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Goldsboro Urban Area

2040 Metropolitan Transportation Plan Update

Prepared for:

In Cooperation with:



U.S. Department of Transportation
Federal Highway
Administration



GOLDSBORO
BE MORE DO MORE SEYMOUR



Prepared by:

URS

Goldsboro Urban Area

2040 Metropolitan Transportation Plan Update

The 2040 Goldsboro Urban Area Metropolitan Transportation Plan Update (2040 GMTP) is the result of a collaborative process involving the talents and efforts of the Transportation Plan Steering Committee, an extensive list of stakeholders, local staff, elected officials, the North Carolina Department of Transportation, and Federal Highways Administration. In addition, the contributions from the people of the City of Goldsboro, the Village of Walnut Creek, the Town of Pikeville and Wayne County provided invaluable feedback during the planning process.

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List of Acronyms


AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway & Transportation Officials
ACS	American Community Survey
ADA	Americans with Disabilities Act
ALbD	Active Living by Design
AWOS	Automated Weather Observation System
CCTV	Closed Circuit Television
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CMAQ	Congestion Mitigation and Air Quality
CTC	Centralized Traffic Control
CTP	Comprehensive Transportation Plan
CTSP	Community Transportation Services Plan
DMS	Dynamic Message Signs
DU/AC	Dwelling Units per Acre
EJ	Environmental Justice
EPDO	Equivalent Property Damage Only
ESL	English as a Second Language
FAR	Floor-Area-Ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GIS	Geographic Information Systems
GMPO	Goldsboro Metropolitan Planning Organization
GTC	Gateway Transfer Center
GTP	Global TransPark



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GUS	Goldsboro Union Station
ILS	Instrument Landing System
IMAP	Incident Management Assistance Patrol
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation Systems
JARC	Job Access and Reverse Commute
LED	Light-Emitting Diode
LEP	Limited English Proficiency
LOS	Level of Service
MAP-21	Moving Ahead for Progress in the 21 st Century Act
MIRL	Medium Intensity Runway Lights
MITL	Medium Intensity Taxiway Lights
MTP	Metropolitan Transportation Plan
MUTCD	Manual on Uniform Traffic Control Devices
NCDENR	North Carolina Department of Environment and Natural Resources
NCDOT	North Carolina Department of Transportation
NCNHP	North Carolina Natural Heritage Program
NCRR	North Carolina Railroad Company
NCTA	North Carolina Turnpike Authority
NEPA	National Environmental Policy Act
NES	North Carolina Cooperative Extension Service
ODAL	Omni-Directional Approach Lights
P3	Public-Private Partnerships
PAPI-4	Precision Approach Path Indicators
PDO	Property Damage Only
PIP	Public Involvement Process
PPP	Public Participation Policy
PTD	Public Transportation Division
PUD	Planned Urban Development



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PWP	Planning Work Program
RDU	Raleigh-Durham International Airport
RGPT	Rural General Public Transportation
ROW	Right-of-Way
RPO	Regional Planning Organization
SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users
SHC	Strategic Highway Corridors
SJAFB	Seymour Johnson Air Force Base
SNHA	Significant Natural Heritage Area
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
TAC	Transportation Advisory Committee
TCC	Technical Coordinating Committee
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
TOD	Transit-Oriented-Development
USDA	US Department of Agriculture
USDOT	US Department of Transportation
VAD	Voluntary Agricultural District
VMS	Variable Message Signs
VMT	Vehicle Miles Travelled
vpd	vehicles per day

Chapter 1. Introduction and Vision

Transportation Planning

The 2040 Goldsboro Urban Area Metropolitan Transportation Update (2040 GMTP) for the Goldsboro Urban Area:

- Documents the ongoing transportation planning process carried out by the Goldsboro Metropolitan Planning Organization (GMPO) and its partners, and
- Plans for strategies and projects to maintain and improve the transportation system between 2014 and 2040.

The 2040 GMTP replaces the Goldsboro Urban Area 2035 Long Range Transportation Plan Update (2035 LRTP) in fulfillment of the requirements of an MTP as laid out in federal law. The Goldsboro Urban Area is shown on Figure 1-1.

What is an MPO?

