate and long-term needs for bicyclists and pedestrians in the City of Jacksonville	<ul style="list-style-type: none"> Develop a funding strategy to complete each of the physical, policy, and program recommendations included in the plan Coordinate all recommendations with Camp Lejeune Develop a "Complete Streets" policy approach
2009 Jacksonville Collector Street Plan	2009	Master street plan to guide development in Jacksonville as an update to the 2000 collector street plan.	<ul style="list-style-type: none"> Coordinate construction of collector streets with developers Accept fees in lieu from developers to construct improvements in the future Designate responsible parties and funding sources for streetscape maintenance
Jacksonville & Onslow County Coordinated Human Services Transportation Plan	April 2009	Coordination plan for Jacksonville Transit, Onslow United Transit System, and social service agencies to provide community transportation services.	<ul style="list-style-type: none"> Quantify transit data to measure performance and report accomplishments of transit services to government officials and stakeholders Refine human service transportation program recommendations and assess potential funding levels Use the New River Regional Transit Master Plan to inform the coordination process

Name	Adoption Date	Description	Major Recommendations
Albert J. Ellis Airport Master Plan	July 2009	Action plan for airport development that supports existing and forecasted demand for aviation services.	<ul style="list-style-type: none"> • Construct 67,000-square-foot terminal • Improve sewer capacity • Construct air traffic control tower • Construct corporate and general aviation terminal
Onslow United Transit System Community Transportation Service Plan	September 2009	Five-year transit service plan required by NCDOT's Public Transportation Division to review current performance and recommend improvement strategies.	<ul style="list-style-type: none"> • Establish programs for mobility management, marketing analysis and outreach, and incentives for transit riders • Establish reverse commute services, park-n-ride lots, express routes, and vanpools • Provide fixed route service along the US 258 corridor • Maximize the use of technology, e.g. web-based scheduling tools and automated vehicle location technology
New River Regional Transit Master Plan	October 2009	Transit service and operations plan for Jacksonville Transit, Onslow United Transit System, and JUMPO, which consolidates the Jacksonville Transit Master Plan, the OUTS Community Transportation Service Plan, and the Coordinated Human Services Transportation Plan.	<ul style="list-style-type: none"> • Enhance and expand services by establishing five new fixed bus routes and considering three new deviated fixed routes • Continue the coordination between Jacksonville Transit and OUTS • Encourage Camp Lejeune to consider the design of queue-jump lanes for transit buses and to initiate the Transportation Incentive Program • Provide fixed route service along the US 258 corridor
Jacksonville Urban Area Metropolitan Planning Organization Long Range Transportation Plan	2010	Previous long range transportation plan for the Jacksonville Urban Area.	<ul style="list-style-type: none"> • Implement fiscally constrained bicycle, pedestrian, transit, aviation, freight, and roadway projects
Onslow County Comprehensive Plan (CAMA Core Land Use Plan)	January 2010	Comprehensive plan for Onslow County which sets goals and objectives to provide the legal basis for land use regulations and guides capital improvements planning.	<ul style="list-style-type: none"> • Prepare a shoreline access plan • Prepare a Unified Development Ordinance which will support connectivity between development and limit access from development on roads and highways • Encourage state-maintained roads to include bike lanes during design or expansion • Support public transportation services
Transit System Development Plan	September 2011	Five-year transit system development plan for Jacksonville Transit that identifies service needs and opportunities, reviews existing performance, and recommends a plan to improve service.	<ul style="list-style-type: none"> • Improve local-fixed route services via route modification, decrease frequency to routes with low ridership, and increase frequency at peak times of day • Change express route service times and move route terminus from Jacksonville Mall to north along Western Boulevard • Offer on-demand service to Tarawa Terrace and Midway Park, Onslow Memorial Hospital, and northern Jacksonville around Western Boulevard and Gum Branch Road • Establish commuter services between Jacksonville and Wilmington

Name	Adoption Date	Description	Major Recommendations
JUMPO Comprehensive Transportation Plan	April 2012	Comprehensive transportation plan required by North Carolina for the Jacksonville Urban Area.	<ul style="list-style-type: none"> • Several roadway projects which include ITS, widening, new roadways, and median construction • Implement new bus transit route along Hargett Street and Country Club Road • Construct sidewalks along major roadways • Construct new greenways and extend existing greenways to connect major destinations
Jacksonville Area Multimodal Center Feasibility Study	June 2012	Feasibility study for a regional multimodal transportation center in Jacksonville.	<ul style="list-style-type: none"> • Locate and design the multimodal transportation center to provide for growth in Jacksonville's transportation system and to contribute to smart growth patterns and potential redevelopment
Feasibility Study for the proposed widening of NC 172/NC 210 from US 17 to the USMC Gate (FS-1003C)	January 2013	Feasibility study for the proposed widening of NC 210 from US 17 to NC 172 and NC 172 from NC 210 to USMC Gate.	<ul style="list-style-type: none"> • Widen both NC 210 and NC 172 to four-lane divided shoulder sections with 12' travel lanes, a 23' raised grass median, 8' shoulders • Construct an interchange at US 17 and NC 210, dual bridges over Stones Creek, a flyover at NC 210 and NC 172, and dual bridges over the New River
NC 24 Corridor Study	April 2013	Corridor study for NC 23 from Bell Fork Road to Piney Green Road which reviews existing roadway issues and recommends improvements related to traffic management, non-motorized connectivity, traffic congestion, and safety.	<ul style="list-style-type: none"> • Implement preferred development principles through revisions to the CAMA Land Use Plan, Jacksonville UDO, and supporting policies and ordinances • Consider the creation of an access management overlay ordinance • Pursue high priority intersection lane additions and resurfacing • Enhance crosswalks and pedestrian signals and construct sidewalks along the corridor
Western Boulevard (NC 53) Corridor Study	May 2014	Corridor study for Western Boulevard from NC 24 to US 17 which includes an assessment of transportation operations and a series of recommendations for all modes.	<ul style="list-style-type: none"> • Improve signage along Western Boulevard • Implement access management through installation of landscaped medians • Install street lighting • Construct a multi-use path along east side of corridor • Increase frequency of transit service

Conclusion

Documenting the existing system helps balance the competing interests of improving mobility and preserving the region's important natural, cultural, and transportation resources. The location of these resources must factor into the decision process when determining transportation investments—because it is good practice and a federal requirement. The earlier these features are identified, the more likely sustainable solutions will arise to reduce unnecessary delays and expenses throughout the design and construction of the projects.

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Introduction

Since 2001 when Jacksonville's first fixed route public transportation launched in coordination with Onslow United Transit System (OUTS) and the North Carolina Department of Transportation, the greater region has continued to expand, adjust, and enhance public transportation service. The Moving Ahead for Progress in the 21st Century Act (MAP-21) requires MPOs to consider all modes of transportation in the analysis of region-wide mobility and the formulation of recommended plans, programs, and policies. The long range transportation plan should be an integrated, balanced intermodal transportation system that safely and efficiently moves people and goods. The purpose of the Public Transportation chapter of the *JUMPO 2040 LRTP* is to build upon previous planning efforts and evaluate opportunities to create a coordinated system that serves existing and potential needs of the area and satisfies Federal and State eligibility requirements for financial assistance.

Planning Considerations

MAP-21 requires MPOs to consider all modes of transportation in the analysis of region-wide mobility and the development of recommended plans, programs, and policies. For public transportation, the following considerations are important.

Choice and Captive Riders

Transit serves two types of users: captive riders and choice riders.

- Captive riders do not have access to or the ability to use a personal vehicle. Transit options for them are essential. These riders include persons too young to drive, the elderly, persons with disabilities, and those without the financial means to own and operate a personal vehicle.
- Choice riders otherwise have access to a personal vehicle but instead choose to use transit. These riders include persons who decide not to own a personal automobile and those who decide to use transit for work, social, medical, or personal trips. Reasons choice riders use transit include saving money, convenience, comfort, or environmental principles.

Population in the Jacksonville area is becoming increasingly dispersed, making convenient transit service more complex and expensive to operate. To encourage transit use and decrease dependence on the automobile, a safe, comfortable customer delivery system with attractive and convenient amenities must be developed around bus stops. The customer delivery system requires a network of sidewalks, safe street crossings, and lighting. The efficiency of transit also depends on an interconnected street network suitable for bus traffic and convenient ways for riders to shift between public transportation modes. For these reasons, transit cannot be considered in isolation, and the strategies presented in this chapter support improvements to the larger transportation system.

Transit and Urban Form

People are more likely to use transit when service is convenient, dependable, and easy to use. While this level of service requires a complete network of roads, sidewalks, and bikeways, it also demands connections to the places people need to go at a time when they need to get there. Where possible, transit should occur in areas with transit-supportive urban form. Development types that maximize potential transit ridership include transit-oriented development, transit-ready development, and single-use transit destinations.

Transit-Oriented Development

Transit-oriented developments (TODs) provide a mixture of residential and commercial uses focused around a transit station or bus stop. The transit stop is surrounded by relatively high density development that spreads out as you move away from the center. The scale of a TOD generally is limited to ¼- to ½-mile in diameter to establish the walkability of the neighborhood. The design of such places maximizes access to transit and supports walking and biking between destinations.

Transit-Ready Development

In locations that lack existing transit facilities or lack the demand to support a TOD, regulations and guidelines that support transit-ready development should be enforced. Transit-ready development describes the coordinated design of new neighborhoods and activity centers that supports future transit expansion. Like TODs, transit-ready developments include a mixture of land uses, pedestrian-friendly design, appropriate locations and/or routes for transit, an interconnected network of internal streets, and appropriate densities supportive of future transit use.

Single-Use Transit Destinations

While transit-oriented and transit-ready developments represent ideal urban form for transit destinations, many existing single-use locations in the Jacksonville area are viable long-term facilities. Coastal Carolina Community College, Onslow Memorial Hospital, and Jacksonville Mall are a few examples of vital destinations for many residents of the Jacksonville region. These types of locations represent places where access to public transportation continues to be an important priority.

Ongoing Planning for Public Transportation

Public transportation does not exist in a vacuum, operating apart from regional land uses and other transportation modes. Even seemingly irrelevant decisions, such as where to locate a small residential development, can create a significant challenge for a provider to operate efficiently if those residents are highly dependent on public transportation service to meet their mobility and accessibility needs. Therefore, public transportation must be included in land use and transportation decision-making. Triggers that call for public transportation planning include:

- Population growth, decline, shifts, or natural changes (e.g. an aging population);
- Employment growth, decline, or shifts (e.g. retail, commercial, industrial);
- Loss or addition of a major employer
- Changes to existing employment levels at major employers
- Major retail or other activity center development (e.g. big box stores, revitalization projects, malls, etc.);
- Residential development plans;
- Changes to local zoning codes, especially those that increase or decrease density; and
- Regional and local transportation decisions, such as those regarding the highway and road network, bicycle and pedestrian network, and regional bus, train, or airline services.

Thus, similar to many other modes, public transportation planning is ongoing and continuous.

Service Design Guidelines/Performance Metrics

Transit is the primary player in local Jacksonville public transportation services. In line with the principle of ongoing planning, Jacksonville Transit and OUTS can rely on service design guidelines and performance metrics to continuously monitor their services, act as a trigger for reevaluating and redesigning existing services, and developing new services. Service design guidelines and performance metrics help transit agencies target improvements in the quality of transit services over today's levels to meet customer desires.

The first step to developing service design guidelines and performance metrics is for Jacksonville Transit, OUTS, and other stakeholders to create a vision, goals, and objectives for transit in Jacksonville that reflect the opportunities and financial resources available. Transit often requires trade-offs and the characteristics of an area never remain stagnant, so having these discussions early means easier decision-making down the road. Service design guidelines and performance metrics can then be created that reflect the vision, goals, and objectives, ensuring benefits such as:

- An efficient and effective allocation of resources that balances available resources with needed improvements to the level of service;
- Meeting pre-determined levels of service quality for all existing customers, potential customers, and geographic areas; and
- A consistent and fair basis for evaluating proposed improvements to existing transit services and for considering new transit services.

For a small system like Jacksonville, the service design guidelines and performance metrics can be simple at first and progress over time; they should be living documents. Setting realistic targets, such as ridership per trip by service type, helps to evaluate services objectively and make improvements, changes, or cuts on a regular and defensible basis. The process of goal setting can also lead to greater follow-through on recommendations.

Previous Planning Efforts

Jacksonville Transit System Development Plan (September 2011)

This comprehensive transit plan was intended to identify service needs and opportunities, review existing service performance and productivity, and lay out a five-year strategic plan to address gaps and opportunities that improve the delivery of service. The analysis and resulting recommendations include the full spectrum of service delivery, spanning organizational, communication, capital, and operation structures. The document also lays out a funding and implementation plan to support the recommendations.

Focused mostly on Jacksonville Transit, but recognizing OUTS as a critical partner in successful transit service, the development plan recommends changes to local fixed route services, express route services, services to new areas, and development of new service models. Implementation was broken down into the immediate term (6-18 months), short term (18 months-3 years), and longer term (3+ years).

Jacksonville Transit has been committed to implementing the recommendations from the development plan but work remains. Many of the recommendations have thus been incorporated into this long range transportation plan for additional consideration and promotion. Along with many smaller changes, significant transit changes already underway include a third fixed route along Hargett Street and Country Club Road, improvements to the eastern end of the Green Route, and development of a new multimodal center.

Additional Plans

Jacksonville has grown quickly in the last decade, which resulted in a variety of planning efforts aimed at accommodating the growth and ensuring that transportation needs are met. In addition to the Jacksonville Transit System Development Plan, six of the most significant public transportation plans include:

- Jacksonville & Onslow County Coordinated Human Services Transportation Plan (April 2009) – Transportation often is an overlooked component of support for individuals who are unable to provide for their own transportation due to disabilities, lack of financial resources, or other circumstances. This plan acts as a guide for continuing and potentially expanding coordination of transportation between Jacksonville Transit, OUTS, and other social service agencies with the region.
- Albert J. Ellis Airport Master Plan (July 2009) – Onslow County initiated a master planning effort for Albert J. Ellis Airport to outline a course of action for airport development that supports the forecasted demand for aviation services. The plan included an evaluation of the airport’s facilities and surrounding environs, evaluation of alternatives, and a listed of prioritized capital projects.
- OUTS Community Transportation Service Plan (September 2009) – This plan reviews the performance and organization of OUTS services. The plan makes recommendations to increase mobility options for citizens and improve operations and management through a coordinated transit system with OUTS and Jacksonville Transit.
- MCB Camp Lejeune/MCAS New River Transportation Demand Management Plan (June 2011) – This plan created a set of strategies to utilize the existing transportation system in Jacksonville efficiently without making significant physical modifications. A broad range of recommendations were made, including numerous public transportation options, such as vanpools, park-and-ride lots, better public information, and a rideshare coordinator.
- Jacksonville Urban Area Multimodal Center Feasibility Study (June 2012) – A regional multimodal center in Jacksonville is a priority for the City and State of North Carolina. Integrating all forms of public transportation—along with the pedestrian and bicycle network—helps create an accessible, safe, and efficient transportation system for all users that can grow as the region grows. By expanding the mobility of citizens, the multimodal center also promotes the use of alternative transportation in the region.
- Comprehensive State Rail Plan (December 2014) – NCDOT released a draft executive summary of the Comprehensive State Rail Plan. The plan defined a vision for North Carolina’s rail infrastructure and identified projects that have economic and quality-of-life benefits for the state’s residents and businesses. Development of the plan was in response to surging popularity of rail travel and increasing congestion on the state’s highways. Leaders ultimately seek to connect people, places, and goods through efficient alternatives to car travel.

Beyond these, numerous plans include additional information on public transportation but are older or do not focus on the topic exclusively:

- City of Jacksonville Bicycle and Pedestrian Transportation Plan (2008)
- New River Regional Transit Master Plan (2009)
- Jacksonville MPO Long Range Transportation Plan (2010)
- Comprehensive Transportation Plan (2012)
- Sneads Ferry Community Plan (2014)

These plans are accessible at www.jumpo-nc.org/plans-documents.

Recommendations

The public transportation recommendations of the 2040 Long Range Transportation Plan are broken down by operational, facility, additional capital investments, and partnerships. In consultation with Jacksonville Transit (JT) and Onslow United Transit System (OUTS), the recommendations are prioritized into short- (through 2025) and long- (2026-2040) term priorities. (Note: An asterisk next to a recommendation signifies a combined action or need for both JT and OUTS.)

Operational Recommendations

Short-Term Priorities (through 2025)

- Gold Route Improvements
 - New Fare Structure and Media
- Universal Pass Programs
- Mobility Management*
- Marketing and Outreach*
- Expand Veteran Service (OUTS)
- Municipal Non-ADA On-Demand Response Service (OUTS)
- Reduce Headways
- Service to Public Events
- Route Restructure for Multimodal Center
- Expand ADA Service to City Limit*
- Amtrak and Greyhound Service Integration
- Airport Service
- MARSOC Expansion/Sneads Ferry
- Bell Fork/Gum Branch Road Service

Long-Term Priorities (2025 to 2040)

- Employment Transportation*
 - Vanpool Service
 - Park-and-Ride/Commuter Service
 - Express Service to Municipalities and Urbanized Areas
 - Rural Fixed Route
- Expand Service to Bases
- Intercity Express Service

Short-Term Priorities (through 2015)

Gold Route Improvements

The Gold Express Route has low productivity compared to the Scarlet Route and would be considered a low performer based on general transit planning principles, as discussed in the 2011 Transit System Development Plan (TSDP). In 2011, the Gold Route carried about 25 daily passengers¹. New data suggests a modest increase in ridership, but generally low ridership per trip creates challenges for efficiently operating the route. While the Gold Route provides a similar service for Camp Johnson and New River Air Station/Camp Geiger as the Scarlet Route provides for Camp Lejeune (service to Jacksonville Mall, among other destinations), demand for the service has not developed. Specific data on boardings and alightings by stop is required to better understand where most people need to travel between, and this may be the first step toward improving the service.

Additional recommendations include eliminating or reducing late night trips, increasing frequencies to 30 minutes between 6:00 PM and 8:00 PM, and improving and increasing marketing efforts. Introducing other service types, such as vanpools and park-and-rides, has also worked in other communities.²

New Fare Structure and Media

Improvements to the fare structure and the types of fare media made available to riders is a key opportunity to improving passenger convenience and encourage ridership. Recommendations include a Day Pass, Weekend Pass, Monthly Pass, and Ten-Ride Ticket Book. Half-fares should also be available for each of these fare options. Diversifying the outlets where passes are sold, such as online, grocery stores, military bases, the mall, colleges, and the USO, make using transit easier and more accessible.³

Universal Pass Programs

One of the most important ways transit users can benefit from partnerships between transit agencies and major employers and schools is through pass programs. Universal pass programs are typically structured so that an employer or institution pays a lump sum amount based on current transit usage to provide a transit pass to every employee or student. This approach, which has been successful around the country, offers employers a mechanism to promote use of public transportation at a very low initial cost. The intention of the program is to make transit more convenient – individuals have a pass and there is no cost – so they will start to use the bus for occasional trips. Once people try riding the bus, they often transition to more regular riders. As a result, transit ridership should increase over time. Potential participants in a program such as this include the City of Jacksonville, Coastal Carolina Community College, Onslow Memorial Hospital, Onslow County Public Schools, Jacksonville Mall, Onslow County, Camp Lejeune, New River Air Station/Camp Geiger, Camp Johnson, and other major employers (see Partnerships).⁴

¹ Jacksonville Transit System Development Plan, <http://www.jumponc.org/plans-documents>, September 2011.

² Ibid.

³ Ibid.

⁴ Ibid.

Mobility Management*

Previous planning efforts include a number of projects that involve strategies outside of traditional transit service planning, such as outreach, marketing, and passenger information systems, as well as the development of partnerships with external agencies and institutions, such as human service agencies, military installations, private employers, and community colleges. A mobility manager should be hired to undertake these, plus other community transportation programs. Funding for the position may be partially available through federal grants. Specifically, the mobility manager may be tasked to:

- Conduct marketing and outreach strategies to support implementation of the TSDP, including educating residents about how to use on-demand services.
- Collaborate more closely with OUTS to ensure people have access to the appropriate service and that transportation is provided as effectively and efficiently as possible.
- Create transit pass programs.
- Coordinate with the military installations and work with partners (specified in the Partnerships section) to ensure transportation services are effectively marketed.⁵

The 2011 MCB Camp Lejeune/MCAS New River Transportation Demand Management (TDM) Plan also recommended creating a rideshare coordinator position. The rideshare coordinator would be the single point of contact for TDM implementation oversight, fostering closer coordination between the military installations and the community, as well as implementing a cohesive TDM program.⁶ Responsibilities for the rideshare coordinator are very similar to the responsibilities of the mobility manager. Thus, these two positions can be combined, creating a position with enough responsibilities to be on a full-time basis, though the City and military installations may wish to start with a part-time position.

Marketing and Outreach*

Marketing and outreach increase support for and awareness of Jacksonville Transit and OUTS in the broader community. Strategies for marketing and outreach also help transit operators open new markets and develop partnerships that directly and indirectly lead to increased transit use. Potential steps associated with developing an outreach strategy include:

- Attend community meetings to hold “listening sessions” and make presentations about service changes. By reaching out to the most relevant community groups, Jacksonville Transit and OUTS will increase awareness, develop trust, and encourage ridership.
- As any service changes are implemented, meet with institutions regularly to understand their transportation needs and constraints and discuss opportunities for transit to meet those needs.
- Strengthen the existing relationship with the military installations so that Jacksonville Transit and OUTS are increasingly considered a partner in meeting base transportation needs.
- Develop strategic relationships with other regional transit operators, such as the Wilmington Wave, to explore opportunities for future service coordination and development.
- Continue and expand participation in community activities.

⁵ Jacksonville Transit System Development Plan, <http://www.jumpro-nc.org/plans-documents>, September 2011.

⁶ MCB Camp Lejeune/MCAS New River Transportation Demand Management (TDM) Plan, http://nceastmgf.com/modules/evolvecms/upload/LejeuneNewRiverTDM_06-17-11%281%29.pdf, June 2011.

Numerous opportunities exist that could improve marketing for Jacksonville Transit and OUTS:

- Update existing marketing materials that show Jacksonville Transit services and timetables and build on those materials to show new services. Route schedules should be clear and simple, highlighting transfer points and times, and should be packaged as tri-fold brochures for easy portability.
- Create a system map that shows Jacksonville Transit local fixed-route, OUTS on-demand, and express services on an integrated schedule and map. The map should be posted online as well as in key physical locations, such as in City Hall, Coastal Carolina Community College (CCCC), Jacksonville Mall, and other major stops. This will allow current and prospective customers to see the full range of transit services available to them, and help them better navigate throughout the service area.
- Create a service schedule brochure that includes all transit services in Jacksonville. The brochure should be dated so people know the information is relevant.
- Strengthen Jacksonville Transit’s online presence. This would likely include creating a standalone webpage that contains online pass and ticket sales, an online trip planner, a place for residents to ask questions or make comments, and links to other regional transportation services.
- Distribute schedules and brochures widely and at key locations such as the CCCC, Jacksonville Mall, City Hall, and at major stops.
- Update and conduct periodic checks of the Jacksonville Transit and OUTS websites so that all information is relevant, consistent, and easy to find.
- Create tailored “how to ride the bus” materials for large institutions (military installations, community colleges and the Department of Social Services) and/or select markets (college students, older adults). These materials should also be widely distributed, available online, and featured on G10 TV.
- Develop introductory “how to ride the bus” materials for military institutions and CCCC that can be provided to individuals as part of an initiation or introductory materials.
 - Attend CCCC registration events to provide information about public transportation.
 - Attend information sessions organized by the military institutions to tell attendees about Jacksonville Transit and OUTS services and to provide marketing materials.⁷

Expand Veteran Service (OUTS)

OUTS currently works with the Disabled American Veterans (DAV) chapter in Jacksonville to provide some transit service to veterans. However, the funding for trip cost is not fully-allocated, so OUTS subsidizes the trip. In addition, OUTS provides some veteran service through the Family Endeavors program in Jacksonville. Once veterans leave this program, OUTS also has to subsidize those trip costs. Some of the frequently visited locations by veterans include a clinic on Henderson Drive and a residential complex 5-6 miles outside of the city. Expanding OUTS service to these locations would be a mutual benefit for both the program and the OUTS riders. The agency has started to track riders who are veterans, but records are still inconsistent. Once recording this information is reliable, various programs and funding opportunities exist to expand the service.

⁷ Jacksonville Transit System Development Plan, <http://www.jumpro-nc.org/plans-documents>, September 2011.

Municipal Non-ADA On-Demand Response Service (OUTS)

The City of Jacksonville currently offers on-demand response services beyond those supported by federal transportation funding through public-private partnership grants and the Community Development Block Grant (CDBG) program. The city recognizes the value of these grants to enhance the quality of life of residents by allowing government and private entities to work closely together. This collaboration allows for the greatest and most efficient use of funds. OUTS and the City have a partnership for transportation services to residents within the city limits (destinations and origins of trips must be within the city limits). Maintaining and potentially expanding this program helps to serve people who cannot ride traditional fixed routes, and reduces gaps in the service area and operating hours of fixed routes.

The Onslow Memorial Hospital/Jacksonville Mall is one of the highest ridership areas in Jacksonville. While currently served by the Green Route, OUTS also serves this area very frequently because of high demand. Thus, opportunities may exist for additional demand response service in this area in the future. Additionally, high residential and commercial development around Gum Branch Road/Western Boulevard exists. Jacksonville Transit may serve this area with a fixed route in the future, but demand response service provides an interim solution before fixed route service can be implemented, with the added benefits of gathering support, demand, and visibility for more service in the future.

Fixed route service no longer serves Tarawa Terrace and Midway Park due to low demand, so these areas are well suited for demand response service. Though significant challenges remain to implementing transit services on the military bases, demand response service could also provide benefits to base areas beyond Tarawa Terrace and Midway Park. Demand is likely low but no alternative to a personal vehicle currently exists. One option for service could be a demand response connector service, where riders request a ride from within a designated zone and the vehicle then takes them to a connector point to meet up with traditional fixed route services.

Reduce Headways

Current Jacksonville Transit services, both local and express, operate hourly. Planning recommendations include increased frequency on local service during peak periods. Ridership could increase by as much as 75 percent on weekdays because of increased service frequency. Increasing frequency requires significant investment and can be one of the most costly ways to improve service. However, a transit agency often will see measurable increases in ridership, especially when improving from an hourly frequency. High costs are associated with additional labor hours and vehicle costs.⁸

Service to Public Events

Public event transportation not only provides additional transportation options for event-goers but also demonstrates that the transit agency is a good community steward. Planning parking and transportation for a public event can be difficult, but transit agencies are typically already set up to help. Transit agencies should reach out to event organizers, public officials, or other involved community members to signal their willingness to coordinate. Reducing the number of cars that need to come to the event also is environmentally responsible. Charter regulations can make this type of service difficult to implement; advance research and partnership development is essential.

⁸ Jacksonville Transit System Development Plan, <http://www.jumpro-nc.org/plans-documents>, September 2011.

Route Restructure for Multimodal Center

Various local plans for the Jacksonville region, along with state and federal plans and policies, have called for development of a multimodal center to consolidate operations and increase connectivity. The center would integrate the pedestrian and bicycle networks of Jacksonville, all forms of public transportation services, offices for transportation staff, and potentially additional transportation services, such as private shuttles and vanpools. Local plans indicating a clear need for this type of center include the Jacksonville & Onslow County Coordinated Human Services Transportation Plan (April 2009), Community Transportation Service Plan (September 2009), New River Regional Transit Master Plan (October 2009), City of Jacksonville Coastal Area Management Act Land Use Plan (July 2011), and the Jacksonville Transit System Development Plan (September 2011).

Findings from a June 2012 Multimodal Center Feasibility Plan confirm that a multimodal center would be a sound investment for the Jacksonville community to improve regional and local mobility. The North Carolina Department of Transportation ranked the Jacksonville Area multimodal center as the seventh highest public transportation priority statewide.⁹

The city identified a site on N. Marine Boulevard between E. Thompson Street and Bell Fork Road for the multimodal center, and plans are moving forward to design the center for this lot. While still early, the city can begin redesigning local bus service and planning for transit enhancements now to coincide with the opening of this center. This is an ideal opportunity to study the service in depth, ensuring optimal operation of the routes, and further integrate transit service into the transportation network of Jacksonville.

Expand ADA Service to City Limit*

The Americans with Disabilities Act (ADA) currently requires transit agencies to operate demand response service for those unable to use fixed route service for trips that start and end within $\frac{3}{4}$ of a mile from fixed route service (not including express service). Jacksonville Transit meets its ADA obligation through a contract with OUTS. Service is available during regular operating hours at \$2.50 per trip. OUTS operates a single call center for passengers and is responsible for determining eligibility for the service, scheduling calls, and providing service.

OUTS currently offers additional demand response service throughout Onslow County at fares ranging from \$2 to \$5 for a one-way trip. Expanding ADA service to the city limit could lead to financial benefits for OUTS by shifting the cost of some trips that start and end within Jacksonville to Jacksonville Transit, which has a greater ability to leverage federal and other funding. Funding for public transportation alternatives beyond those required by the ADA were previously funded under the federal New Freedom Program (Section 5317); however, with the enactment of the Moving Ahead for Progress in the 21st Century Act (MAP-21), New Freedom was folded into Section 5310 (Mobility Enhancements for Older Adults and People with Disabilities).

ADA service is also easier to plan and communicate to potential users – when a user is eligible under ADA guidelines, he or she has a guaranteed ride. In addition, city-wide ADA service allows for fixed route planning and redesign to occur without the worry of taking away service for those who cannot use regular buses.

⁹ Jacksonville Transit System Development Plan, <http://www.jumponc.org/plans-documents>, September 2011.

Greyhound and Amtrak Service Integration

Both Amtrak and Greyhound have expressed a desire to integrate service at the proposed multimodal center, where administrative staff could also be housed:

Greyhound

Greyhound Lines, Inc. operates daily intercity bus service to Jacksonville from a terminal located on Onslow Drive. This service provides connections to many destinations throughout North Carolina and the United States; however, connectivity to Jacksonville Transit is limited to the terminal location served by existing routes. Greyhound riders often hail a taxi or walk from the terminal to extend their range of mobility. Greyhound staff has indicated a desire to improve coordination among the systems by routing service through the Jacksonville multimodal center when it is operational.¹⁰

Amtrak

Amtrak has regional bus shuttle services that connect multiple urban areas in southeastern North Carolina to passenger rail service in Wilson, North Carolina. Currently, one thruway shuttle runs between Wilmington and Wilson via Jacksonville, Kinston, and Goldsboro. Train users can take Jacksonville Transit to City Hall to reach this daily shuttle. Amtrak offers riders the ability to purchase a single ticket for access to both the shuttle and train service.

Travelers from Jacksonville can choose between two train routes at Wilson, both of which run once per day in each direction: 1) the Palmetto, which operates between New York City and Savannah, Georgia, and 2) the Carolinian, which operates between New York City and Charlotte, North Carolina, though northbound trains arrive in Wilson before the thruway shuttle. Connections to additional Amtrak trains are possible to travel throughout the U.S.

Amtrak staff has indicated a strong desire to continue to coordinate the thruway shuttle with existing local public transit systems. Furthermore, Amtrak has indicated a desire to sustain coordination among the systems in the future by routing service through the Jacksonville multimodal center when it is operational.¹¹

The North Carolina Department of Transportation is currently preparing a Comprehensive State Rail Plan (CSRP) to define a vision for North Carolina's rail infrastructure and identify projects that have economic and quality-of-life benefits for the state's residents and businesses. Development of the plan was in response to a resurgence in the popularity of rail travel and increasing congestion on the state's highways. Leaders ultimately seek to connect people, places, and goods through efficient alternatives to car travel.

A draft executive summary of NCDOT's Comprehensive State Rail Plan includes numerous passenger rail projects, many of which will affect Jacksonville residents either directly or indirectly. The most noticeable of these projects includes new trainsets for the Carolinian line (within a timeframe of 2020-2035), station improvements at Wilson (2018-2025)¹², expanded thruway bus service to Wilmington and other markets (2018), and southeastern NC passenger service from Raleigh to Wilmington (2020-2035).

¹⁰ Jacksonville Urban Area Multimodal Center Feasibility Study, <http://www.jumponc.org/plans-documents>, June 2012.

¹¹ Jacksonville Urban Area Multimodal Center Feasibility Study, <http://www.jumponc.org/plans-documents>, June 2012.

¹² Draft Comprehensive State Rail Plan, Executive Summary. NCDOT Rail Division, <http://www.ncbytrain.org/resources/download/RailPlanExecutiveSummary.pdf>, December 2014.

Airport Service

Similar to the intercity express service, an airport shuttle or something similar would meet a specific transportation need. U.S. Airways and Delta currently serve Jacksonville on a limited schedule (approximately 15 flights each way). Shuttles should be timed to meet certain flights. The multimodal center could serve as the shuttle staging area and facilitate transfers.

MARSOC Expansion/Sneads Ferry

Sneads Ferry has grown rapidly since 2000 due to the growth of the U.S. Marine Corps Forces Special Operations Command (MARSOC) and increased access to Camp Lejeune via the back gate since 2011. The population of about 10,000 residents today is expected to more than double by 2040. Significant increases in traffic along N.C. 210 and N.C. 172 by 2035 have also prompted concerns over preserving the area's environment and heritage. To address the challenges, JUMPO and Onslow County worked with residents and other stakeholders to develop a vision and strategy that guides land use and transportation called the Sneads Ferry Community Plan.¹³

No public transportation currently exists within or connects to Sneads Ferry beyond the demand response service provided by OUTS. However, improved public transportation plays an important role in numerous goals of the plan, such as improving the overall access and mobility of the area, promoting economic vitality and tourism, preserving the unique character of Sneads Ferry, and integrating multiple transportation modes. With the adoption of this combined land use and transportation plan, the Sneads Ferry community hopes to spur development and growth without compromising cultural and environmental resources.¹⁴

Bell Fork/Gum Branch Service

Gum Branch Road (north of N. Marine Boulevard) and Bell Fork Road (south of N. Marine Boulevard) is a major northwest-southeast thoroughfare in Jacksonville. Though development is high in the area, much of it is low density residential. Few major employers or activity centers exist directly along the corridor but some exist in the near vicinity. Previous planning efforts identified select high need areas along the corridor, particularly near Western Boulevard and at some locations to the southwest of the corridor.¹⁵ Development and population and/or employment characteristics of the corridor should be continuously monitored and studied. With much of the current bus service already oriented north-south though, and a new route along Country Club Road ready to begin operation, adding service along Gum Branch and Bell Fork Roads will likely come towards the end of the 10-year horizon for the LRTP short-term priorities. As the system develops, especially after the multimodal center opens, traditional fixed route service or park-and-ride/commuter service could be explored.

¹³ Sneads Ferry Community Plan

¹⁴ Sneads Ferry Community Plan

¹⁵ Jacksonville Transit System Development Plan, <http://www.jumpo-nc.org/plans-documents>, September 2011.

Long-Term Priorities (2026 to 2040)

Employment Transportation*

On most transit services, especially fixed routes, the most common trip type is to reach jobs. Paying particular attention to this market often leads to a more successful service. Various plans completed by JUMPO – including the 2011 TSDP, 2009 Community Transportation Service Plan, and the 2009 County Coordinated Plan – have recognized this need. Developing an effective transit service to meet these specific transportation needs takes time and continuous evaluation. The service design guidelines can help evaluate the effectiveness of these services.

Vanpool Service

As an added or intermediate step toward commuter service, Jacksonville Transit should facilitate the development of vanpool service. A vanpool program would allow Jacksonville Transit to offer Jacksonville and Onslow County residents a service option in areas that do not meet the density requirements to support traditional fixed-route transit service. One potential vanpool opportunity includes service between Camp Lejeune (City of Jacksonville) and Marine Corps Air Station Cherry Point. A vanpool program allows for regional travel options, as vanpools are able to serve destinations both within and beyond the current Jacksonville Transit service area.

Vanpools typically can be started with just five participants, and routes and schedules are customized by the participants themselves to serve their specific destinations and shift times. The number of pickup and dropoff locations depends on the needs of the vanpool group, but park-and-ride lots are often utilized on one or both ends of the trip. Vanpools can also provide invaluable insight for transit agencies into where there is demand for more traditional transit services. If demand for vanpool service is strong between a particular origin/destination pair, Jacksonville Transit could eventually introduce fixed-route commuter bus service in its place. The cost of vanpool service to a transit agency can be quite minimal. In many cases, a private contractor such as Enterprise or VPSI provides the vans, and the vanpool participants split the cost of the service among themselves. The role of the transit agency is usually limited to marketing and ride-matching, but some agencies choose to subsidize the cost for participants.¹⁶

Park-and-Ride/Commuter Service

Commuter service tends to operate in the morning and afternoon peak hours when most people are trying to get to and from work. In smaller urbanized areas, there are often only a few trips per day and only two stops (at the beginning and end). Park-and-ride lots serve as the stop on at least one end in many cases. Many stakeholders and community members would like commuter service to Camp Lejeune. Commuter services to Camp Lejeune would be targeted towards specific commute times and offer weekday services in the morning and afternoon peak. The need for this service is primarily associated with congestion at the base gates. Previous planning efforts did not end up recommending this service in the immediate term, primarily because of the ongoing infrastructure development at Camp Lejeune. As development slows, revisiting the potential for this is warranted. To make this type of service most successful, stakeholders should support an initiative to create priority treatment for express buses, allowing them to bypass other traffic. While this approach is politically difficult, this type of initiative could provide a significant marketing boost for transit.¹⁷

¹⁶ Jacksonville Transit System Development Plan, <http://www.jumpo-nc.org/plans-documents>, September 2011.

¹⁷ Jacksonville Transit System Development Plan, <http://www.jumpo-nc.org/plans-documents>, September 2011.

Express Service to Municipalities and Urbanized Areas

Typically, express services to surrounding small communities are coordinated with standard work hours or shift times of specific employers. In this way, the service is also more of a commuter service, though stops tend to be limited like express service. This type of service also would align with state interests of regionalization. However, this service should only be considered after vanpools have been implemented and demonstrate a strong interest in the travel pattern or if the service is underwritten/jointly funded by a particular employer or other destination. That reduces the risk for the transit agency on what could be a challenging service to successfully operate.