Federal law establishes a Metropolitan Planning Organization (MPO) in all regions with an urbanized area having a population of 50,000 or more. Where an MPO is required, it can be a part of another governmental agency or exist as a standalone agency. The MPO carries out the “3-C” transportation planning process. The “3-Cs” describe the process, which must be continuing, cooperative, and comprehensive. Only with this process is the area eligible to receive federal transportation funding.

Committees

Because an MPO must foster cooperation between various agencies and local jurisdictions, decision-making is typically governed by a policy committee made up of local elected and appointed officials. In Goldsboro, that policy committee is the Transportation Advisory Committee (TAC). The TAC membership includes elected officials representing and appointed by each local government, the area’s representative on the North Carolina Board of Transportation, an advisory non-voting member representing the US Department of Transportation Federal Highway Administration (FHWA), and others.

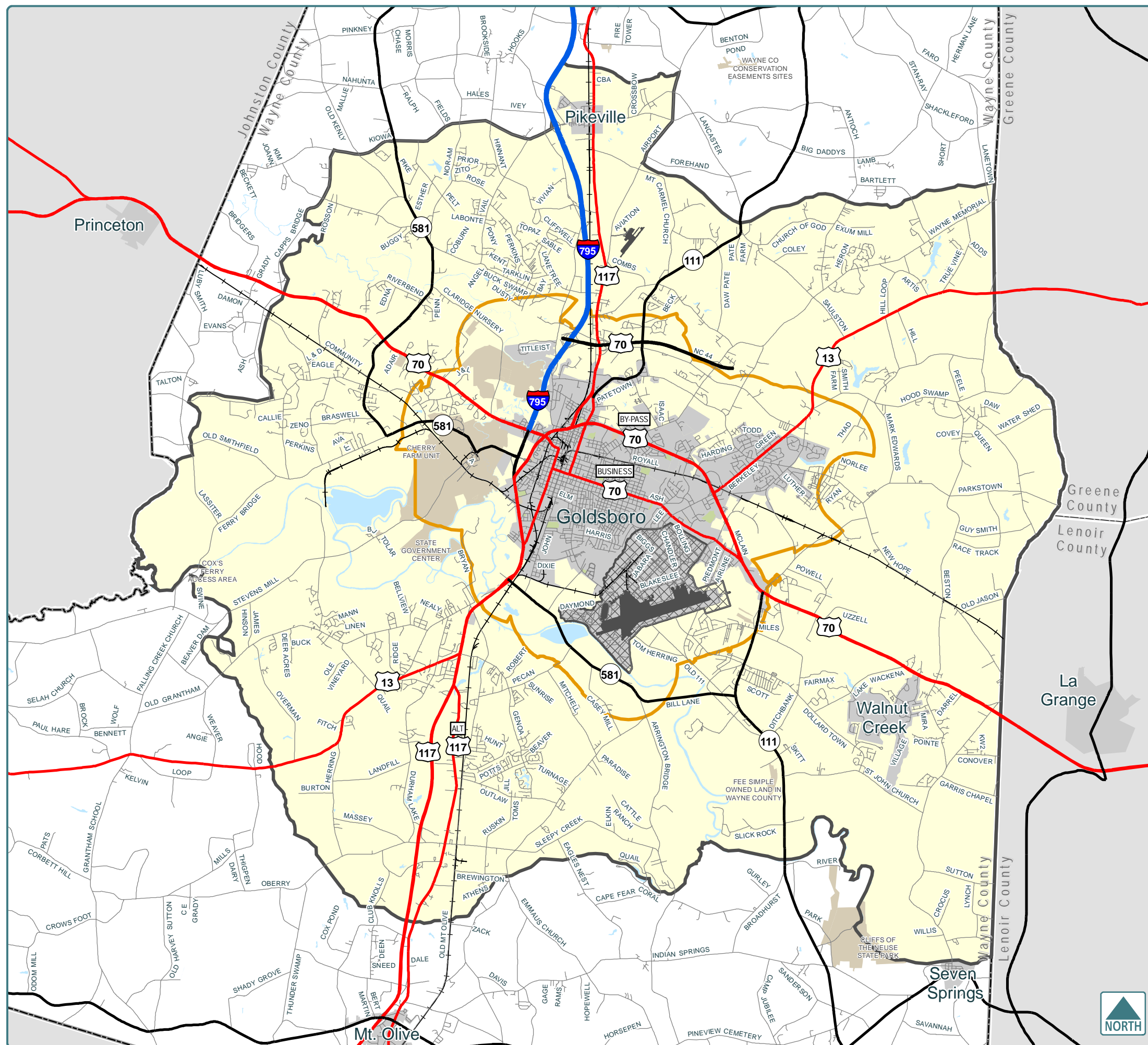
In addition to the staff that provides information and guidance to the TAC, the MPO also has a technical advisory committee called the Technical Coordinating Committee (TCC). The TCC is composed of staff representatives of the various member agencies, North Carolina Department of Transportation (NCDOT), FHWA and other stakeholders. The TCC has the responsibility of supervising and coordinating the comprehensive transportation planning process and for making recommendations to the TAC and respective local and state agencies pertaining to that process.

GOLDSBORO URBAN AREA

Metropolitan Transportation Plan Update



Figure 1-1: Goldsboro Urban Area



- Interstate
- US Route
- NC Route
- Secondary Road
- Railroad
- Airport
- Seymour Johnson AFB
- Body of Water
- Urban Park
- State Owned Land
- Goldsboro ETJ
- Goldsboro Metropolitan Area
- Municipal Boundary
- Wayne County

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Required Documentation

The MPO must produce an MTP every five years that plans for at least 20 years into the future. It provides the basis for how federal transportation funding will be spent to improve highways, transit, freight, bikeways, and pedestrian facilities. The five-year cycle allows the MTP to account for changing conditions. The process is continuous so that the MTP strategies and projects reflect current conditions.

The MPO must also maintain the transportation improvement program (TIP). It is a short-term program that operates in tandem with the MTP. When an implementing agency (local jurisdiction or NCDOT) begins pursuing and developing a project on the MTP, they request it appear on the TIP. Projects on the TIP typically have funding committed for at least one phase.

Titles 23 and 49 of the Code of Federal Regulations (CFR) guide the work of an MPO. Periodic surface transportation reauthorization acts by the US Congress are reflected in this code. These acts also authorize the funding levels for the surface transportation programs over the life of the act. The Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law by President Obama on July 6, 2012 (P.L. 112-141). Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005.

Other federal legislation and actions guide the work of an MPO, such as the Clean Air Act Amendments of 1990, Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) and the National Environmental Protection Act of 1969.

Purpose of the Updated Plan

As a central element of daily life and something that affects everyone, transportation represents a critical component of an area's man-made infrastructure. The MTP is the community's comprehensive guide to developing a regional transportation system that accommodates not only the current mobility needs of the area's residents, but also looks to the future to anticipate where new needs will arise. The MTP is a financially constrained plan, meaning it identifies projects and programs that can reasonably be implemented within the horizon year of the plan. In response to federal mandates and the desires of local residents, this 2040 GMTTP addresses all modes of transportation including automobile, bicycle, pedestrian, transit, air, rail, and freight.

A regional long range transportation plan is shaped by several elements, primarily federal legislation, but also the direction of state and local agencies. While the current legislation authorizing the development of an MTP is MAP-21, the 2040 GMTTP is governed by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which was signed into law on August 10, 2005. Due to the timing of the 2040 GMTTP, SAFETEA-LU is the guideline by which this update is governed. MAP-21 is still in the development process and guidelines have yet to be released by the FHWA and adopted by NCDOT.

While the GMPO is aware and prepared to conform to MAP-21 and its guiding principles, we also understand the need to create a transportation planning process that conforms to the current standards set forth by NCDOT.

The Planning Process

The GMPO brings together local governments from the region as a part of its ongoing transportation planning process. It also coordinates with NCDOT and the Goldsboro-Wayne Transportation Authority to identify transportation needs. The GMPO then prioritizes and coordinates strategies and projects to meet the transportation needs between now and 2040 to:

- Identify regional goals and objectives.
- Monitor and forecast development, population and employment growth, and changes to the transportation system.
- Forecast travel demand to identify where traffic volumes will exceed capacity, resulting in congestion.
- Identify other needs across the multimodal transportation system – including system improvements, system management and the management of travel demand.
- Consider projects to be completed and strategies to be implemented that will achieve the transportation goals for the region as well as accomplish key factors as laid out in federal legislation.
- Constrain the list of strategies and projects so their cost will remain within the amount of transportation funding estimated to be available through 2040.
- Measure the aggregate impact of the strategies and projects on the environment, air quality and social equity.