Rural Fixed Route

Productive transit service relies heavily on dense development, which is not the predominant land use policy in the area. Employers will often locate outside of an urbanized area to take advantage of low property taxes, tax incentives, and/or the generally low cost of land. Similar to the discussion on express service to other municipalities, serving these employers is challenging and costly for transit agencies. Working with the employer to develop service that matches shift times and employee locations can lead to a service that is relatively low cost without necessitating too much deviation. Consulting with OUTS can also help develop routes around specific rural needs. Vanpools are an alternative to rural fixed routes that may prove more successful in the end.

Expand Service to Bases

The military installations are the major employers in Jacksonville. Thus, it is important for Jacksonville Transit to work with the military bases to increase ridership and provide better service. However, no service operates directly on the bases, with the exception of the Express Routes on Fridays, weekends, and holidays. Strengthening the existing partnership with Camp Lejeune/ New River Air Station to develop useful and productive service would provide mobility and accessibility benefits to those who live on base. Other plans provide additional recommendations for coordinating base service and local bus service, though these studies were completed before the base bus service was eliminated.^{18 19}

Intercity Express Service

Support for intercity service, especially headed south to Wilmington, exists within the Jacksonville community. In addition, state policies encourage regionalization efforts such as these.²⁰ The need for service between Jacksonville and Wilmington not only is associated with commuter trips but also to support non-work trips such as medical trips and connections to the Wilmington airport. Jacksonville Transit also has identified New Bern and Morehead City as potential connections. The market of riders who expressed most interest in this type of service included those who had access to a vehicle but would consider these types of services to meet specific transportation needs. As services diversify and expand, this is an important market for Jacksonville Transit to capture. Developing a multimodal center would facilitate transfers between transit service types and other transportation options while also providing a comfortable and safe waiting area.

¹⁸ Ibid.

¹⁹ MCB Camp Lejeune/MCAS New River Transportation Demand Management (TDM) Plan, http://nceastmgf.com/modules/evolvecms/upload/LejeuneNewRiverTDM_06-17-11%281%29.pdf, June 2011.

²⁰ Jacksonville Transit System Development Plan, <http://www.jum-po-nc.org/plans-documents>, September 2011.

Facility Recommendations

Ongoing Priorities

- Amenities
- ADA Compliance*

One-Time Priorities

- Multimodal Center*
- Park-and-Rides
- Satellite Transfer Facilities
- Maintenance Facility Expansion*
- Bus Yard with Dispatch Office*

Ongoing Priorities

Amenities

The quality of bus stop or station amenities plays an important role in attracting and keeping customers both in the short- and long-term. Reliable and useful transit service is most often the top priority for riders, but the public “face” of the agency – drivers, bus stops, vehicles, etc. – dramatically affects the user experience and is the priority after operating characteristics. Ideally, amenities should not be placed arbitrarily, but rather systematically through a scoring system based on ridership and other characteristics developed in the service design guidelines. Often amenities have low up-front costs, but maintenance can require significant time and effort. Partnerships with business and other transit-friendly groups to do periodic volunteer maintenance is a frequently used method for upkeep.

ADA Compliance*

With the enactment of the ADA in 1990, much of the existing transit infrastructure and facilities in the U.S. fell out of compliance with federal law. Many agencies are still in the process of bringing these structures in line with the requirements. A program should be set up to evaluate and retrofit or reconstruct existing facilities that are not in compliance in the Jacksonville area. This program can also provide guidance on any new facilities or infrastructure proposed.²¹

One-Time Priorities

Multimodal Center*

A multimodal center has the potential to significantly improve transit operations and visibility in Jacksonville, while also connecting bike, pedestrian, intercity services, and alternative transportation modes. This center is also in line with local, state, and federal transportation and land use policies, and North Carolina identified the project as a top ten priority in 2012.²²

²¹ Jacksonville Transit System Development Plan, <http://www.jumponc.org/plans-documents>, September 2011.

²² Jacksonville Urban Area Multimodal Center Feasibility Study, <http://www.jumponc.org/plans-documents>, June 2012.

The local financial burden associated with the facility is minimal in proportion to the total project cost. Ninety percent of the development/construction expenses are eligible for federal and state grants. The city already owns the land, which may offset the required 10 percent local match for capital projects. Finding and securing the local match is often the most difficult aspect of funding these projects, so with all or a part of the local match already accounted for, the city will have less of a challenge securing funding. Operating costs of the facility are also eligible for state and federal funding; however, these costs may also be offset by revenues generated from tenants within the facility – potentially including OUTS, Greyhound, Amtrak and private business.

Park-and-Rides

Discussed briefly in the operational recommendations above, park-and-rides can play an important role in developing a more robust commuter service. Congestion at the military base gates is of particular concern in Jacksonville, and park-and-rides could be a viable option for reducing traffic. However, there has to be some preferential treatment of buses for this service to work, and the location of the park-and-ride cannot be too close to the final destination. Otherwise, riders will not find the service useful or perceive it as a forced transfer, which often drives away potential riders. Many of the existing routes or routes under development already serve locations that can act as a shared-use park-and-ride (e.g. mall or grocery parking lots). In addition, if commuter service to neighboring communities is developed, park-and-ride lots are often necessary to attract riders.

Satellite Transfer Facilities

As the system grows, expands routes, and creates transfer opportunities, there is an increased need for comfortable waiting areas and transfer facilities. Improvements to these facilities can be tiered based on ridership and the number of routes serving the stop. Many transfer facilities are simply an enhanced bus stop with additional amenities and improved passenger information. Satellite transfer facilities are especially useful and important at jurisdictional interfaces if services exist on both sides.

Maintenance Facility Expansion (relocation)*

As Jacksonville Transit and OUTS grow, the two bays for bus maintenance will be inadequate. The current space does allow for growth. In addition, the space cannot accommodate any larger vehicles than what the agencies operate now. An expansion and/or relocation of the maintenance facility will be needed in the future depending on how fast the system grows.

Bus Yard with Dispatch Office*

Similar to the maintenance facility, the bus yard and dispatch offices will be inadequate as the system grows. Current improvements to the yard are only an interim solution, and the dispatch offices are small and inconvenient, which make operations inefficient. Again, depending on how fast the system grows, an expansion of the bus yard and dispatch offices could be a mid- to long-term priority.

Additional Capital Investments

Ongoing Priorities

- Fleet Expansion*
- Bus Replacement Cycle*

One-Time Priorities

- Technology Upgrades* - passenger communication and convenience
 - Online Trip Planners
 - Real-Time Passenger Information Systems
 - Smart Phone and Text Messaging Alerts
 - Interactive Voice Response
- Electronic Fare System
- Cisco Call Center*

Ongoing Priorities

Fleet Expansion and Bus Replacement Cycle*

For many transit agencies, vehicles are a significant portion of capital costs, but delaying replacement often leads to increased costs in maintenance and upkeep. In addition, as Jacksonville Transit and OUTFR grow, their vehicle fleets will also need to grow and be upgraded to meet expectations of enhanced transit service. Depending on demand, larger vehicles may also be necessary. Thus, vehicle costs are revolving and continuous and cannot be ignored. A significant portion of vehicle costs can be covered by federal and/or state funding, but local matches are almost always necessary.

One-Time Priorities

Technology Upgrades*

An essential part of attracting riders to Jacksonville Transit, including both transit dependent and choice riders, will be to expand the ways that people learn about existing transit services, interact with the agency, and plan and make their trips. Although marketing and outreach strategies as described above will always be important for transit systems, most systems are finding it is increasingly important to make information about transit services available in real-time and in as many formats as possible. Technology upgrades may be costly up-front but can save agencies money in the long run. Research has shown, for example, that real-time information can in some cases replace part of the need for greater route frequency. When a passenger has knowledge of when the bus is coming, planning is easier and more convenient.

Jacksonville Transit and OUTS have been in the process of implementing a series of ITS projects that have increased opportunities to provide more and different types of information. Given these new technological capabilities, potential technology upgrades include:

- *Online Trip Planners* give specific instructions to users for how to travel between two locations by public transportation. This is a straight-forward tool that can be implemented with fairly low costs. For example, in the short-term, it can be a useful system for people on the military installations to learn about the Express Services.
- *Real-Time Passenger Information Systems*, or “next bus” systems, provide passengers with real-time or live information about the location of their bus. These systems can be accessed at a stop with signage, on computers or smart phones, or by calling into a central telephone number. Real-time information systems will benefit all riders, but will be especially useful for people using on-demand services and passengers traveling to/from the military installations.
- *Smart Phone and Text Messaging Alerts*, while less important than on-line trip planners and real-time passenger information systems, can let people know when there are service delays. These types of system rely on people registering for the service and when/if systems get delayed, the travelers can be alerted.
- *Interactive Voice Response* allows customers to interact with an agency's call system via a telephone keypad or by speech recognition, helping to answer some of the more repetitive or straightforward questions received by an agency without tying up a human customer service representative. While it is vital to have a live person available for more complicated questions and scheduling, interactive voice response will help the call center handle larger volumes of calls more quickly and efficiently.²³

Electronic Fare System

Jacksonville Transit is planning to upgrade its current fare collection system (secure cash boxes) to electronic fareboxes. The fareboxes will allow passengers to purchase multi-trip or multi-day transit passes on the vehicle and receive change cards for cash fares.

Cisco Call Center*

The integrated call center has been a vitally important step for Jacksonville Transit and OUTS coordination. It has helped the systems grow more efficient, effective, and closer to together. However, with planned growth for both Jacksonville Transit and OUTS, the call center's capabilities will need to be expanded in the future with additional physical space.

²³ Jacksonville Transit System Development Plan, <http://www.jumpo-nc.org/plans-documents>, September 2011.

Partnerships

Developing good working partnerships within a community, discussed throughout the operational recommendations, is the most effective way of not only marketing transit service, but also leveraging additional resources. Potential partnerships in Jacksonville include:

- City of Jacksonville and Onslow County
 - City of Jacksonville and OUTF – Legacy issues have prevented Jacksonville Transit and OUTF from becoming fully merged, but various plans have discussed this as a future recommendation.^{24 25} Close coordination among the two systems should continue so that they continue to naturally grow together.
- Onslow County Human Services
- MCB Camp Lejeune and MCAS New River
- Coastal Carolina Community College
- Onslow Memorial Hospital
- Walmart
- Convergys
- Onslow County Public Schools
- Jacksonville Mall
- Greyhound

Aviation Recommendations

The aviation recommendations include roadway improvements that will enhance the roads near the Albert J. Ellis Airport as well as facility improvements identified in the July 2009 Master Plan. These projects are summarized below.

Relevant Roadway Recommendations

The following roadway recommendations are of particular interest to aviation operations in the Jacksonville area. These improvements are described in more detail in Chapter 5.

- NC 111 (Catherine Lake Road) from US 258 to Airport Road – Widen to 3 lanes
- NC 111 (Catherine Lake Road) extension from US 258 to Gum Branch Road – Construct new roadway
- US 258 (Richlands Highway) from Pony Farm Road to NC 53 (Burgaw Highway) – Construct superstreet
- US 258 (Richlands Highway) from NC 111 to Pony Farm Road – Construct median and other improvements
- NC 111 (Catherine Lake Road) at Fowler Manning Road – Intersection improvements

²⁴ New River Regional Transit Master Plan, <http://www.jumponc.org/plans-documents>, October 2009.

²⁵ Jacksonville Transit System Development Plan, <http://www.jumponc.org/plans-documents>, September 2011.

Facility Projects

The Strategic Transportation Investments (STI) Law establishes a statewide prioritization process that funds improvements to the every transportation mode. The process has identified six projects for Albert J. Ellis Airport:

- Terminal area finishes (SPOT ID = A130297)
- Terminal access road (A130298)
- Construct passenger terminal (A130295)
- Construct tower (A130305)
- Construct corporate/GA terminal (A130296)
- Relocate beacon (A130307)

NCDOT released the draft 10-year State Transportation Improvement Program (STIP) on December 4, 2014. The document schedules projects identified for full or partial funding between 2016 and 2025. Through project AV-5733, funding has been allocated in the STIP to design and construct a holding apron for Albert J. Ellis' runway (Runway 23). A total of \$300,000 in funds has been programmed with a construction year of 2017.

Master Plan Recommendations

The Albert J. Ellis Airport Master Plan was completed in July 2009 with the intent to provide Onslow County with a blueprint that ensures airport facility improvements respond to forecasted demand for aviation services. The airport currently is constructing a 67,000-square-foot terminal that will replace the current 35,000-square-foot terminal. Once completed, the \$40 million two-story facility will have three gates and capacity to serve up to four aircraft. Other ongoing improvements include sewer improvements, an air traffic control tower, and the corporate and general aviation terminal. In general, the *JUMPO 2040 LRTP* recommendations continued work on executing the master plan with necessary adjustments to the plan occurring under the discretion of airport management.

Introduction

Communities with successful transportation networks balance multimodal accommodations for different types of trips-- recreational and utilitarian. To take a closer look at multimodal elements that would enhance the region's overall livability, *JUMPO 2040 LRTP* used a transportation planning process that took a closer look at the movement of people regardless of chosen mode.

The Active Transportation focus of the *JUMPO 2040 LRTP* embodies how local decisions can enhance the overall mobility and safety for cyclists and pedestrians. The recommended plan incorporates information from previous plans, discussions with stakeholders, and feedback from the community. These sources indicate demand for bicycle and pedestrian facilities for users of all levels and types in the Jacksonville area is growing. Underlying concepts of modal integration, livability, and connectivity are consistent themes in the Active Transportation strategies that follow. The plan for cyclists and pedestrians coordinates closely with other elements, notably through an emphasis on incidental projects tied to roadway recommendations presented in Chapter 5.

The E's of Bicycle and Pedestrian Planning

Successful bicycle and pedestrian planning requires consideration of five interrelated components: Engineering, Education, Encouragement, Enforcement, and Evaluation/Planning.

Engineering

Refers to on-road and off-road facilities that must be planned and designed. To create a successful, well-integrated pathway network, design and route choices must be established and properly implemented.

Education

Refers to the resources available for all users of the network, including cyclists and motorists. Cyclists and motorists, new and experienced, need to know how to ride safely in different networks (from off- road multi-use paths to congested arterials) as well as how to share multimodal facilities with other pedestrians, cyclists, or motorists.

Encouragement

Refers to various ways to promote bicycling and walking. Cyclists and pedestrians need access to programs and a cycling or walking culture that comes by focusing planning efforts on specific facilities suitable for cyclists or pedestrians. This can be as simple as providing a means for desirable, attractive destinations that people want to visit.

Enforcement

Refers to intentional actions that protect the safety of all users. It includes the cycling and pedestrian communities. Targeted enforcement can encourage cyclists and motorists to more safely use multimodal facilities.

Evaluation/Planning

Refers to the periodic review of existing and planned facilities. The friendliest communities for cyclists and pedestrians have a system in place to assess existing programs and outline steps for future expansion. The facilities recommended as part of the *JUMPO 2040 LRTP* should be supplemented with coordinated programs and policies that instruct and encourage cyclists and pedestrians in the full and proper use of the non-motorized transportation network.

Benefits of Cycling and Walking

Cycling and walking are a key element to a healthy community's transportation system. When an environment is conducive to active transportation, these modes offer a practical transportation choice that provides benefits for both individuals and their communities. The potential for increased walking, in particular, is large since 25% of all trips in the United States are less than one mile in length. Features that contribute to making transportation more active include a healthy mix of land uses, appropriately sized and located facilities, accessibility features such as curb ramps, buffers between vehicular traffic and non-motorized modes (where suitable), and trees to shade walking routes where possible. Slowing traffic, reducing unnecessary exposure to vehicles, and incorporating active transportation features (i.e., signage, crosswalks, and adequate pedestrian phasing at signals) into future roadway design plans also enhance bikeability and walkability.

As noted later in this chapter, recommendations place an emphasis on physical features, destinations, and barriers. This focus recognizes the variety of benefits of active transportation and how it contributes to the community. These benefits include:

- Health benefits – Walking is a form of physical activity that can be accomplished by most citizens. Regular physical activity helps prevent or reduce the risk of heart disease, obesity, high blood pressure, type 2 diabetes, osteoporosis, and mental health problems such as depression.
- Transportation benefits – Walking and biking can help reduce roadway congestion. Many streets and highways carry more traffic than they were designed to handle, resulting in gridlock, wasted time and energy, pollution, and driver frustration. Many of the trips that Americans make every day are short enough to be accomplished on foot, by bike, or via wheelchair. The 1995 National Personal Transportation Survey (NPTS) found that approximately 40% of all trips are less than two miles in length—which represents a 30-minute walk or a 15-minute bike ride.
- Environmental/Energy benefits - Motor vehicles create substantial air pollution. According to the EPA, transportation is responsible for nearly 80% of carbon monoxide and 55% of nitrogen oxide emissions in the U.S.
- Economic benefits – Walking and biking are affordable forms of transportation. Car ownership consumes a major portion of many family incomes. When safe facilities are provided for cyclists and pedestrians, people can bike or walk more and spend less on transportation, meaning they have more money to save or spend on other things.
- Quality of life benefits – The walkability and bikeability of a community is an indicator of its livability. This factor has a profound impact on establishing and growing tourism-related activity as well as attracting businesses and workers. In cities and towns where people can regularly be seen out walking and biking, there is a sense that these are safe and friendly places to live and visit. By providing appropriate bicycle and pedestrian facilities and amenities, communities enable the interaction between neighbors and other citizens that can strengthen relationships and contribute to a healthy sense of identity and sense of place.
- Social justice - Perhaps the most important factor in non-motorized travel and social justice is choice. When providing pedestrian and bicycle facilities such as sidewalks and bike lanes, communities allow people to choose how they want to travel. For those who do not have the option to drive, such as adolescents, elderly, those unable to afford a car, and people with certain disabilities, this lack of choice in transportation creates an inconvenient and socially unjust barrier to mobility.

Resources on the topic of walking and biking and their benefits may be at www.bikewalk.org/ncbw_pubs.php.

Types of Users

To integrate the bicycle and pedestrian network into the overarching vision for the transportation system, the types of users and facilities must be understood. Types of users can be described in terms of trip purpose and skill level. Different reasons for traveling by bike or foot, combined with the varying levels of skill, require a flexible and responsive approach to bicycle and pedestrian planning.

Trip Purpose

Utilitarian

- Non-discretionary travel where the user is traveling to a specific destination such as work, school, grocery store, or home.
- Those without access to or ability to drive motor vehicles
- Often includes the elderly, children, and persons with disabilities
- Varying skill level

Recreational

- Discretionary travel where the user is using alternative modes (i.e. biking, walking) to travel just for fun
- Those who prefer a healthy, active lifestyle regardless of access to personal vehicles
- Typically includes persons of all ages and abilities
- Varying skill level

Skill Level

Both types of trip purposes require a complete network of bicycle and pedestrian facilities and programs that educate and encourage current and future users. Bicyclists can be further grouped by skill level.

Advanced Cyclists

- Typically the most experienced on the road
- Can safely ride on typical arterials that have higher traffic volumes and speeds
- Most prefer shared roadways in lieu of striped bike lanes and paths
- Represent about 20% of adult cyclists but account for nearly 80% of annual bicycle miles traveled

Basic Adult Cyclists

- Less experience on the road
- Less secure in their ability to ride in traffic without special accommodations
- Casual or new adult and teenage riders
- Typically prefer multi-use paths or bike lanes that reduce their exposure to fast-moving and heavy traffic
- Represent approximately 80% of adult cyclists

Child Cyclists

- Little to no experience on the road
- Limited field of vision while riding
- Generally keep to neighborhood streets and greenways
- Likely will ride on sidewalks along busier streets

Types of Facilities

Careful attention must be given to each facility type, particularly how each type and its users fit into the overall system-wide multimodal transportation network.