Strategies and projects that emerge from the process are implemented through:

- The TIP, in conjunction with NCDOT - all projects on the TIP must be derived from and included in the MTP.
- Actions identified in the GMPO's Unified Planning Work Program (PWP).
- Actions of other agencies and local governments in the MPO Urban Area.

The GMPO tracks the combined effort toward the plan's measurable objectives and goals. By documenting successes and shortcomings, the GMPO and the region can make better decisions as the transportation planning process continues into the future.

Public Outreach

Public participation in the 2040 GMTP has been early and continuous throughout the planning process. Participation included the cooperation and collaboration of local governments and resource agencies both on a project level and through community plans, identification of needs from the general public through correspondence and discussion, and involvement through internal structured committees.

The following process demonstrates the GMPO's commitment to involving the public in the transportation planning process and issues. The GMPO Transportation Public Involvement Process (PIP) is designed to provide the public an opportunity to participate in, review, and comment upon the formulation and recommendation of transportation plans, policies, strategies, and projects. This process provides a set of procedures to be consistently applied to incorporate public participation in the transportation planning process. The PIP outlined in the following sections describes many opportunities for public input while satisfying the federal requirements for public involvement. Additional documentation on the PIP can be found in Appendix A.

The GMPO uses a variety of techniques and tools to ensure public participation in the development of transportation plans, policies, and projects. These methods include a structured internal committee process, workshops, and a public outreach/information dissemination effort that is tailored to meet specific needs.

Steering Committee

The 2040 GMTP Steering Committee (Steering Committee) was formed as a dedicated group of local officials, staff, stakeholders, and citizens to ensure the updated plan respected previous planning efforts, and incorporated a diversity of viewpoints. Beginning with a kick-off meeting on April 2, 2014, the committee met periodically to ensure the planning process was inclusive of all the ideals that helped shape the transportation network in Goldsboro (meeting dates are noted in Appendix A). The group's duties included serving as a sounding board for project team ideas, participating in visioning and mapping exercises, providing feedback to the project team, and spearheading the promotion of complementary public involvement efforts.

At its first meeting, the Steering Committee discussed the 2035 LRTP and developed a revised, streamlined Vision statement for the 2040 GMTP. Members discussed the desire to develop a plan update that was simple to use and easy to read, without extraneous text that distracted the reader from the true intent of the plan. The priority sections that the Steering Committee chose to highlight include the project listings and the location maps for each project type.

The project team consists of the Steering Committee and URS. The project team reviewed the stakeholder identification process and discussed ways to ensure that the best and most up-to-date data were on hand for use in developing future scenarios. Model development and refinement was discussed, with NCDOT taking a large role in assisting URS with the future year scenarios. The public outreach process was discussed in detail, with the Steering Committee supporting the framework that was proposed by the project team.

This initial meeting set the stage for future Steering Committee meetings and how the project team would interact with local officials and staff.

Stakeholder Surveys

Early in the public outreach process, the project team identified numerous key stakeholders. Email and phone contact with these stakeholders was used to gain insight for the social, political, economic, and transportation issues facing Goldsboro and surrounding Wayne County. This contact led to stakeholders completing surveys that would assist the project team in shaping the planning process. In total, 23 stakeholder surveys were completed in support of the 2040 GMTP. Responses received through these surveys were used to review progress since the 2035 LRTP, validate background information collected to date, and formulate preliminary recommendations. Information garnered through stakeholder surveys supplemented the information provided by the Steering Committee and the results of other public outreach channels. The stakeholders then assisted in furthering the outreach effort by using social media networks and other methods to engage their communities.

Public Workshops

Citizens understand the strengths and weaknesses of the transportation system and feel the impact of transportation decisions on a daily basis. To tap into the special knowledge of the citizens, the project team, assisted by the Steering Committee, led three public workshops.

Workshop # 1 – Visioning

The first public meeting took place April 17, 2014 at the Boys and Girls Club of Goldsboro. The event was organized as an open house, designed to elicit comments from the general public about what transportation issues affected them and to initiate a process for the general public to think about transportation in a regional setting. The open house was staffed by URS and representatives from the City of Goldsboro and NCDOT. Throughout the event a video interview was played during which the project team briefly described the 2040 GMTP and outlined the planning process. Comments from this event were recorded on large easel boards or directly on a set of large maps where attendees could graphically depict issues and growth areas. Attendees communicated to the project team the desire that the 2040 GMTP take a broad perspective on the area's transportation challenges to address disconnects in the current transportation system. In addition, attendees noted the importance of addressing specific transportation needs and funding in order to improve mobility, safety, and reduce congestion.

Workshop #2 – Alternatives Development

The second public meeting took place June 24, 2014 at the Goldsboro City Hall Annex, Second Floor Large Conference Room. The event was organized as an open house, providing attendees the opportunity to drop in between the hours of 4pm and 7pm, view project materials, discuss questions and comments with the project team, and complete a comment form and project survey. The purpose of the public meeting was to present the projects that would likely be included in the 2040 GMTP, educate attendees on current challenges related to existing traffic volumes and crash data, and to elicit comments about the proposed GMTP projects. Meeting attendees also participated in

an ad hoc survey which asked them to identify a mode that should receive funding priority as well as identify a source for funding these priorities. The open house was staffed by URS and representatives from the City of Goldsboro.

Public Questionnaire

A public questionnaire (developed by the project team) was distributed to Steering Committee members and the general public. The respondents provided the project team with valuable information on a variety of transportation and land use topics and helped determine the community's perception of the area's transportation network. The questionnaire included general questions regarding likes and dislikes in Goldsboro, questions specific to individual elements of the 2040 GMTP, and questions designed to challenge respondents to make choices related to transportation priorities. While the questionnaire was not intended to be a scientifically valid survey, the responses proved helpful in the assessment of the transportation system and compilation of multimodal recommendations. More than 345 responses, including 17 Spanish-language surveys, were received from throughout the Goldsboro area.

Mode and Funding Ad Hoc Poll

The public outreach process also provided the public with the opportunity to express their preferences with regard to specific transportation modes and funding sources. Two display boards were produced and displayed at public outreach events that asked attendees to:

- Where should the area's transportation funds be spent?
- What additional funding sources would be supported?

Refer to Appendix A for additional detail on all public outreach efforts.

Public Information

The GMPO currently advertises (through the media) the availability of draft and final transportation plans. Upon request, copies of transportation plans are mailed directly to individuals. The GMPO's PIP expands this process to provide reasonable public access to technical and policy information used in the development of draft and final transportation plans. Appropriate transportation planning documents are accessible at the public library, the transportation department, and the GMPO.

Information is also made available to the public upon reasonable request or by appointment. The GMPO reserves the right to impose a reasonable fee to cover the costs and expenses of providing such information.

Summary of Outreach Efforts

Public involvement for the 2040 GMTP consisted of multiple layers: general outreach through the media and social media; presentations and newsletters; regular updates to the Steering Committee; participation at community events; workshops held to provide input into plan development; online

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and hardcopy surveys; Spanish-language materials; participation in Stakeholder outreach efforts; and two formal open houses.

Notices announcing the comment periods for each review item were distributed to the media and placed on social media and electronic newsletters to the GMPO committees, businesses, residents, neighborhood and civic association, local governments, county and state governments, regional planning commissions, resource agencies, and special interest groups. Comments could be made through email, through US mail, in writing at the open house and verbally at the end of presentations. Each comment could address any aspect of the plan available for review during the comment period and often addressed more than one objective, strategy, or project.

Previous Planning Efforts

The 2040 GMTP was coordinated closely with other state, regional, county, and local plans and/or policies that impact planning efforts within the area. First and foremost, the updated plan recognized the planning process and outcomes of the original plan. This section summarizes the review of transportation-related plans prepared within the region and highlights issues, policies, and directives that have the ability to influence the development of potential recommendations and reasonable implementation.