Striped Bike Lane

- Exclusive-use area adjacent to the outer most travel lane
 - Typical width: 4' to 5' (preferred)
- Target User
- Basic and Intermediate
- Estimated Cost
- \$2,000 per mile (striping only)



Wide Outside Lane

- Extra width in outermost travel lane
 - Best on roadways with speed limits of 35 mph or higher and moderate to high daily traffic volumes
 - Typical width: 14' outside lane preferred
- Target User
- Intermediate and Advanced



Shared Lane Markings (Sharrows)

- Pavement markings on lanes to indicate shared space for bicyclists and motorists
 - Should be used on roads where bicycle lanes are desirable but impossible due to pre-existing constraints
 - Typical spacing: 100-250 feet along corridor
- Target User
- Intermediate and Advanced
- Estimated Cost
- \$12,500 per mile (\$175 each)



Sidewalk

- Dedicated space within right-of-way for pedestrians
 - Should include a landscaped buffer from roadway
 - Typical width: 5' preferred (ADA Compliant)
- Target User
- Pedestrians
- Estimated Cost
- \$150,000 per mile



Paved Shoulder

- Additional pavement adjacent to travel lane
 - Extends service life of road and provides greater safety and comfort for bicyclists
 - Typical width: 4' (no minimum width required)
- Target User
- Advanced
- Estimated Cost
- \$500,000 per mile (assumes 4')



Multiuse Path

- Separated from traffic and located in open space (greenway) or adjacent to road with more setback and width than sidewalks (sidepath)
 - Typical width: 10-14' preferred
- Target User
- All Cyclists; Pedestrians
- Estimated Cost
- \$220,000 per mile



Recommendations

Bicycling and walking are available to people of all ages and socioeconomic backgrounds. In urban areas such as downtown Jacksonville, these modes are more efficient and convenient options. Throughout the study area, recreational bicycling is gaining in popularity as expert and novice cyclists take to the scenic rural roads. Regardless of the trip purpose, bicycling and walking provide a high level of independence, flexibility, and freedom of choice relative to where you want to go and when you want to get there.

Connections to Destinations

Establishing additional connections to the existing and future connections to the rail trail and filling gaps in the sidewalk network within the city limits are key considerations. These improvements will improve access to key destination points and tie into existing and proposed bus stops. The recommendations should make biking and walking to activity centers safer and more attractive. The recommended facilities will provide additional connections to a variety of destinations:

- Schools (in Jacksonville and on base)
- Commercial nodes, particularly along Western Boulevard, Marine Boulevard, and downtown Jacksonville
- Onslow Memorial Hospital and other medical facilities
- Coastal Carolina Community College
- Jacksonville Mall
- Parks and recreation centers
- Public facilities (e.g. libraries and museums)
- Activity nodes at MCB Camp Lejeune and MCAS New River

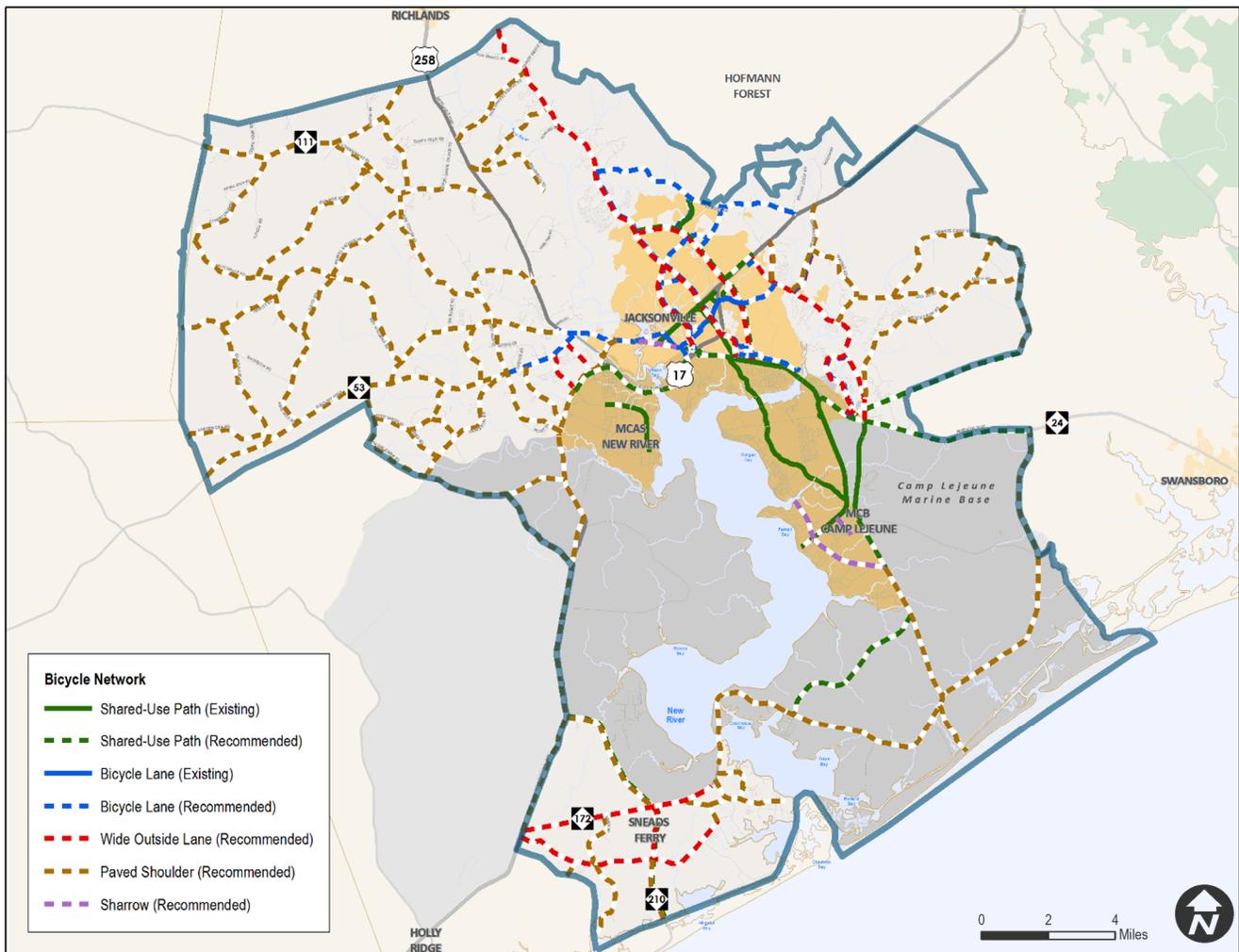
As roads become more congested, it is important to identify better ways to move people from place to place. Because roads cannot be expanded infinitely, bikeways, sidewalks, and transit service are important are critical ways to provide transportation choices. A complete network of bicycle and pedestrian facilities as well as programs that educate and encourage current and future users is necessary for bicycling and walking to reach its potential as a transportation alternative in the Jacksonville area.

Upon completion, the bicycle and pedestrian network in the JUMPO study area will add approximately 84 miles of sidewalks, 20 miles of multiuse paths, 17 miles of off street trails, and 76 miles of on-street bicycle facilities (bicycle lanes, sharrows, and wide outside lanes). Nearly 200 miles of paved shoulders (minimum 4 feet wide) are recommended, mostly in rural areas. The majority of the bicycle and pedestrian network would be constructed as incidental enhancements associated with larger improvements to the roadways.

Bicycle Network

The recommended bicycle network for the *JUMPO 2040 LRTP* includes a coordinated group of on- and off-street facilities. Connectivity was an important consideration as recommendations were developed. The planning process also emphasized vetting previous plans (e.g. bicycle and pedestrian plans, corridor studies, and small area plans) with the updated roadway recommendations. This emphasis was necessary given the limited funds available for standalone bicycle and pedestrian projects. The facility recommendations shown in the maps on the pages that follow are coordinated with the roadway recommendations provided in Chapter 5.

Recommended Bicycle Facilities



Shared-Use Path (Multiuse Path)

40.9 miles

Bicycle Lane

38.0 miles

Wide Outside Lane

57.4 miles

Paved Shoulder

199.2 miles

Sharrow

5.6 miles

Pedestrian Network

Walking is a key element to a healthy community's transportation system. Every trip begins and ends as a walking trip; yet walking often remains a lower priority mode during the planning process. When a proper pedestrian environment exists, walking offers a practical transportation choice with benefits for individuals and their communities. Features that contribute to making communities more walkable include a healthy mix of land uses, appropriately sized sidewalks, buffers between the edge of the pavement and the sidewalk, and trees to shade walking routes. Slowing traffic, narrowing streets to reduce pedestrian crossing distance, and incorporating pedestrian infrastructure (e.g. signage, crosswalks, and adequate pedestrian phasing at signals) into future roadway design plans also enhance walkability. The availability of pedestrian facilities and amenities plays an important role in encouraging the use of alternative modes of travel to the automobile. The success of transit greatly depends on the functionality of pedestrian facilities and amenities.

Some pedestrian recommendations are shown as part of the access management corridors and complete street concepts presented in the Future Multimodal System chapter. Improvements of these types should be considered at locations facing similar issues throughout the region. To address overall pedestrian needs for the region, several prevailing themes emerged.

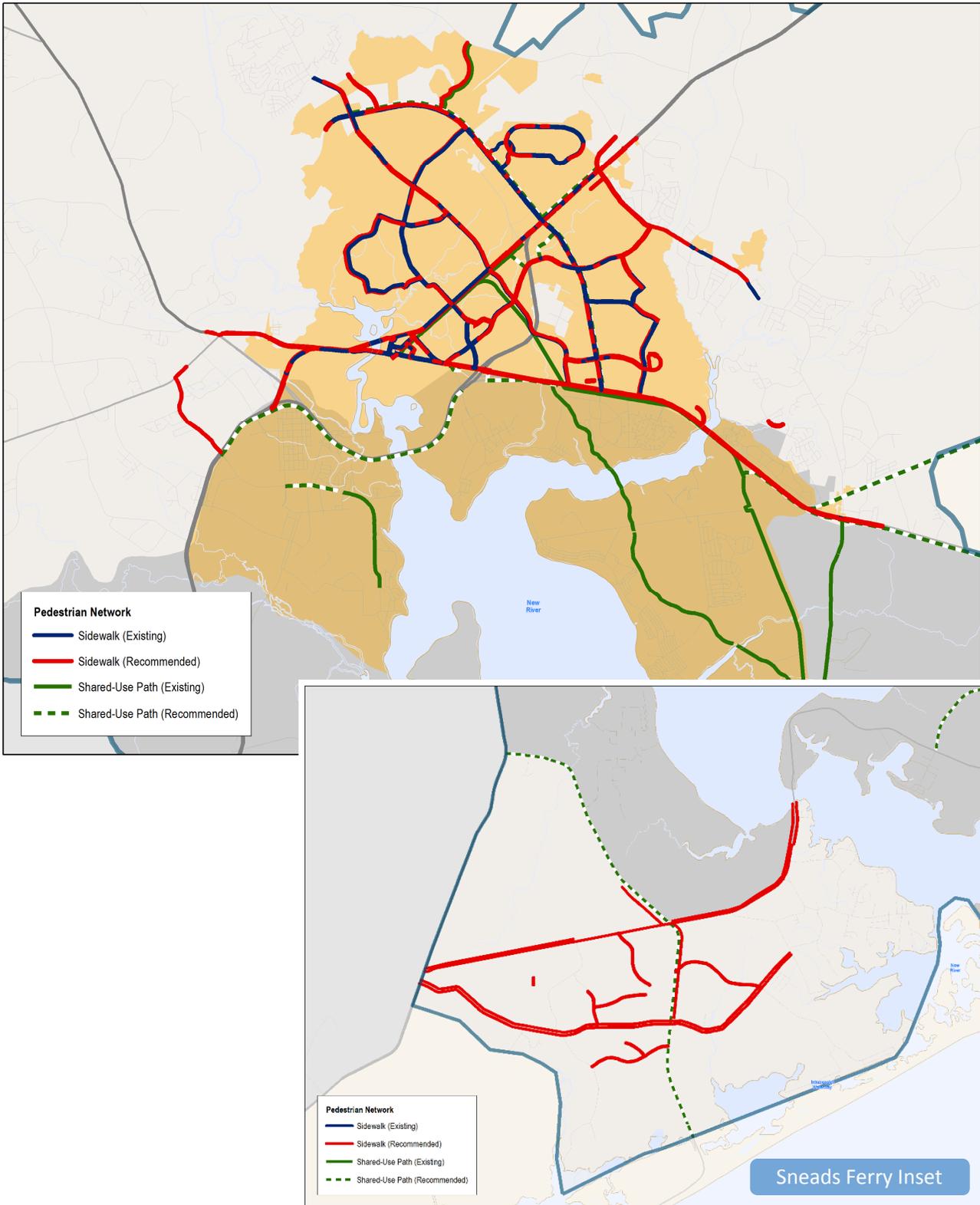
1. Close gaps in the pedestrian network to promote greater use of the existing network.
2. Enhance pedestrian access to activity centers from residential or other activity centers.
3. Perform regular maintenance of existing and future pedestrian facilities to maximize the effectiveness of the infrastructure.

In total, approximately 84 miles of new sidewalks are recommended. The recommended network assumes pedestrians will be served by paved shoulders in unincorporated rural areas where construction and maintenance funds for sidewalks are unavailable.

East Coast Greenway

The East Coast Greenway is a long-distance, continuous, traffic-free route that aims to connect existing and planned shared-use paths from Maine to Florida. The East Coast Greenway, planned to lie largely within the public right-of-way, is still in development and aims to follow existing roadways where greenways have not yet been developed. Currently, the main East Coast Greenway route in North Carolina connects the Raleigh-Durham area with Fayetteville before running along the Cape Fear River to Wilmington and points south. An alternative Historic Coastal route connects the North Carolina coast, linking Greenville and Jacksonville before connecting to the main route near Wilmington. To promote better connections between state bike routes and the East Coast Greenway, NCDOT plans to re-route NC Bike Route 3 (shown in Chapter 2) to closely follow the East Coast greenway into downtown Jacksonville while providing additional wayfinding between the two trails at locations where they cross.

Recommended Pedestrian Facilities



Introduction

The interest in creating “complete streets” continues to grow—in the Jacksonville area and across the nation. The National Complete Streets Coalition defines a complete street as a street that enables all users (pedestrians, bicyclists, motorists, and transit riders) of all ages and abilities to safely move along and across a street. Roadways with lower travel speeds and greater access points (e.g. local streets and collectors) provide the greatest opportunities for developing complete streets. However, all functional classifications warrant consideration of multimodal users even if only for motorists and regional transit (such as on expressways and freeways). NCDOT has reaffirmed this approach through the development of Complete Streets Planning and Design Guidelines in 2012, and more recently in May 2014 through the development of expanded highway cross sections.

The Future System chapter builds upon the analysis and findings of the Public Transportation and Active Transportation chapters to advance this complete streets concept. Recommendations for the future multimodal system consider roadways at a corridor level and provide improvements for all travel modes along the corridor in a way that is compatible with surrounding land use. Projects improving freight movement as well as the safety and security of the network are discussed separately in the chapter. A methodology for organizing the projects into opportunity bands is discussed, directly leading to the development of the financially constrained plan described Chapter 6.

This chapter includes five sections:

Community
Growth

Corridor
Characteristics

Future Multimodal
System

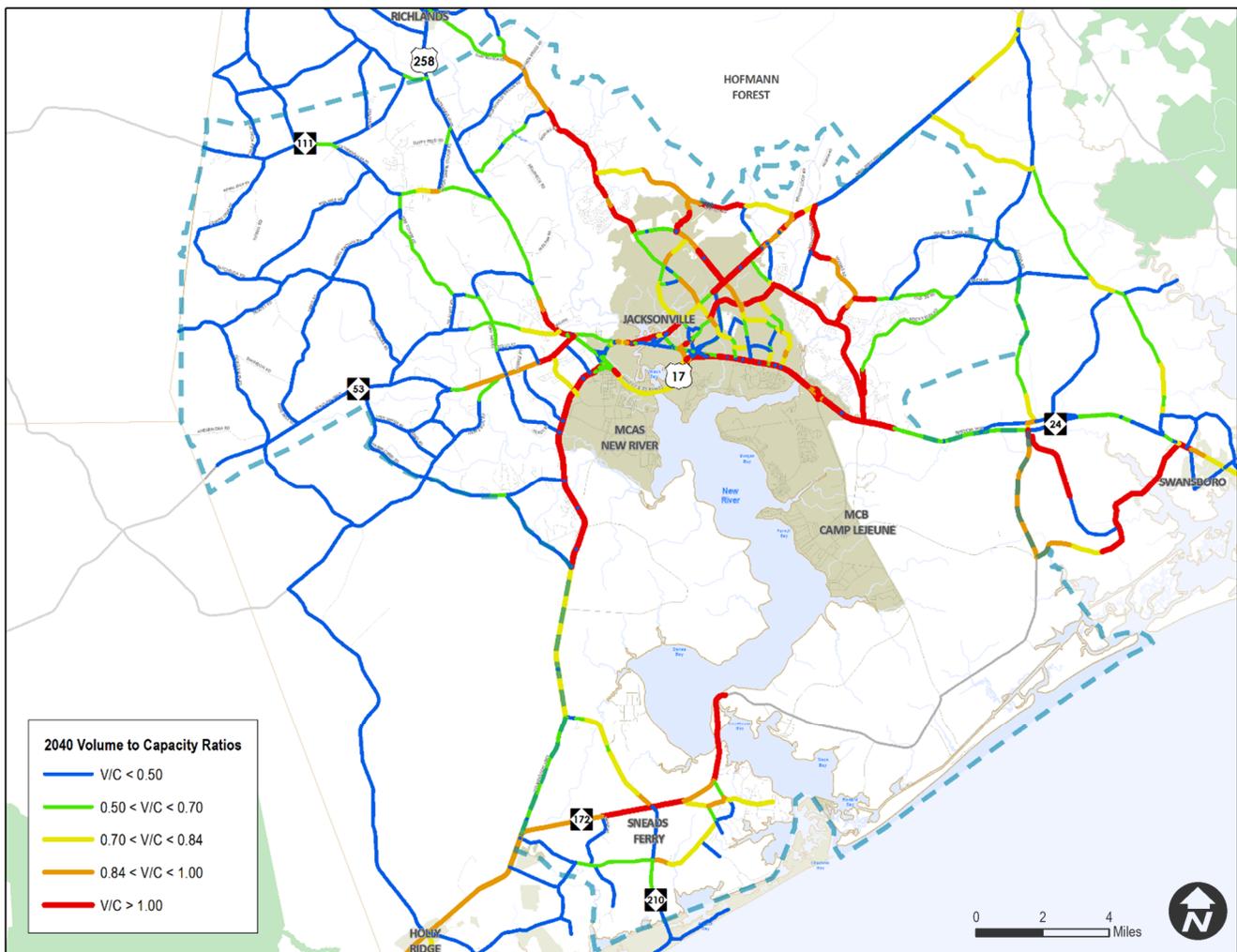
Safety and
Security

Freight
Movement



Community Growth

Chapter 2 (Existing System) describes the current conditions and needs of the region's transportation network. It also outlines pressures the transportation network may be facing in the future. Population growth in the Jacksonville area is outpacing that of the state, which is one of many indicators that the area will continue to be attractive for potential residents and employers. Projected population and employment growth has been documented within the regional travel demand model using data from 2010 as the base year. Using this information, the travel demand model was run for the 2040 horizon year of this plan. This run was performed with the existing transportation network in place. The map that results highlights the deficiencies that the transportation network will likely be facing from a congestion perspective.