2035 Goldsboro Urban Area Long Range Transportation Plan & 2035 Goldsboro Urban Area Comprehensive Transportation Plan

The 2035 Goldsboro Urban Area Long Range Transportation Plan was adopted by the MPO in 2009. This plan was developed through coordination with NCDOT and FHWA. The 2035 LRTP is governed by SAFETEA-LU and incorporated all the modal elements of the transportation system in the Goldsboro area. It includes focus on bicycle, pedestrian, transit, rail, freight, and air operations in addition to highway movements. The financially-constrained plan examined strategies for project implementation in the short and long term.



The Comprehensive Transportation Plan (CTP) expanded the study area and recommended additional projects. This plan is not financially constrained.

Envision 35 City of Goldsboro Urbanized Area Comprehensive Plan

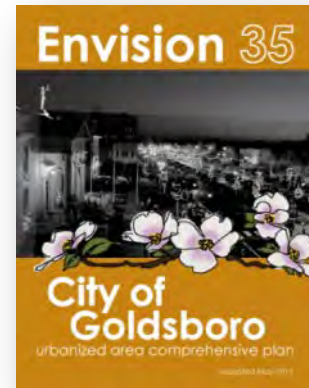
The Envision 35 City of Goldsboro Urbanized Area Comprehensive Plan (Envision 2035 Plan) is a 20-year plan for the Goldsboro Urbanized Area and the five future interchanges to be constructed along the US 70 Bypass. The plan provides a creative and dynamic framework to guide the future long-term growth and development.

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Specifically, the plan addresses the following:

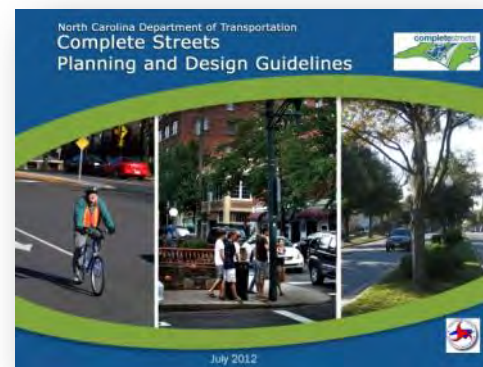
- Develop clear vision and mission statements for the Goldsboro Urbanized Area, recognizing both its internal character and the role within the greater area.
- Provide historical, current, and forecast data with regard to demographics/economics (in-City, Extraterritorial jurisdiction, and relative to the City's surroundings).
- Assess current concerns and issues related to housing.
- Recognize current issues, rapidly changing conditions, future community desires, and realities surrounding environmental, utility, transportation, housing, and military functions.
- Address health and wellness issues and future needs.
- Integrate existing local, regional, and other plans affecting the Goldsboro Urbanized Area.
- Address areas of specific concern, including the four highway segments designated as R-2554 and the five new interchange areas.
- Develop alternative concept plans for the five new interchange areas.



The Envision 2035 Plan was adopted in May 2013.

NCDOT Complete Streets Planning and Design Guidelines

NCDOT adopted a Complete Streets policy in July 2009. The policy directs the NCDOT to consider and incorporate all modes of transportation when building new projects or making improvements to existing infrastructure. Under the policy, NCDOT must collaborate with cities, towns, and communities during the planning and design phases of new streets or improvement projects. Together, decisions are made pertaining to how best to provide the transportation options needed to serve the community and compliment the context of the area. The policy directed NCDOT to develop planning and design guidelines. Development of the guidelines included public comment periods to gain feedback from cities, towns, transit agencies, advocacy groups, and other interested parties.

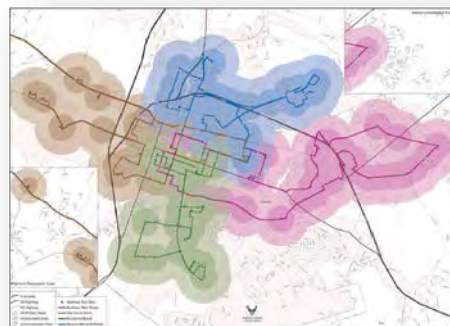


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2010 Gateway Transit Community Transportation Service Plan

The January 2010 Gateway Transit Community Transportation Service Plan reviewed the current performance and direction of the Goldsboro - Wayne County Transportation Authority (GATEWAY Transit) and recommends alternative strategies for all aspects of GATEWAY Transit service, including operations, capital programming, marketing strategies, planning, facility relocation, and staffing that strives to increase mobility options for passengers and improve the efficiency and effectiveness of the organization and transportation services. The goals of the study were to make recommendations for the GATEWAY Transit strategic plan that respond to the projected mobility needs of the general public and targeted populations in Wayne County, and to provide direction for continuous improvement to achieve excellence in all aspects of service delivery and management. Elements of the plan were based on the guiding principles established by the NCDOT Public Transportation Division. They included the following:



- Promoting transit options that provide meaningful alternatives to citizens and connectivity of transportation services throughout the state.
- Promoting the full integration of GATEWAY programs with other federal and state programs supporting public and human service transportation.
- Improving the efficiency and effectiveness of federal/state funded transportation programs.
- Supporting and promoting the coordination of public transportation services across geographies, jurisdictions, and program areas for the development of a seamless transportation network.
- Supporting the provision of dependable mobility transportation options to the general public, low income individuals, elderly persons, and/or persons with disabilities within the guidelines and funding levels provided by NCDOT and the Federal Transit Administration (FTA).
- Supporting and encouraging defensible, results-based budget requests and submissions from systems to NCDOT for funding.

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The Wayne County Comprehensive Plan

The Wayne County Comprehensive Plan was adopted March 18, 2008, and re-adopted August 4, 2009. It contains vision statements, policies, and actions to guide decision-making, as well as a future growth strategy map. The policies contained in the plan have been designed for regular use in guiding public decisions at the county level as well as in providing information for private discussions. As officially adopted policies of Wayne County, they are to be used primarily in managing growth and development and as a foundation for decisions on county facilities and services. Vision statements include the following topics: transportation, economic development, funding of county services, agricultural preservation/growth management, water and sewer services, schools, housing and neighborhoods, public safety, revitalization of our downtowns, parks and recreation, community appearance and image, and intergovernmental cooperation.



Goldsboro-Wayne Transportation Authority Administration/Operations Facility Planning and Needs Assessment

The Administration/Operations Facility Planning and Needs Assessment included the following tasks:

- Reviewing the maintenance needs of the City of Goldsboro, Wayne County, and GATEWAY and exploring all possibilities for maintenance including the sharing of maintenance facilities and resources.
- Determining the administrative and operations needs of GATEWAY for current and future planning.
- Determining site requirements for the GATEWAY service facility to include existing service levels and projected service growth through 2025.
- Identifying and reviewing the potential of three alternative sites for consideration for the GATEWAY system operations and potentially a maintenance facility.
- Conducting an environmental review of recommended site location and preparing a Categorical Exclusion document for submittal to the FTA regional office for their approval.
- Developing a conceptual site layout and estimate the costs associated for the development of the recommended site location.

Goldsboro Union Station Multimodal Transportation Center Study

This was a feasibility study completed in August, 2009 to analyze the potential of refurbishing the historic Goldsboro Union Station (GUS) Multimodal Transportation Center. This report addressed the impacts related to the proposed Gateway Transit Bus Transfer Center, which will occupy the northern portion of the larger GUS site, between the existing historic station building and Mulberry Street.

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Also, this transfer station is programmed to become the primary transfer point for Gateway Transit bus services. Additionally, this site is expected to become the Greyhound intercity bus station and accommodate taxi services and future passenger rail connectivity. The design of the site will include eight bus bays for Gateway Transit vehicles and four bays for Greyhound or other motor coach services. The completed design will add a concourse and four additional bays. Future transit services will dictate any updated design to accommodate the growth of service needs.