The region's growth through 2040 has a dramatic effect on the roadway network. Without improvements to the network, corridors such as NC 172, US 17, Gum Branch Road, and Piney Green Road will experience significant congestion. The long range transportation plan's roadway recommendations were developed in part to address these regional congestion needs.

Transportation and Land Use

The transportation system influences development patterns by dictating the fastest, most convenient, and safest routes of travel. Available travel modes also influence settlement patterns. People who desire daily services accessible by foot, bike, or public transit choose to live in different locations than people who prefer to drive to these destinations. As transportation corridors are improved and expanded, new development typically follows. This push-pull relationship typically results in concentrated growth along major thoroughfares as residents seek to take advantage of the most convenient transportation facilities. When blended with supportive public policies and investment strategies, the transportation network can serve as an effective tool for guiding regional development.

The relationship between urban form and transportation can be expressed in terms of density, diversity, design, and (travel) distance. The evaluation of these elements as part of the *JUMPO 2040 LRTP* contributed to the development of the region's multimodal transportation recommendations.

Density

A diversity of housing and travel options is beneficial to the community. Residential density and non-residential intensity can look and feel quite different based on building form and neighborhood's design. As in most communities, location often is the main factor in determining density and intensity in the Jacksonville region. Moving away from downtown Jacksonville, land has typically developed at a lower density and intensity. Managing the location and magnitude of new density or intensity within the built environment helps planners determine infrastructure needs and implementation costs, and it shifts impacts away from environmentally-sensitive areas.

Diversity

Mixed-use developments combine a variety of public amenities with compatible land uses, in turn creating places where people live, play, work, and shop. Mixed-use developments offer advantages over single-use developments by fostering a more efficient, livable transportation system characterized by shorter trip lengths, more choice among modes, convenient access, and more internal trips. The City of Jacksonville and Onslow County continue to work collaboratively to identify preferred locations for these types of development.

Design

Urban design shapes the blocks, neighborhoods, and districts that organize the built environment and give our cities identity. Elements of urban design provide a three-dimensional physical form to locally adopted comprehensive plans or zoning ordinances. Urban design connects people, places, and buildings. Some elements of urban design (e.g. street pattern, streetscape design, block size, building scale and massing, parking, and landscaping) directly influence travel mode choice and travel behavior. These design elements provide context to the transportation system and directly relate to the complete streets described in the following section. The type, placement, and scale of design elements generally vary with the context of the surrounding environment, and programming improvements need to be tailored to rural, suburban, and urban environments.

Distance

The distance between the origin and destination is a primary factor (along with travel mode choice) for influencing travel behavior. The physical distance between complementary land uses in rural or suburban settings tends to promote automobile travel, particularly since safe, convenient facilities usually are not available for pedestrians and bicyclists. Denser mixed-use areas decrease the travel distance between complementary land uses and support transit, bicycle, and walking as viable alternatives to the automobile.

Corridor Characteristics

As the region's economy expands and people continue to relocate here, the frequency and length of trips on existing roads will increase. This increase in traffic will make current delays worse and create new delays where none exists today. It helps to understand existing transportation characteristics as a way to anticipate future areas of concern. Once these areas are identified, establishing a set of transportation recommendations requires consideration of how area roads are classified and an understanding of how to balance the needs of multiple users along a given corridor.

Functional Classification

An effective roadway network must manage two competing demands placed on the system:

1. Providing access to specific destinations
2. Offering mobility between centers

These two demands are inherently adversarial (i.e. increasing access typically limits mobility along the same corridor). Therefore, it is helpful to instill diversity into the network by providing easy access on some roads and protecting the mobility on others. Balancing access and mobility creates roadways that respond to the unique context and user groups along specific corridors. For example, local streets primarily provide access within residential neighborhoods or commercial districts. These streets are not intended to carry large volumes of through traffic. In contrast, arterials primarily provide mobility by limiting intersections and driveways. Arterials are designed to carry more traffic than generated within its corridor but often at the expense of bicycle and pedestrian amenities. As detailed in Chapter 2, roadways in the Jacksonville area are categorized into one of five functional classifications. It should be noted that the lines between these classifications are not exact, and functional classification often is defined differently in different jurisdictions.

Complete Streets

"Complete streets" are community-oriented streets that safely and conveniently accommodate all modes of travel. Common goals for complete streets include economic vitality, business retention and expansion, and public safety. Creating a complete street requires community support and leadership as well as coordination among planners, urban designers, transportation engineers, utility experts, and land development specialists. Successful complete streets programs include the following principles:

- Achieve community objectives.
- Blend street design with the character of the area served.
- Capitalize on a public investment by working diligently with property owners, developers, economic development experts, and others to spur private investment in the area.
- Design in balance so traffic demands do not overshadow the need to walk, bicycle, and ride transit safely, efficiently, and comfortably. The design should encourage people to walk.
- Empower citizens to create their own sense of ownership in the success of the street and its numerous characters.

The *JUMPO 2040 LRTP* communicates the desired balance between functional classification and complete streets through a Street Design Priority Matrix.

Street Design Priority Matrix

The planning process for the *JUMPO 2040 LRTP* clarified the connection between roadway types and features by developing a customized planning tool that represents the complete streets philosophy. The Street Design Priority Matrix assigns priorities to various transportation features for different types of street classifications with consideration for its character area (e.g. urban, suburban, or rural). It was built upon the context zones offered in the NCDOT Complete Streets guidelines. It provided a useful reference tool during the creation of the recommendations presented later in this chapter. Following adoption of the long range transportation plan, staff can use the matrix during modifications to the plan or when interacting with the public, businesses, and development communities.

	Freeway	Principal Arterial			Minor Arterial			Collector			Local		
		Urban	Suburban	Rural	Urban	Suburban	Rural	Urban	Suburban	Rural	Urban	Suburban	Rural
Shared Vehicle Zone													
Multiple travel lanes	H	H	H	H	M	M	M	M	M	L	L	L	L
Width of travel lanes	H	H	H	M	H	H	M	H	H	M	L	L	L
Vehicle capacity at intersections	M	H	H	H	H	H	M	H	M	M	L	L	L
Design for large vehicles	H	H	M	M	H	M	M	M	L	L	L	L	L
Multimodal intersection design	H	H	H	M	H	H	M	H	H	M	M	M	L
Bicycle Zone													
Bicycle lanes	L	M	M	L	H	M	L	H	H	L	L	L	L
Wide lanes / paved shoulders	L	H	H	M	M	M	M	M	M	M	L	L	L
Sharrows	L	L	L	L	M	M	L	H	M	L	L	L	L
Parking/Transit Zone													
On-street parking	L	L	M	L	M	M	L	H	H	L	H	L	L
Bus pullouts	L	H	M	L	M	M	L	M	L	L	L	L	L
Green Zone													
Landscaping	H	H	H	M	H	H	L	H	H	L	H	M	L
Lighting	H	H	H	L	H	H	L	H	H	L	H	M	L
Street furniture	L	M	M	L	M	M	L	M	M	L	L	L	L
Bus shelters	L	H	H	L	H	H	L	H	H	L	L	L	L
Sidewalk Zone													
Wide sidewalks	L	H	M	L	H	M	L	M	M	L	L	L	L
Standard sidewalks	L	M	H	L	H	H	L	H	H	L	H	M	L
Multisue Paths	L	L	M	M	M	M	L	L	M	L	L	L	L
Median Zone													
Narrow medians	L	H	M	L	H	M	L	H	M	L	L	L	L
Wide medians	H	L	M	H	L	M	H	L	M	L	L	L	L
Other Elements													
Access management	H	H	H	M	H	H	M	M	M	M	L	L	L

H High Priority **M** Medium Priority **L** Low Priority

The zones above are based on the July 2012 NCDOT Complete Streets Planning and Design Guidelines.

Future Multimodal System

The development of the recommended future multimodal system involved input from JUMPO, the City of Jacksonville and Onslow County, Jacksonville Transit and OUTS, state and federal agencies, and members of the public. The draft 2016-2025 Transportation Improvement Program was used as the basis for the short-term projects identified for funding. Recommendations in Chapter 3 were combined to identify multimodal amenities on these facilities.

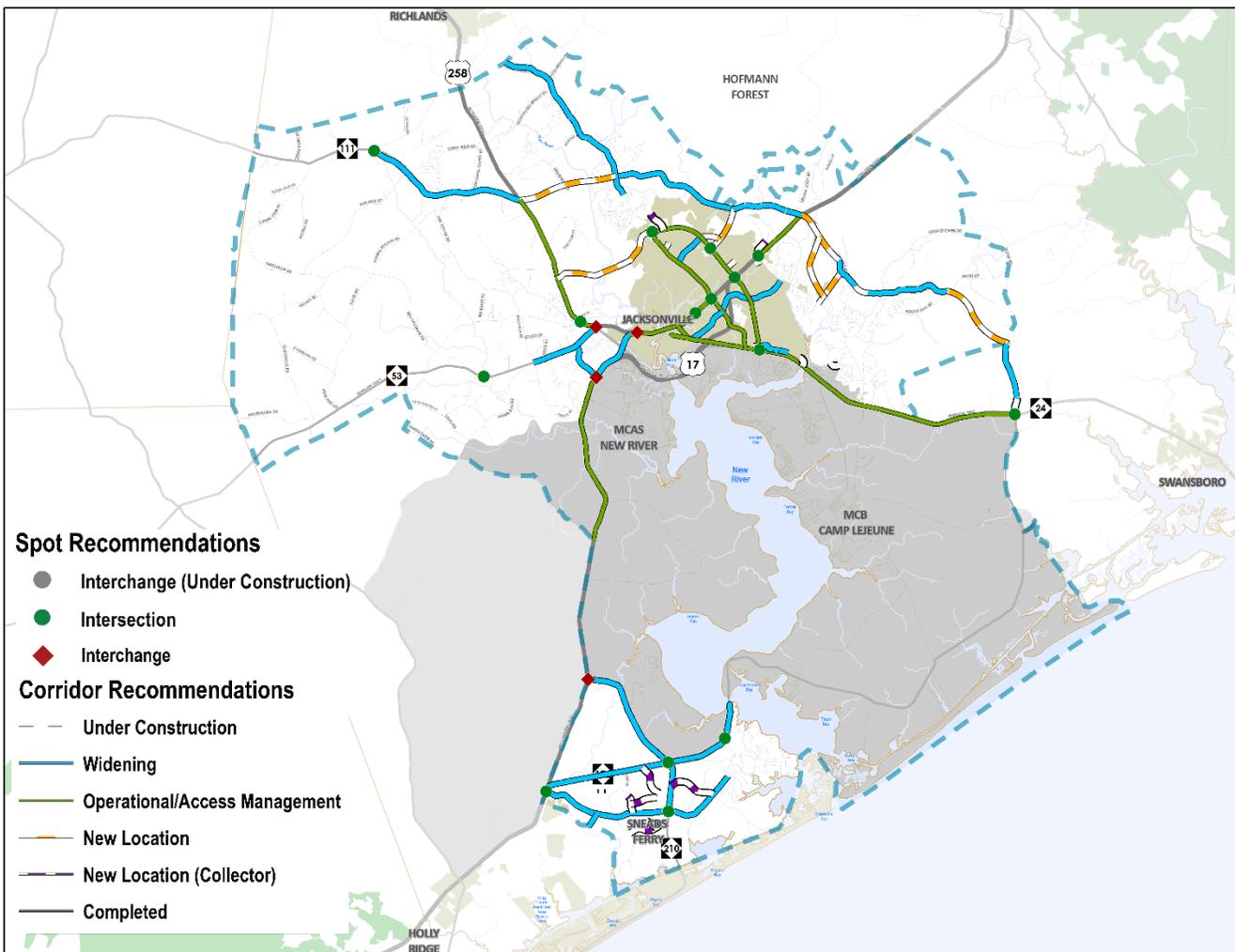
Corridors and Intersections, Draft FY 2016-2025 TIP (Short-Term)				
TIP ID	Route	Project Limits	Description	Bike/Ped ¹
B-5636	SR 1109 (Harris Creek Rd)	Harris Creek	Replace bridge	B
B-5650	NC 24 (Lejeune Blvd)	Westbound lanes over Northeast Creek	Replace bridge	P
B-5652	US 17 (New Bern Hwy)	Northbound lanes over Wolf Swamp	Replace bridge	None
R-5023	NC 53 (Burgaw Hwy)	Onslow Pines Rd to Haws Run Rd	Widen to 3 lanes	B
R-5023	NC 53 (Burgaw Hwy)	Haws Run Rd to west of Holly Shelter Rd	Widen to 3 lanes	B
SF-4903F	NC 53 (Burgaw Hwy)	At Holly Shelter Rd	Realignment and lane construction	n/a
U-4007E	US 17 (Marine Blvd)	At NC 53 (Western Blvd) and at SR 1406 (Piney Green Rd)	Upgrade intersections	n/a
U-4906	SR 1308 (Gum Branch Rd)	East city limits of Richlands to SR 1322 (Summersill School Rd)	Widen to 3 lanes	B
U-5319	SR 1308 (Gum Branch Rd)	At Western Blvd	Install southbound dual left turns	n/a
U-5508	NC 24 (Lejeune Blvd)	At NC 53 (Western Blvd)	Upgrade intersection and drainage	n/a
U-5716	NC 24	At US 258/NC 53	Construct interchange	n/a
U-5719	US 258 (Richlands Hwy)	At SR 1219 (Blue Creek Rd)/SR 1396 (Ridge Rd)	Realign intersections	n/a
U-5728	US 17B (Marine Blvd)	At SR 1308 (Gum Branch Rd/Bell Fork Rd)	Intersection improvement	n/a
U-5733	NC 111 (Catherine Lake Rd)	US 258 (Richlands Hwy) to SR 1308 (Gum Branch Rd)	Construct new roadway	None
U-5735	US 17 (Wilmington Hwy)	At MCAS New River/Old Maplehurst Rd	Construct interchange	n/a
U-5736	NC 53 (Western Blvd)	US 17 (Marine Blvd) to NC 24 (Lejeune Blvd)	Access management	B + P
U-5739	US 258 (Richlands Hwy)	SR 1212 (Pony Farm Rd) to NC 53 (Burgaw Hwy)	Construct superstreet	None
U-5741	NC 24 (Lejeune Blvd)	NC 24B (Johnson Blvd) to Urban Area Boundary	Access management	B + P
U-5787	SR 2715 (Trade St)	NC 53 (Western Blvd) to McDaniel St	Construct roadway on new alignment	None
U-5789	NC 53 (Western Blvd)	At Jacksonville Pkwy	Intersection improvement	n/a
U-5791	SR 2714 (Jacksonville Pkwy)	NC 53 (Western Blvd) to US 17 (New Bern Hwy)	Construct new roadway, widen existing to multi lanes	B
U-5793	SR 1308 (Gum Branch Rd)	SR 1322 (Summersill Rd) to UAB	Widen existing	B
W-5602	NC 172	NC 210 to Sneads Ferry Gate	Widen to 3 lanes	B + P

¹ B indicates a bicycle improvement; P indicates a pedestrian improvement.

Standalone Bicycle and Pedestrian Projects, Draft FY 2016-2025 TIP (Short-Term)

TIP ID	Route	Project Limits	Description
EB-4705	Lejeune Greenway	Montford Point Rd to existing Rail Trail	Construct Multi-use Path
EB-5736	SR 1308 (Gum Branch Rd)	US 17B (Marine Blvd) to SR 1336 (Henderson Dr)	Construct sidewalk

The following section describes the corridor and intersection recommendations for the *JUMPO 2040 LRTP*. These improvements include new location roadways, roadway widening, access management improvements, interchange and intersection improvements, and enhancements to the collector street network. Each recommendation was developed in concert with the recommendations shown in the Public Transportation and Active Transportation chapters. This coordinated approach is most evident in the number of incidental improvements to the bicycle and pedestrian network. Projects identified as short-term were carried forward and supplemented by those identified as deficient by the region’s travel demand model or through the public input process. The roadway recommendation maps identify these locations by improvement type. Proposed collector street locations shown here represent a potential subset of future locations. Future collector street locations and alignments will be determined by collaborating with the development community, City, County, and State.



Recommended Corridor Improvements				
Corridor	Start	End	Total Lanes	Bicycle / Pedestrian ¹
Completed				
Funded US 17 Bypass	Country Club Road	Western Boulevard	4	B
Piney Green Road	NC 24 (Lejuene Blvd)	US 17	4	P
Carver Drive	Piney Green Road	Hunters Trail	2	B
New Location				
Hemlock Drive Ext	Piney Green Road	Waters Road	4	B,P
NC 111	US 258	Gum Branch Road	2	B
Old 30 Road/Waters Road	US 17	NC 24	4	B
Commerce Drive	Existing termini	Piney Green Road	2	B,P
Jacksonville Parkway	Western Boulevard	Ramsey Road	2	
Western Boulevard	Weatherford Drive	NW Corridor Boulevard	4	B,P
Blue Creek Road	Eastgate Drive	US 258 (Richlands Hwy)	2	
Henderson Drive Ext	Western Boulevard	Commons Drive N	2	B,P
Halltown Road	Hemlock Drive Ext	Old 30 Rd	2	B,P
Trade Street	Western Boulevard	McDaniel Drive	2	B,P
New Location (Collector)				
Hunters Trail	W Brandy Mill Drive	Remington Drive	2	B,P
East Drive	East Drive	NC 24	2	B,P
Center Street	Center Street	Lexie Lane	2	P
New Collector	Drummer Kellum Road	Piney Green Road	2	P
New Collector	Western Boulevard	Maynard Boulevard	2	P
New Collector	Hubert Boulevard	NC 24	2	B,P
New Location	NC 210	Old Folkstone Road	2	P
New Location	NC 172	Pebble Shore Drive	2	P
New Location	Hartsfield Road	Old Folkstone Road	2	P
New Location	New Location	Bald Cypress Lane	2	P
New Location	NC 210	Turkey Point Road	2	P
New Location	Scuba Drive	New Location	2	P
New Location	Virginia Lane	Whippoorwill Lane	2	P

¹ B indicates a bicycle improvement; P indicates a pedestrian improvement.

Recommended Corridor Improvements – Continued				
Corridor	Start	End	Total Lanes	Bicycle / Pedestrian ¹
Operational/Access Management				
NC 24	NC 24B	Study Area Boundary	4	B,P
Western Boulevard	US 17	NC 24	6	B,P
US 17B	Broadhurst Road	Bell Fork Road	6	B,P
US 17	Piney Green Road	Ramsey Road	4	B
NC 24B	US 17B	US 17	4	B,P
New Bridge Street	Court Street	Hargett Street	4	B,P
Gum Branch Road/Bell Fork Road	Western Boulevard	NC 24 (Lejeune Boulevard)	4	B,P
US 258	Pony Farm Road	NC 53 (Burgaw Highway)	4	B,P
US 258	Pony Farm Road	NC 111	4	B,P
Western Boulevard	US 17	Gum Branch Road	4	B,P
US 17	Old Maplehurst Road	High Hill Road	4	
Widening				
Country Club Road	Bell Fork Road	Piney Green Road	4	B,P
Henderson Drive	Gum Branch Road	Western Boulevard	4	B,P
Old 30 Road	Water Road	NC 24	4	B,P
Old Maplehurst Road	US 17 (Wilmington Hwy)	NC 53 (Burgaw Hwy)	4	B,P
Ramsey Road	Gum Branch Road	Jacksonville Parkway	4	B,P
Gum Branch Road	Summersill School Rd	Study Area Boundary	4	B,P
NC 111	Fowler Manning Road	US 258	3	B
NC 210	US 17	Old Folkstone Road	4	B,P
NC 172	US 17	Bridge	4	B,P
Old Folkstone Road	US 17	Ennett Lane	3	B,P
Tar Landing Road	Old Folkstone Road	Study Area Boundary	3	B
Liberty Drive	Western Boulevard	Corbin Street	4	B,P
Pine Valley Road	NC 24 (Lejeune Boulevard)	Village Drive	4	B,P
Riggs Road	Gillcrest Lane	Blue Haven Drive	4	B
Hargett Street	Johnson Boulevard	Bell Fork Road	4	B,P
NC 53	Murrill Hill Road	US 258	4	B, P
Ramsey Rd	Jacksonville Parkway	US 17	4	B,P

¹ B indicates a bicycle improvement; P indicates a pedestrian improvement.

Intersections and Interchanges

Recommendations for the future system include improvements to critical intersections and interchanges. Some of these locations were identified as safety improvements and are detailed in the following section. Additional locations were identified through previous and ongoing planning efforts and an analysis of future congestion issues as indicated by the regional travel demand model. These locations are identified here, along with a brief description of the recommended improvement type:

Intersection Improvements

- US 17 Business at Gum Branch Road/Bell Fork Road (2016-2025 TIP)
- US 258 at Blue Creek Road/Ridge Road (2016-2025 TIP)
- Western Boulevard at Gum Branch Road (2016-2025 TIP)
- Western Boulevard at Jacksonville Parkway (2016-2025 TIP)
- Western Boulevard at NC 24 (2016-2025 TIP)
- NC 53 at Holly Shelter Road (2016-2025 TIP)
- NC 172 at Sneads Ferry Road
- NC 172 at NC 210
- NC 24 at NC 172
- NC 210 at Old Folkstone Road
- US 17 at Onslow Drive / Henderson Drive
- US 17 at Old Folkstone Road
- NC 111 at Fowler Manning Drive
- US 17 at Western Boulevard
- US 17 at Piney Green Road

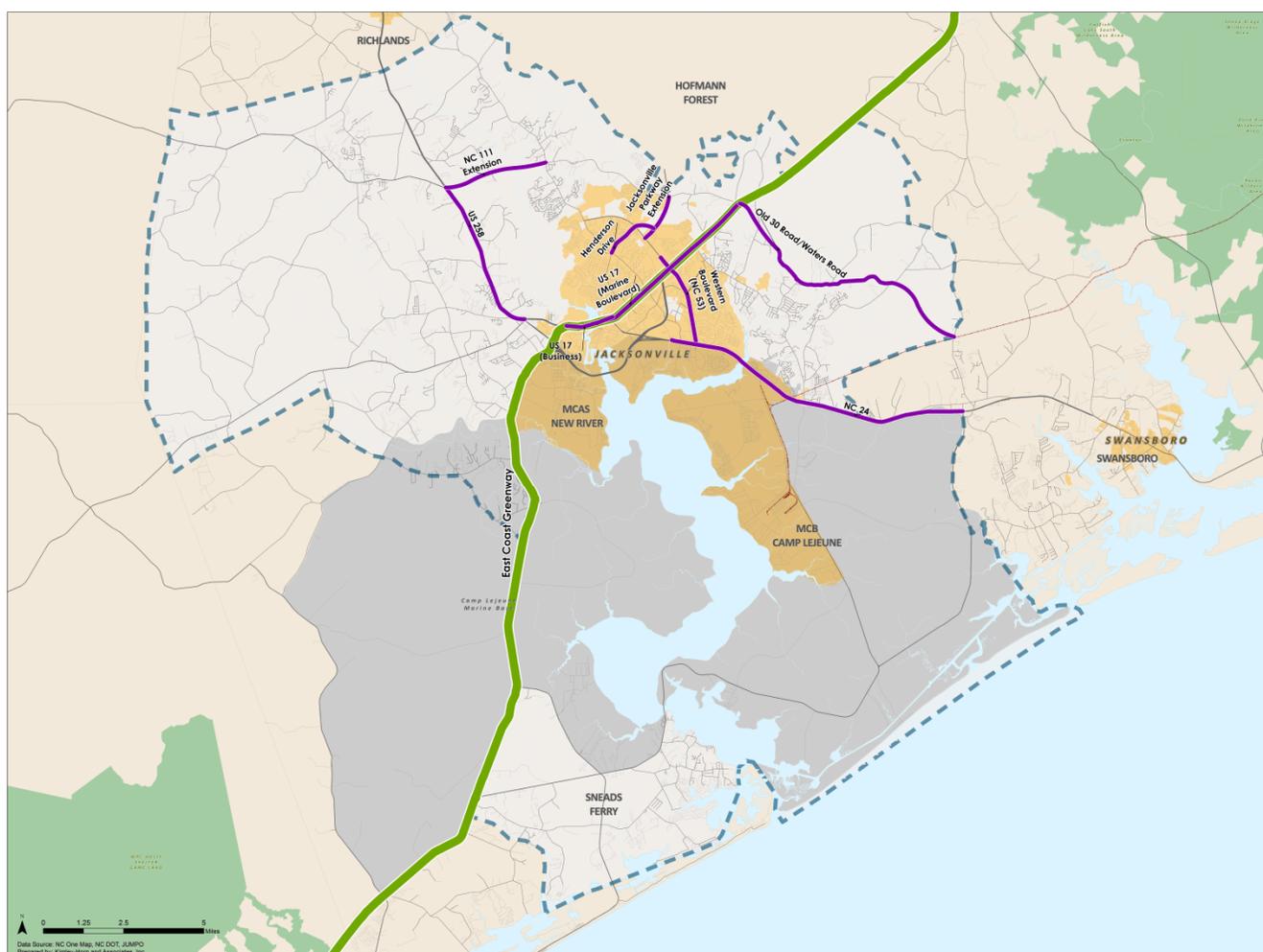
Interchange Recommendations

- NC 24 at US 258/NC 53 (2016-2025 TIP)
- US 17 at MCAS New River/Old Maplehurst Road (2016-2025 TIP)
- US 17 at NC 210

Corridor Profiles

Ten corridors were identified to illustrate the proposed multimodal recommendation in more detail. A corridor profile developed for each segment described existing issues and recommended solutions. The corridor profiles for the following segments are available under separate cover.

- East Coast Greenway
- Henderson Drive
- Jacksonville Parkway Extension
- NC 111 Extension
- NC 24
- Old 30 Road/Waters Road
- US 17 (Business)
- US 17 (Marine Boulevard)
- US 258
- Western Boulevard (NC 53)



Safety and Security

The importance of safety and security is heightened in the Jacksonville region due to a variety of factors. First, the region's proximity to the coast makes it likely that natural events will lead to large scale evacuations. Second, the presence of MCB Camp Lejeune and MCAS New River means safety and security issues could include or influence risks to national security. And third, the region's extensive natural landscape centered on the New River requires dozens of bridges and culverts to be maintained. The elements of the region's transportation network typically intersect—and often conflict—at the region's critical corridors and nodes.

Planning Considerations

Safety and Transportation Planning

Guidelines that ensure safety remains a core component of transportation planning in the Jacksonville region include consideration for engineering, education and enforcement, and emergency services.

Engineering

The long range transportation plan provides a comprehensive, multimodal approach to improving safety through engineering. The roadway recommendations in particular should improve traffic flow while increasing safety for all users. General engineering strategies to maximize safety include:

- improving highway and road design guidelines;
- implementing corridor-based access management strategies;
- identifying appropriate intersection improvements to mitigate crashes;
- constructing a coordinated network of on-street bicycle facilities and off-street trails;
- designing streets to be pedestrian-friendly;
- recommending appropriately designed streets for truck freight; and
- maintaining adequate standards for railroad crossings and bridges.

Education and Enforcement

Education and enforcement activities include ways to monitor and maintain appropriate behaviors by users (motorists, bicyclists, pedestrians, and transit riders). These activities usually include law enforcement, task forces, and partnerships with organizations dedicated to improving safety. These activities include:

- Governor's Highway Safety Program – Booze It & Lose It; Click It or Ticket; BikeSafe North Carolina; No Need to Speed; and Nuestra Seguridad: The Hispanic Highway Safety Education Campaign
- North Carolina State Highway Patrol—Operation TACT; Operation Slow Down; Operation Drive to Live

Reaching children through education programs is an important way to support lifelong habits of safely using the transportation system. The Safe Routes to School program (now part of the Transportation Alternatives Program) is one example of educating children on the proper use of sidewalks, bicycle facilities, and roadways.

Emergency Services

When local officials speak about safety, they often mention the need for ambulances and fire trucks to respond quickly to incidents. For crashes, timely response is essential to reducing the severity of injuries and minimizing disruptions to other travelers. The *JUMPO 2040 LRTP* will improve emergency response times and encourage an interconnected network of streets that provides route choices and reduced congestion. Improvements to the signal system and ITS deployment also will improve safety.

Security and Transportation Planning

Emphasizing security during the transportation planning process helps identify and implement ways to improve security and mitigate imminent threats. JUMPO has the advantage of considering security at a regional level, which is a logical first step to ensuring protection at the local level. Implementation for many strategies often is the responsibility of local jurisdictions or require state and federal resources or oversight. In the Jacksonville area, key security considerations include evacuation routes, failure of sensitive facilities, protection and maintenance of bridges, and the safeguard of freight operations.

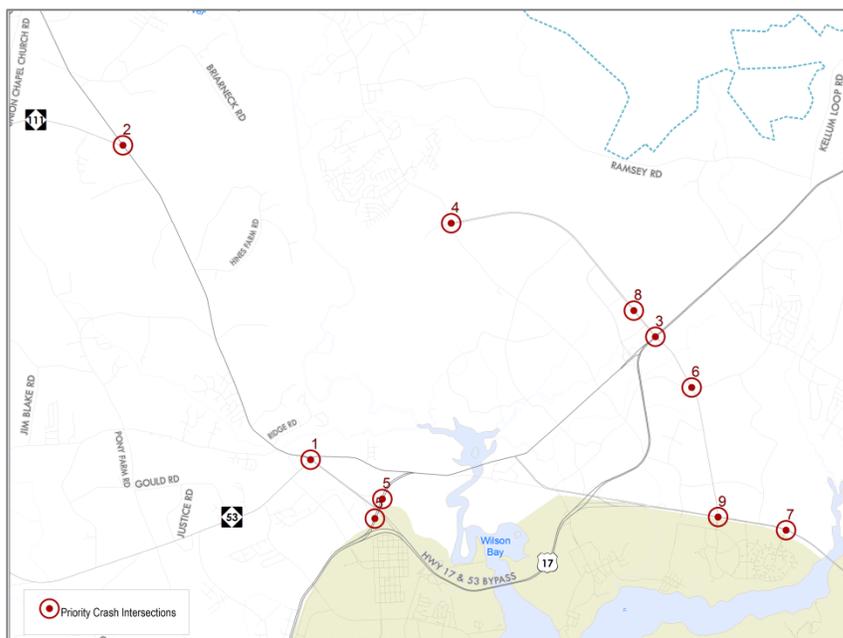
The *JUMPO 2040 LRTP* is an important part of the region’s approach to providing secure options for moving people and goods. Security considerations include ways to prevent, manage, or respond to threats to the region and its transportation system. In general, security measures typically fall into one of four categories:

- Prevention mainly limits access to ensure the safety of the transportation system.
- Protection — in coordination with prevention elements — focuses on vulnerable components of the transportation system such as bridges and rail corridors.
- Redundancy within the transportation network creates alternative routes in the event of an incident. Redundancy most often refers to an interconnected street network, though similar methods should be extended to the bicycle and pedestrian network, transit system, and rail corridors where possible.
- Recovery refers to both the initial response during an emergency and the long-term activities that aid in the return to normal operations.

Recommendations

Intersection Safety Improvements

Chapter 2 examined historic crash data and identified high crash locations. Contributing factors to high crash frequency often include intersection design, access considerations, and traffic congestion. Since this relationship exists between traffic congestion and crash frequency, recommended roadway corridor projects that reduce traffic congestion should be recognized as having secondary safety benefits. A more detailed look at the top 10 intersections ranked by severity was performed to confirm existing conditions and opportunities to improve safety at the intersections. The ranking is based on Equivalent Property Damage Only (EPDO) rate. EPDO is a measure of severity that takes into account the number of crashes and the severity of injuries.



Each intersection is listed on the following page with a brief summary of the improvements identified.

1. US 258/NC 24 (Richlands Highway) at Burgaw Highway – 52% of the crashes at this intersection are rear-ends, and 32% are frontal crashes. To mitigate these crash types, interim improvements could include lighting, advance traffic signal warnings, and a review of signal timings and clearance intervals. This intersection will be upgraded to an interchange as part of a recommended future improvement.
2. US 258/NC 24 (Richlands Highway) at NC 111 – Rear-end crashes predominate at this intersection, composing 74% of all crashes. To address this, safety improvements at this location include realigning NC 111 to create a 90 degree angle with US 258/NC 24 and mounting the signal heads on mast arms. Improvements could be made either independently or as part of the recommended NC 111 extension.
3. US 17 (North Marine Boulevard) at NC 53 (Western Boulevard) – Rear-end crashes compose 50% of all incidents at this intersection, but frontal impacts (19%) and sideswipe crashes (21%) are also significant. Interim recommendations such as improving signal head layout and timings will improve visibility and predictability, thereby helping to address these crash issues. Future capacity improvements have been identified at this location through the Western Boulevard (NC 53) Corridor Study.
4. NC 53 (Western Boulevard) at Gum Branch Road (SR 1308) – 49% of all crashes in this location are frontal impacts, with 25% rear-end crashes. This intersection is identified in NCDOT’s 2015 safety program and includes dual lefts on southbound Gum Branch Road along with improved signal timings and clearance intervals. Additional future improvements including offset left turn lanes on Western could also be considered to address frontal impact crash issues.
5. US 17 at NC 24 Eastbound and Westbound Ramps (two intersections grouped as one due to how crash data was reported) – Rear-end crashes (47%), side swipe crashes (21%) and frontal impacts (19%) are all significant crash types at these ramps. To identify the needs of this interchange, a comprehensive roadway safety audit along with a review of traffic volumes are needed.
6. NC 53 (Western Boulevard) at Country Club Road (SR 1403) – Rear-end crashes make up 50% of all crashes at this location, and frontal impacts contribute another 26% of crashes. Interim mitigation techniques could include signal ahead signs to improve visibility. Identified as part of the Western Boulevard (NC 53) Corridor Study, capacity, access management, and safety improvements are recommended at this intersection.
7. NC 24 (Lejeune Boulevard) at Tarawa Boulevard/Corbin Street – Crashes at this intersection are a mix of rear-end (49%), frontal impact (23%) and side swipe (18%). Interim improvements such as signal head modifications and revised signal timings could help to address some of these crash types. The NC 24 Corridor Study identifies future safety and capacity improvements at this location.
8. NC 53 (Western Boulevard) at Circuit Lane – The intersection was realigned recently, meaning historic crash data may not be an accurate indicator of its performance. Historic data indicated a split in crash types, with 41% of all crashes being rear-end collisions and 40% being frontal impacts. If issues still persist, a roadway safety audit along with signal improvements is recommended.
9. NC 24 (Lejeune Boulevard) at NC 53 (Western Boulevard) – 65% of all crashes in this location are rear-end collisions. Improvements such as enhanced drainage and turn lane addition are programmed for this intersection within the next 5 years. The NC 24 Corridor Study identifies additional long term capacity and safety improvements for the intersection.

A summary of general observations and recommendations as well as a conceptual exhibit are provided for each location under separate cover.

Evacuation Route Improvements

As noted in Chapter 2, designated evacuation routes in the Jacksonville area include US 17, US 258, NC 24, NC 53, NC 111, NC 172, and NC 210. The future system described in this chapter includes safety and operational improvements to all or portions of each of these corridors that will enhance safety and security.

Emergency Response and Fire Protection

Emergency management in the study area falls under the purview of Jacksonville Fire and Emergency Services and Onslow County Department of Emergency Services. Jacksonville Fire and Emergency Services serve the city through a combination of prevention, readiness, and response to threats on the lives and property in the city. The Onslow County Department of Emergency Services houses a variety of facilities and services, including the E-911 Communications Center, Emergency Management Office, Emergency Medical Services, and the Fire Rescue Services. In addition to these emergency services, elements of safety and security prevention and response occur through other municipal and county departments, MCB Camp Lejeune (e.g. Provost Marshal Office and Fire and Emergency Services Department), Onslow County Sheriff's Office, Onslow County Chapter of the American Red Cross, health department, and private security providers. Jacksonville Transit and OUTF are also important partners in coordinating emergency response plans, particularly assisting with emergency evacuation. To that end, it is recommended that these agencies develop a security and emergency management plan that dovetails with existing City, County and USMC plans.

Systems Management

Transportation systems management (TSM) and intelligent transportation systems (ITS) are additional tools that alleviate traffic congestion and improve safety. Referred to as systems management, these features have been deployed across the country and locally in the Jacksonville area. In 2014, the City of Jacksonville and NCDOT deployed a computerized traffic signal system to improve the mobility and safety of the city's major corridors. The system includes a traffic operations center (TOC) for monitoring traffic conditions and managing incidents, closed circuit television (CCTV) camera surveillance for incident verification, dynamic message signs (DMS) for dissemination of traveler information, and system detectors to measure the system performance. The goals of the computerized traffic signal system include:

- Monitor current traffic conditions and incidents using CCTV video
- Collect real-time vehicle flow data
- Update coordination timing plans
- Monitor for signal system and communications equipment failure
- Coordinate incident management activities with first responders
- Communicate travel information with the public using DMS units
- Use an open architecture for linking to NCDOT and other regional facilities
- Use Ethernet technology to be flexible and accommodate the City's future growth
- Minimize maintenance costs

In order to maximize the utility of the computerized traffic signal system, improvements and expansion of the system will need to be considered to accommodate community growth. In addition, the City's Traffic Operation Center should establish a connection with the State Traffic Operations Center and the City/County Emergency Operation Center.

Freight

No other consideration of the *JUMPO 2040 LRTP* is more closely tied to economic development than freight movement. Obstacles facing the freight community can slow population growth and economic development. Successful planning efforts for freight movement incorporate roadway recommendations that increase capacity along critical routes. As a part of the corridor and intersection improvements identified in this chapter, roadway network improvements should help facilitate freight movement. In addition to the future system recommendations, the following strategies should be considered.

General Recommendations

Develop a regional freight plan that identifies corridors and conflict points for freight activity.

A detailed freight plan should evolve through collaboration among policymakers, planners, and stakeholders and a more in depth review of operations data. The plan should establish freight needs and strategies for action.

Continue to implement ITS improvements that deliver on-time information to freight carriers and the public.

Properly designed and executed ITS solutions will provide real-time information to highway users, allowing them time to react as traffic conditions change.

Enhance safety for freight providers and the public by identifying and prioritizing locations for improvements.

Efforts to prioritize projects based on safety and security should continue to include input from the freight sector. Locations with high truck/automobile conflicts should be monitored to reduce injuries and loss of property. Rail grade crossings should be identified and prioritized for improvement or closure. The flow of freight traffic should be improved through monitoring and disseminating roadway conditions using ITS.

Provide for the secure movement of goods within and through the JUMPO area.

Communication with agencies and stakeholders is an essential element of a proactive approach to security issues. This process requires an effective working relationship between planning officials, law enforcement and emergency response personnel and freight providers. Regional freight security issues should be discussed as part of the freight plan development and at JUMPO committee meetings.

Other Considerations

Truck Freight

Primary freight movement in the JUMPO area is by truck. Whether it consists of deliveries to restaurants, big box stores, or through movements of freight headed to the ports, it is imperative that the roadways be accessible to freight trucks. The Jacksonville region has to address the challenge of connecting with major freight routes such as I-40 and I-95. To do this, collaboration is essential between JUMPO and its neighboring MPOs and RPOs. The Eastern NC MPO/RPO Coalition can serve as a primary point of communicating these needs. The design of all roadways should be consistent with their intended function and be responsive to the environment through which they pass. Streets serving trucks are not an exception. Where possible, a context sensitive approach should be used to ensure basic design considerations respect corridors with a propensity for freight traffic. Considerations for lane width, turning radii, and horizontal and vertical transitions should be routine. Adequate space between the edge of the travel way and adjacent pedestrian facilities should be used in strategic corridors.

Rail Freight

At this time, freight rail availability in the JUMPO area is limited to the Camp Lejeune Railroad. This facility provides connections between MCB Camp Lejeune and MCAS Cherry Point, as well as connections to the nearby Port of Morehead City. As the Port of Morehead City continues to grow, stakeholders such as the DoD and Onslow County should maintain close coordination with Norfolk Southern to identify potential opportunities for rail freight expansion within the region.

Rail freight has the potential to make a significant impact on overall freight movements in the region. Commercial rail service could be provided to the region by using the USMC rail line. Access to and improvement of the rail line should be thoroughly vetted in the regional freight Plan. It is also important to consider that significant private investment in spurs and/or trans-load facilities is needed to fully realize the potential of this modal choice. Public-private partnerships should be explored to help facilitate future rail system growth.

Air Freight

Chapter 3 identifies a series of recommended improvements to Albert J. Ellis Airport as well as its supporting facilities. Improvements to the airport and adjacent roadways will benefit both passenger travel as well as air freight. JUMPO and its member jurisdictions should continue to closely collaborate with Albert J. Ellis Airport and the Onslow County Airport Commission to identify improvements to the transportation network that will help promote the growth of air freight. Potential expansion of FedEx and UPS services in the region should be monitored to better understand the resulting shift in freight movement on the region's roadway network.

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Introduction

The financial plan, required by MAP-21 for long range transportation plans, shows proposed investments that are realistic in the context of reasonably anticipated future revenues over the life of the plan and for “opportunity bands.” The horizon years set for the *JUMPO 2040 LRTP* are 2030, 2035, and 2040. Meeting this test is referred to as “financial constraint.” The mix of transportation recommendations proposed to meet metropolitan transportation needs over the next 25 years is consistent with revenue forecasts. The financial plan details both proposed investments toward these recommendations and revenue forecasts over the life of the plan.

Financial Plan Development

The proposed recommendations were developed in collaboration with the Jacksonville Urban Area MPO, Onslow County, and the North Carolina Department of Transportation (NCDOT). These projects include roadway, freight, bicycle, pedestrian, and transit facilities and services for the life of this plan. The financial plan also reflects existing and committed projects from the TIP along with the future projects recommended in this plan. These recommendations also reflect travel demand benefits and socioeconomic impacts identified in Chapters 2 and 5. Finally, these projects result from an extensive public participation process that included three community workshops, stakeholder interviews, an interactive online survey, and the participation of a Steering Committee. More information on the community outreach efforts can be found in Chapter 1.

Revenue forecasts were developed after a review of previous state and local expenditures, current funding trends, and likely future funding levels. The revenue forecasts involved consultation with JUMPO and NCDOT. All dollar figures discussed in this section initially were analyzed in current year dollars (i.e. 2015) and then inflated to reflect projected year of expenditure or implementation. Based on current statewide standards and applicable local forecasts, an annual inflation rate of 4% was used to forecast costs and revenues.

This chapter provides an overview of revenue assumptions, probable cost estimates, and financial strategies along with the detailed research results used to derive these values. Since this is a planning level funding exercise, all funding programs, projects, and assumptions will have to be re-evaluated in subsequent plan updates.

Financial Planning Scenarios

Roadway

The table below reflects the proposed costs and revenues for highway projects with current funding sources. The costs and revenues are broken up between highway capital projects and maintenance. An estimated \$1.1 billion and \$543 million will be available for highway capital and maintenance projects within the JUMPO region, respectively, in the funded plan.

Roadway Revenue/Cost Forecast							
Opportunity Band	Revenues			Costs			Balance
	Capital	Maintenance	Total	Capital	Maintenance	Total	
2015-2020	\$78,306,407	\$81,251,299	\$159,557,705	\$78,306,407	\$81,251,299	\$159,557,705	\$0
2021-2025	\$328,948,929	\$83,951,116	\$412,900,045	\$328,948,929	\$83,951,116	\$412,900,045	\$0
2026-2030	\$200,529,660	\$102,139,369	\$302,669,030	\$200,503,157	\$102,139,369	\$302,642,526	\$26,504
2031-2035	\$243,974,993	\$124,268,160	\$368,243,153	\$236,319,600	\$124,268,160	\$360,587,760	\$7,655,393
2036-2040	\$296,832,884	\$151,191,218	\$448,024,101	\$296,135,573	\$151,191,218	\$447,326,791	\$697,311
Total	\$1,148,592,873	\$542,801,162	\$1,691,394,035	\$1,140,213,666	\$542,801,163	\$1,683,014,828	\$8,379,208

Roadway Maintenance Funding

Maintenance funding in the JUMPO region primarily is used for roadway maintenance, though pedestrian and bicycle facilities also are maintained with these funds. This funding source is not expected to increase. Instead, it is shown here as keeping pace with inflation. Projecting these funding sources through the 2040 horizon year of the LRTP, the total maintenance funding available for JUMPO is approximately \$543 million. The maintenance costs generated annually are assumed to equal the revenue available.

Capital Roadway Funding

Projections of funding for capital roadway projects are based on current funding levels shown in the draft FY 2016-2025 Statewide Transportation Improvement Program (STIP). Revenue forecasts were adjusted to reflect a 4% inflation rate per guidance from NCDOT. The available capital highway funding for JUMPO totals approximately \$1.1 billion over the life of the LRTP.

Opportunity Band Methodology

After establishing the funding levels, the next step was to consider what recommendations can be included as part of the funded plan. While it would be ideal to implement all of the recommended projects, only a portion can be accommodated in the financially constrained plan. As a result, higher rated projects were considered for implementation prior to lower rated projects. Three Opportunity Bands were established to categorize and prioritize the capital roadway projects included in the LRTP. The Opportunity Bands are described as follows:

1. The Short-Term Opportunity Band consists of all of the projects in the Jacksonville MPO FY 2016-2025 Transportation Improvement Program. This category represents all of the projects that are anticipated to be funded by the long-range transportation plan's 2025 interim year. Projected funding for projects in the Long-Term Opportunity Band are based on the annual average of funding shown within the Short-Term Opportunity Band and adjusted for inflation.
2. The Long-Term Opportunity Band consists of all of the projects that are not in the TIP, but are expected to receive funding by the LRTP's 2040 horizon year, including unfunded portions of projects currently included in the TIP. Phased projects or projects adjacent to those in the Short-Term Opportunity Band received greater priority. Per MAP-21 guidelines, the projects in the Long-Term Opportunity Band are further categorized into three five-year cost bands.
3. The Unfunded Opportunity Band is comprised of all projects that cannot be funded within the Short-Term or Long-Term Opportunity Bands. These include projects recommended as part of the LRTP to address future roadway deficiencies shown in the Regional Travel Demand Model. The cost of unfunded capital highway projects (referred to as the Vision Plan) is \$2 billion.

The roadway projects in the JUMPO FY 2016-2025 TIP, included in the Short-Term Opportunity Band, are shown in the table on the next page.

2016-2025 TIP Roadway Projects (Short-Term Opportunity Band)

TIP ID	Route	Project Limits	Description	Cost
B-5636	SR 1109 (Harris Creek Rd)	Harris Creek	Replace bridge	\$1,059,000
B-5650	NC 24 (Lejeune Blvd)	Westbound lanes over Northeast Creek	Replace bridge	\$6,722,000
B-5652	US 17 (New Bern Hwy)	Northbound lanes over Wolf Swamp	Replace bridge	\$1,400,000
R-5023	NC 53 (Burgaw Hwy)	Onslow Pines Rd to Haws Run Rd	Widen to 3 lanes	\$5,087,000
R-5023	NC 53 (Burgaw Hwy)	Haws Run Rd to west of Holly Shelter Rd	Widen to 3 lanes	\$5,087,000
SF-4903F	NC 53 (Burgaw Hwy)	At Holly Shelter Rd	Realignment and lane construction	\$220,000
U-4007E	US 17 (Marine Blvd)	At NC 53 (Western Blvd) and at SR 1406 (Piney Green Rd)	Upgrade intersections	\$83,130,000
U-4906	SR 1308 (Gum Branch Rd)	East city limits of Richlands to SR 1322 (Summersill School Rd)	Widen to 3 lanes	\$10,643,000
U-5319	SR 1308 (Gum Branch Rd)	At Western Blvd	Install southbound dual left turns	\$422,000
U-5508	NC 24 (Lejeune Blvd)	At NC 53 (Western Blvd)	Upgrade intersection and drainage	\$2,270,000
U-5716	NC 24	At US 258/NC 53	Construct interchange	\$37,416,000
U-5719	US 258 (Richlands Hwy)	At SR 1219 (Blue Creek Rd)/SR 1396 (Ridge Rd)	Realign intersections	\$1,860,000
U-5728	US 17B (Marine Blvd)	At SR 1308 (Gum Branch Rd/Bell Fork Rd)	Intersection improvement	\$465,000
U-5733	NC 111 (Catherine Lake Rd)	US 258 (Richlands Hwy) to SR 1308 (Gum Branch Rd)	Construct new roadway	\$30,204,000
U-5735	US 17 (Wilmington Hwy)	At MCAS New River/Old Maplehurst Rd	Construct interchange	\$25,824,000
U-5736	NC 53 (Western Blvd)	US 17 (Marine Blvd) to NC 24 (Lejeune Blvd)	Access management	\$14,195,000
U-5739	US 258 (Richlands Hwy)	SR 1212 (Pony Farm Rd) to NC 53 (Burgaw Hwy)	Construct superstreet	\$14,614,000
U-5741	NC 24 (Lejeune Blvd)	NC 24B (Johnson Blvd) to Urban Area Boundary	Access management	\$54,029,000
U-5787	SR 2715 (Trade St)	NC 53 (Western Blvd) to McDaniel St	Construct roadway on new alignment	\$3,357,000
U-5789	NC 53 (Western Blvd)	At Jacksonville Pkwy	Intersection improvement	\$698,000
U-5791	SR 2714 (Jacksonville Pkwy)	NC 53 (Western Blvd) to US 17 (New Bern Hwy)	Construct new roadway, widen existing to multi lanes	\$57,373,000
U-5793	SR 1308 (Gum Branch Rd)	SR 1322 (Summersill Rd) to UAB	Widen existing	\$53,016,000
W-5602	NC 172	NC 210 to Sneads Ferry Gate	Widen to 3 lanes	\$3,210,000

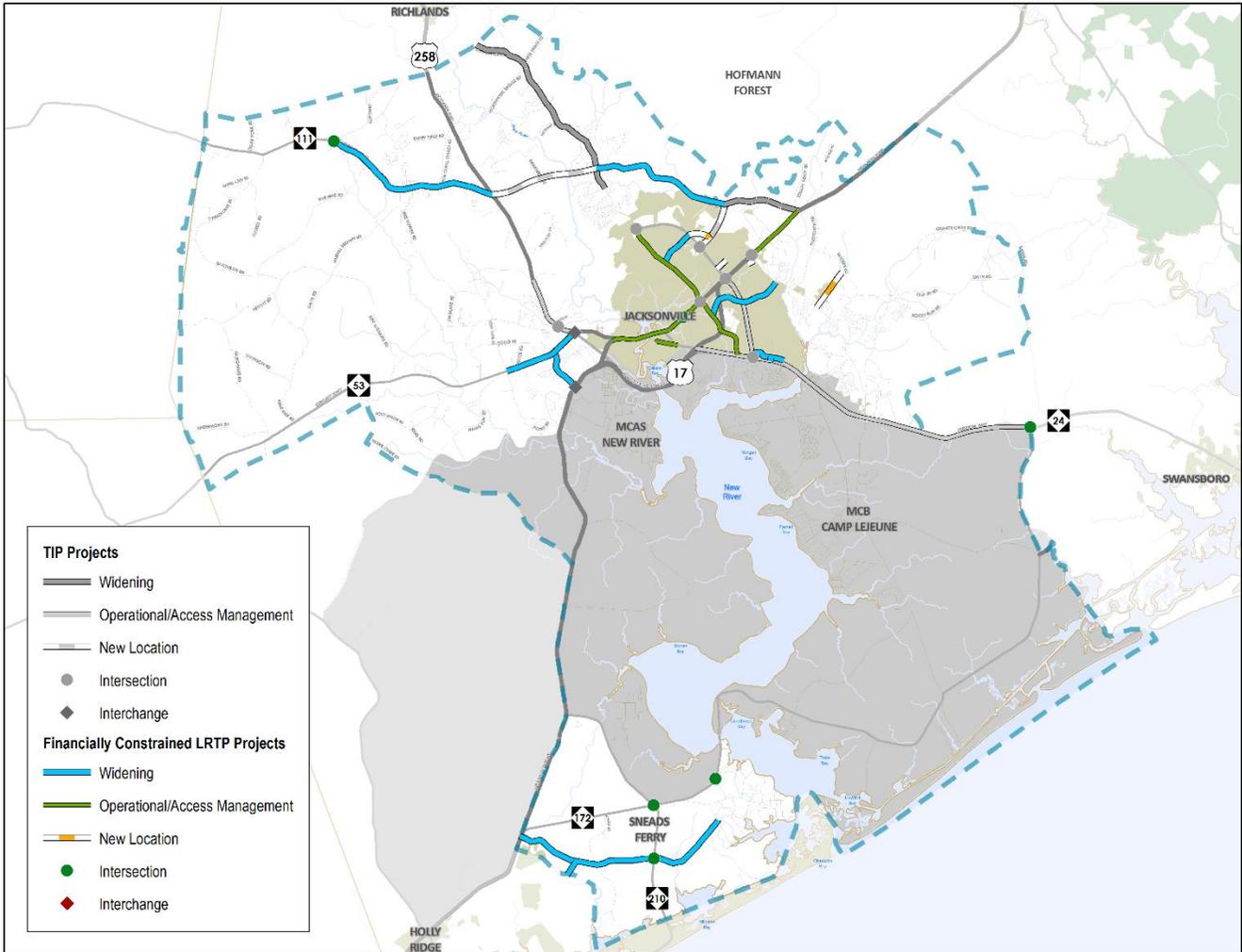
The following table presents the projects in the Long-Term Opportunity Band and Unfunded Opportunity Band, the cost bands in which they can be funded, and their cost estimates. The supporting maps following this table show the highway projects included in the financially constrained LRTP, and the year 2040 projected congestion in the JUMPO area with all of the financially constrained projects in place.

Financially Constrained Projects and Vision Plan (Long-Term and Unfunded Opportunity Bands)					
Cost Band	ID	Route	Limits	Description	Cost
2026-2030	H111196	Henderson Dr Extension	Western Blvd to Jacksonville Pkwy extension	Construct roadway on new location	\$24,924,485
	H111197	Henderson Dr	Gum Branch Rd to Western Blvd	Widen to 4-lane median divided facility with bicycle and pedestrian accommodations	\$17,223,520
	H111207	Ramsey Rd	Gum Branch Rd to Jacksonville Pkwy Ext	Widen to 4-lane median divided	\$109,515,215
	H140357	NC 111	US 258 to Airport Rd	Widen to 3 lanes	\$32,918,503
	H140368	Commerce Dr Extension	Northern terminus to Country Club Dr	Construct roadway on new location	\$5,614,628
	H140427	Old Maplehurst	US 17 to NC 53	Widen to 4 lanes	\$8,808,239
	S-1	NC 172	At Sneads Ferry Rd	Realign intersection	\$1,498,566
2031-2035	H090479	Country Club Rd	Bell Fork Rd to Piney Green Rd	Widen to multilane with bicycle and pedestrian accommodations	\$50,258,482
	H090788	Old Folkstone Rd	US 17 to Ennett Ln	Widen lanes and add wide paved shoulders	\$36,950,893
	H090885	Pine Valley Rd	NC 24 to Liberty Dr	Widen to 4-lanes	\$6,043,011
	H090912	New Bridge St	Hargett St to Court St	Streetscape	\$11,537,025
	H090913	Gum Branch/Bell Fork	Western Blvd to NC 24	Access management/construct median	\$60,752,211
	H111203	Hemlock Drive Extension	Piney Green Rd to Waters St	New roadway	\$42,704,212
	H140111	Tar Landing Rd	Old Folkstone Rd to Holly Ridge Rd	Widen lanes and add wide paved shoulders	\$2,716,620
	H140414	NC 111	At Fowler Manning Dr	Realign intersection	\$1,476,820
	H141024	Liberty Rd	Western Blvd to Corbin St	Widen to 4-lane median divided	\$16,587,386
	S-2	NC 172	At Sneads Ferry Rd	Realign intersection	\$1,823,235
	S-3	NC 172	At NC 210	Improve intersection	\$1,823,235
	S-4	NC 24	At NC 172	Improve intersection	\$1,823,235
	S-6	NC 210	At Old Folkstone	Improve intersection	\$1,823,235

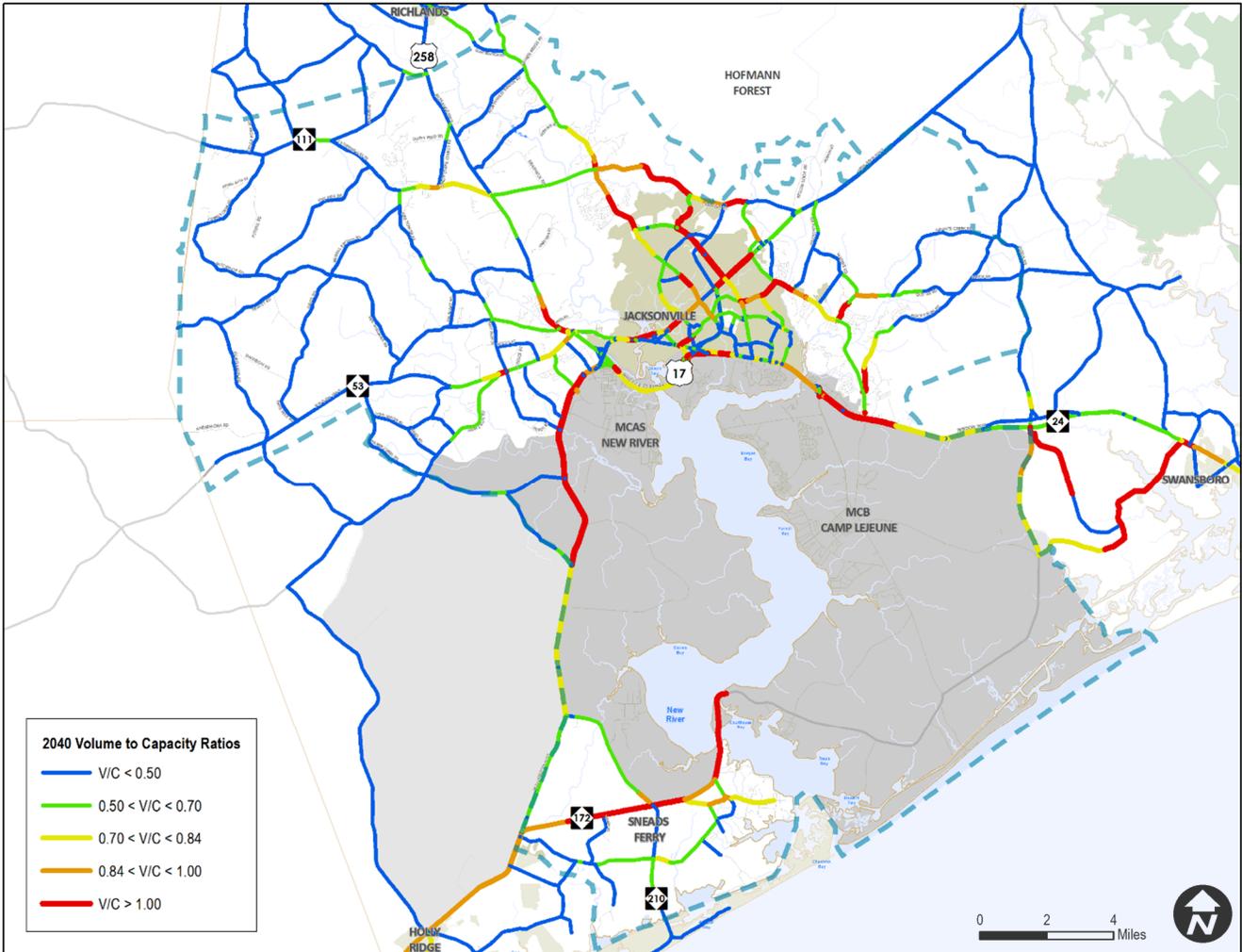
Financially Constrained Projects and Vision Plan (Long-Term and Unfunded Opportunity Bands) – Continued

Cost Band	ID	Route	Limits	Description	Cost
2036-2040	H090884	NC 53	NC 24 to Murrill Hill Rd	Widen to 4-lane median divided facility	\$153,788,391
	H111200	US 17 Bus (Marine Blvd)	Jacksonville Pkwy to US 258	Construct median and other improvements	\$104,489,151
	C-4	US 17	Piney Green Rd to Ramsey Rd	Access management	\$37,858,031
Vision	H090519-A	Northwest Corridor Blvd	Extension to Western Blvd	Construct 4-lane median divided	\$226,039,462
	H090774	NC 172	US 17 to NC 210	Widen to 4 lanes	\$291,663,821
	H090915	NC 24 Business	US 17 Business to US 17	Access management	\$10,890,261
	H111193	Old 30 Rd/Waters Rd	US 17 to NC 24	Widening and new location	\$495,068,840
	H111199	US 17 Business	US 17 Business to US 17	Widen - add one additional southbound on-ramp lane	\$11,211,868
	H111205	NC 210	US 17 to New River Inlet Rd	Widen with bike lanes	\$227,453,421
	H111208	US 17	Old Maplehurst Rd to High Hill Rd	Upgrade to freeway	\$83,440,251
	H140524	Plantation Blvd	Extension to New Frontier Way	New roadway	\$5,115,207
	H140844	US 258	At US 17 Business	Upgrade to interchange	\$69,616,716
	C-1	Hargett St	Johnson Boulevard to Bell Fork Rd	Widen to 4 lanes	\$36,319,354
	C-2	Western Blvd	Gum Branch Rd to US 17	Access management and safety improvements	\$74,302,190
	C-3	US 258	Pony Farm Rd to NC 111	Access management/superstreet	\$79,292,636
	C-5	Halltown Rd	Hemlock Dr extension to Halltown Rd to Old 30 Rd	Construct new roadway and upgrade existing	\$69,311,745
	S-5	US 17	At NC 210	Trumpet interchange	\$69,311,745
	S-7	US 17	At Old Folkstone Rd	Convert to superstreet	\$2,495,223

2040 LRTP Financially Constrained Roadway Projects (Short-Term and Long-Term Opportunity Bands)



2040 Congestion with 2040 LRTP Financially Constrained Roadway Projects (Short-Term and Long-Term Opportunity Bands)



Public Transportation

The table below reflects the proposed costs and revenues for public transportation projects over the life of the long-range transportation plan. The costs and revenues are broken up between public transportation capital projects and operating/maintenance. An estimated \$17.1 million and \$10.4 million (adjusted for inflation) are currently included in the Jacksonville MPO FY 2016-2025 TIP for public transportation capital projects and operations/maintenance, respectively. This represents about 59 percent of the revenue needed to support the existing system and recommendations through 2025 included in this plan. However, additional revenues may be available through fare revenues, contracts, etc. and the TIP, which has not been finalized. These additional revenues estimated and included in the table below, leaving a balance of \$11.1 million needed between 2015 and 2025 to support public transportation projects.

Public Transportation Revenue/Cost Forecast							
Opportunity Band	Revenues			Costs			Balance
	Capital	Operations	Total	Capital	Operations	Total	
2015-2020	\$11,634,564	\$7,340,124	\$18,974,688	\$11,718,929	\$8,907,734	\$20,626,663	(\$1,651,975)
2021-2025	\$9,322,862	\$7,224,595	\$16,547,456	\$10,835,130	\$15,209,280	\$26,044,410	(\$9,496,954)
2026-2030	\$6,005,288	\$9,239,394	\$15,244,682	\$6,127,471	\$21,002,025	\$27,129,495	(\$11,884,814)
2031-2035	\$7,306,351	\$11,514,620	\$18,820,971	\$7,151,132	\$27,071,537	\$34,222,669	(\$15,401,698)
2036-2040	\$8,889,293	\$14,674,770	\$23,564,063	\$5,003,373	\$36,633,737	\$41,637,110	(\$18,073,047)
Total	\$43,158,357	\$49,993,502	\$93,151,859	\$40,836,035	\$108,824,312	\$149,660,347	(\$56,508,487)

Public Transportation Operations and Maintenance Funding

Operations and maintenance funding for public transportation is primarily used to run Jacksonville Transit (JT) and the Onslow United Transit System (OUTS) in the JUMPO region. Projecting current funding assistance for operations and maintenance and comparing this with projected costs to operate the existing system (including the new route about to begin operation) show that revenues fall short for all opportunity bands (see table below). New sources of operating funding are necessary, therefore, to grow the system and implement any of the operational recommendations included within this plan.¹

Public Transportation – Existing O&M Revenue and Cost Forecasts			
Opportunity Band	Operating Revenue	Operating Cost	Balance
2015-2020	\$7,030,336	\$7,130,449	(\$100,113)
2021-2025	\$5,825,370	\$7,367,379	(\$1,542,010)
2026-2030	\$7,087,453	\$8,963,543	(\$1,876,090)
2031-2035	\$8,622,970	\$10,905,521	(\$2,282,551)
2036-2040	\$10,491,161	\$13,268,234	(\$2,777,072)
Total	\$39,057,290	\$47,635,125	(\$8,577,836)

A phased implementation of the operational recommendations for public transportation (listed below) shows that total operations and maintenance costs through the 2040 horizon year of the LRTP is about \$109 million. Implementing these new projects and programs will bring additional revenue through fares, contracts, etc. Data suggests that fare revenues cover about 18 percent of operating costs in Jacksonville. Projecting existing funding sources (adjusted for inflation) and including additional fare revenue, the total operations and maintenance funding available for JUMPO through 2040 is approximately \$50 million, resulting in a shortfall of about \$59 million.

2015 to 2020	Marketing and Outreach; Reduce Headways; Service to Public Events
2021 to 2025	Expand ADA Service to City Limit; Airport Service; MARSOC Expansion/Sneads Ferry; Bell Fork/Gum Branch Road Service
2026 to 2030	Employment Transportation
2031 to 2035	Intercity Express Service
2035 to 2040	Expand Service to Bases

¹ With the exception of mobility management, which is categorized as an operational recommendation but funded as a capital expense and included in the 2016-2025 TIP.

Public Transportation Capital Funding

Projections of funding for capital public transportation projects are based on current funding levels shown in the TIP. Revenue forecasts were adjusted to reflect a 4% inflation rate. The available capital funding for JUMPO totals approximately \$62.1 million over the life of the LRTP.

Opportunity Band Methodology

In collaboration with JT and OUTS, recommendations for short-term priorities (2015-2025) and long-term priorities (2026-2040) were developed and categorized. Many facility and other capital projects for public transportation were included in the TIP, and thus were considered a short-term funded opportunity. After establishing the funding levels beyond the short-term (2025), the next step was to consider when each of the recommendations should be included as part of the funded plan. All of the capital projects recommended can be included in the financially constrained plan but not all can be accommodated within the years desired. Higher priority projects were considered for implementation prior to lower priority projects. Still, capital funding faces a shortfall within the next ten years and a small surplus in the following 15 years. Two Opportunity Bands were established to categorize and prioritize the capital public transportation projects included in the LRTP. The Opportunity Bands are described as follows:

1. The Short-Term Opportunity Band consists of all of the projects in the Jacksonville MPO FY 2016-2025 TIP plus one additional recommendation to bring infrastructure within federal ADA regulations (ADA compliance). This category represents all of the projects that are anticipated to be funded by the long-range transportation plan's 2025 interim year. Mobility management and routine capital (amenities) were not funded past 2020 in the TIP, so extra costs are included in the projections to continue funding for these programs. Projected funding for projects in the Long-Term Opportunity Band are based on the annual average of funding shown within the Short-Term Opportunity Band and adjusted for inflation.
2. The Long-Term Opportunity Band consists of all of the projects that are not in the TIP but are expected to receive funding by the LRTP's 2040 horizon year. Per MAP-21 guidelines, the projects in the Long-Term Opportunity Band are categorized into three five-year cost bands.

The capital public transportation projects included in the Short-Term Opportunity Band, primarily those found in the Jacksonville MPO Draft FY 2016-2025 TIP, are shown in the table below.

FY 2016-2025 TIP Public Transportation Projects (Short-Term Opportunity Band)			
TIP ID	Project	Type	Description
-	ADA Compliance	Facility	-
TG-5220, TG-5225C	Mobility Management	Operational	-
TG-5225	Amenities	Facility	Routine capital – bus stop shelters, benches, shop equipment, spare parts, engines, service vehicles, etc.
TD-4904	Multimodal Center	Facility	Downtown transit center
TD-4905	Park-and-Rides	Facility	-
TA-4943	Fleet Expansion	Additional Capital	Expansion bus
TA-4944	Bus Replacement Cycle	Additional Capital	Replacement bus
TT-4907	Technology Upgrades	Additional Capital	Technology – vehicle tracking, fare collection, passenger information, data communications, traffic signal priority
TT-4907	Electronic Fare System	Additional Capital	Included in Technology Upgrades

The following table presents the projects in the Long-Term Opportunity Band and their cost estimates.

JUMPO 2040 LRTP Financially Constrained Projects (Long-Term Opportunity Band)			
Project	Type	Cost Band	Cost
Satellite Transfer Facilities	Facility	2026-2030	\$249,761
Maintenance Facility Expansion	Facility		\$4,162,684
Bus Yard with Dispatch Office	Facility	2031-2035	\$5,064,541
Cisco Call Center	Additional Capital	2036-2040	\$2,464,716

OUTS

Many of the above projects include collaboration and participation from both Jacksonville Transit and OUTS. Some of the public transportation recommendations are primarily the responsibility of OUTS, however, including expanded veteran transportation service and continuing to provide municipal non-ADA on-demand responsive service. OUTS relies heavily on fare revenues and state funding for capital and operating funding (see the table below), which differs from JT, and so specific OUTS recommendations are not included in this financial plan.

2013 OUTS Funding Sources (National Transit Database)						
Funding Source	Operating		Capital		TOTAL	
Fare Revenue	\$741,927	58%	-	-	\$741,927	49%
Local	\$117,531	9%	\$23,200	10%	\$140,731	9%
State	\$275,830	22%	\$127,049	55%	\$402,879	27%
Federal	\$146,214	11%	\$81,416	35%	\$227,630	15%
Total	\$1,281,502	100%	\$231,665	100%	\$1,513,167	100%

Active Transportation

Bicycle/Pedestrian Maintenance Funding

The City of Jacksonville funds sidewalk and greenway maintenance via their sidewalk fund included in the City budget. Currently maintenance for these facilities is funded at \$16,000 annually. This amount is assumed to increase with the rate of inflation.

Capital Bicycle/Pedestrian Funding

Currently, new bicycle and pedestrian facilities in the JUMPO region are primarily funded using federal programs, discretionary funds, and local dollars. The City of Jacksonville dedicates \$125,000 a year from their sidewalk fund for construction of new facilities. There are currently no state funds dedicated to the construction of bicycle and pedestrian projects. However, the JUMPO region actively seeks out discretionary funds for these projects. In order to ascertain potential future funds available for these projects, the amount currently dedicated to bicycle and pedestrian projects in the FY 2016-2025 TIP was combined with City of Jacksonville funding and increased annually at the rate of inflation. Using this methodology, the available bicycle and pedestrian funding for the duration of the 2040 LRTP is estimated to total \$14.3 million. The financial plan assumes that all available funding will be expended.

Aviation

Aviation projects in the Jacksonville region are funded using a blend of federal, state, and local funds. Federal funding is disbursed through the FAA and comprises the main funding source for the airport. Local spending is the next highest funding contribution, with NCDOT providing only a very small portion of the airport's overall needs. According to an estimate developed in 2008, the Albert J. Ellis Airport planned to spend \$98,455,000 (2008 dollars) between 2008 and 2028. \$40 million in construction projects will be completed within the next year. The airport plans to spend an additional \$32 million by 2020. The primary projects that the airport is looking to accomplish in the short term are the construction of an air traffic control tower and the extension of the runway/taxiway.

Alternative Funding Sources

Federal and state revenues alone will not sufficiently fund a systematic program to construct transportation projects in the JUMPO area. Therefore, the City of Jacksonville, Onslow County, and JUMPO must consider alternative funding measures that could help implement this plan. Alternative funding measures being considered and applied in areas around the state and the nation are included here.

Local Option Sales Tax

The local option sales tax is implemented at the city or county level and typically requires a voter referendum. The sales tax is temporary and may be renewed at the time of its expiration date. While several different types of local option sales tax exist, only one may be enacted at a time. Since 2007, North Carolina counties (but not cities) have had the option to increase the sales tax by a quarter of a penny, pending voter referendum, to fund transportation improvements, based on G.S. 105 Article 46). From November 2007 to November 2012, 90 referendums had been held in 59 counties, and 25 were approved while 65 failed. The tax does not apply to groceries, prescription drugs, gasoline, automobile purchases, or utilities. Onslow County is not currently assessing this local option sales tax.

In addition to the general local option sales tax, Onslow County is also eligible to enact a quarter-cent sales tax for transit (G.S. 105 Article 43). Enacted in the same manner as the general local option sales tax, revenue generated from this source must be used to fund the financing, construction, operation, or maintenance of public transportation systems. Improvements eligible for funding through this revenue source can also include projects supportive of the transit system, such as supporting bicycle and pedestrian infrastructure and signal system improvements. Three counties currently assess the quarter-cent sales tax for transit: Mecklenburg, Durham, and Orange Counties.

Transportation Impact Fees

Local governments may impose transportation impact fees on new development projects that will help fund transportation improvements. Impact fees are intended to recuperate the costs associated with new development. However, significant opposition to impact fees exists in North Carolina, specifically regarding the implementation of impact fees for schools on residential developers. The imposition of impact fees requires the approval of the General Assembly. 22 cities and 3 counties have been given impact fee authority in North Carolina.

Transportation Utility Fees

Transportation utility fees are charged to properties based on their land uses and intensities. This financing mechanism treats the transportation network as a utility and charges monthly fees in proportion to network use. Accordingly, the fee is collected from residential and commercial property owners via their local utility bills.

While not currently in use in North Carolina, localities can create the legal presumption that a transportation utility fee is a fee, not a tax, by collecting it with fees for other public services.

Transportation Improvement Bonds

Transportation bonds require voter approval and allow municipalities to sell bonds to investors, generating funds for transportation projects sooner. The investors are paid back via a tax increase. Transportation bonding is a common funding mechanism that has been successful in North Carolina. A \$75 million bond referendum was passed by Raleigh voters in October 2013 to fund 18 projects including 14 roadway projects. This bond increased the property tax rate per \$100 of valuation by 1.12 cents. The previous transportation bond referendum to pass in Raleigh was in 2011 for \$37 million, which is currently funding seven projects. Onslow County has not pursued a transportation improvement bond in the past 10 years. A bond issue for schools was brought before Onslow County voters in 2013, but was defeated.

Oversize Agreements

Localities and developers may engage in an oversize agreement in which the locality compensates the developer for constructing a collector street instead of a local street. This can result in bike accommodations along the road constructed at a cost shared between the city or county and developer.

Grant Anticipation Revenues Vehicles (GARVEE) Bonds

North Carolina has issued four GARVEE bonds in total, the most recent having been issued in January 2012 at a value of \$179.54 million. GARVEE bonds enable localities to obtain an advance on anticipated federal or state funding. The localities can then implement projects more quickly, capitalizing on present-day construction and design costs, and then pay debt service to the bonding entity.

Action Plan

Planning for future needs and matching them to available funding will continue to pose a challenge for the Jacksonville Urban Area MPO. In light of growing demands on JUMPO's transportation system and limited funding for both capital projects and maintenance, JUMPO should consider the following action items when developing a strategy to obtain funding for high priority projects:

- Pursue opportunities for projects that would score well in NCDOT's Prioritization process.
- Continue to identify and utilize discretionary funds such as Transportation Alternatives Program funds or TIGER grants.
- Continue to partner with the Department of Defense to identify and support transportation projects that improve the functionality of the region's military installations.
- Coordinate with Jacksonville Transit and OUTS to identify potential alternative funding sources that are supportive of transit needs.
- Begin implementing public transportation recommendations that have little to no cost, especially a new fare structure, new fare media, and marketing and outreach. These can help boost ridership and revenues at minimal costs.
- Maintain existing and seek out new partnerships throughout the JUMPO region.
- Investigate alternative funding sources that may be viable in the JUMPO region.
- Educate local officials and the public about alternative funding sources.

Following the full opening and operation of the new MCB Camp Lejeune base entry road and other associated base access improvements, revisit the operations of the transportation network. This assessment would help identify priorities or recommendations that may have shifted due to the new traffic patterns.