Shared Corridor Commuter Rail Capacity Study

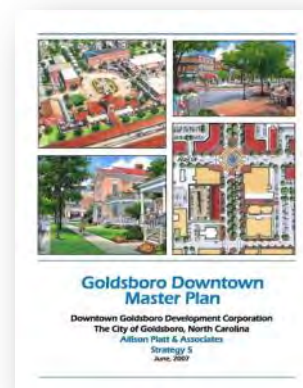
The North Carolina Railroad Company (NCRR) is the state-owned company that owns the rail corridor from Morehead City through Goldsboro to Raleigh, Greensboro, and Charlotte. Freight trains on the corridor are operated under a long-term lease by Norfolk Southern. The lease makes provisions for existing passenger rail services on the corridor, as well as any potential new services if certain conditions are met. New services would be considered if there were no interference with current NC freight operations. The NCRR prepared the Shared Corridor Commuter Rail Capacity Study in 2008 to explore the possibilities for commuter rail service on existing tracks in their network. This study was a further investigation of the information covered in the Southeast High Speed Rail Plan. The purpose of this study was to determine the feasibility of sharing tracks for commuter and freight trains, and evaluate the infrastructure costs required to accommodate the increased network traffic.



Goldsboro Downtown Master Plan

The Goldsboro Downtown Master Plan was commissioned in 2006 to develop a plan and vision for the commercial district of downtown and its surrounding historic residential neighborhoods. The development of the plan included input from citizens derived from four public forums and numerous personal stakeholder interviews. The plan focuses on the need to address the following:

- Improve the appearance of the approaches into downtown.
- Erosion of downtown edges into the historic residential neighborhoods.
- The addition of more residential and mixed uses in the downtown core.



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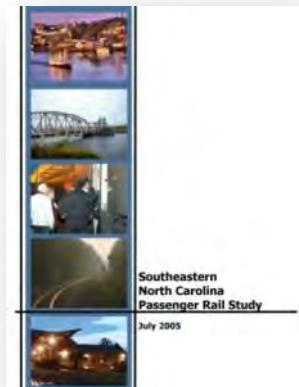
- The continued consideration of potential sites of catalyst uses and their potential major impacts to downtown and the city at-large.
- Attention to open space hierarchy and streetscapes.
- Character and image.

It is important to note that the plan has a 10-year horizon and will take time and cooperation to achieve the identified goals. Streets in downtown have an attractive urban feel but contain few amenities, especially those devoted to pedestrians. One of the main premises and concepts of the plan is the work and attention needed to support the strengthening of the historic neighborhoods that surround downtown and activities that will support the ongoing Comprehensive Historic Neighborhood Revitalization Plan adopted by the city in 2006. Two other major components of the plan include market analyses and strategies to support current plans for downtown anchors; including the Paramount Theater, community recreations center, and train station, and identification and recommendations for streetscape improvements. Streetscape improvements will create confidence and help bring people downtown, as well as make it more pedestrian friendly, aesthetically pleasing, and strengthen downtown businesses' ability to be accessible and visible.

Southeastern North Carolina Passenger Rail Study

This study was completed in 2005, with the intent of evaluating possible passenger rail routes through the major housing and employment centers in North Carolina. Several route alternatives were considered, and the projected ridership, costs, and revenues were established for each. In addition, benefits and limitations of the current infrastructure were evaluated to determine additional capital expenditures needed to make the routes a success. This study built upon a study first completed in 2001, adding an increased focus on security options and the need for alternative modes of transportation.

Two options evaluated within the study included routes that would pass through Goldsboro. The study concluded that both of the Raleigh to Wilmington route options (via Goldsboro and Fayetteville) held promise, but the difficulty for implementation would be associated with the availability of public funding. The current expectation for inter-city rail in Wayne County is that one of the two planned Raleigh to Wilmington corridors would serve the county. Stations would be at GUS and potentially in Mount Olive.

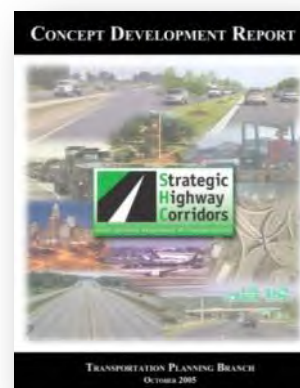


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NCDOT Strategic Highway Corridors

In September 2004, the North Carolina Board of Transportation adopted the Strategic Highway Corridors (SHC) concept as part of the state's Long-Range Statewide Multimodal Transportation Plan. The overarching purpose of the initiative is to identify, protect, and maximize the use of highway corridors that provide critical regional or statewide mobility. The intent of this state program is to enhance transportation, economic development, and environmental stewardship throughout the state. Statewide, more than 5,400 miles of designated SHCs (which includes existing and proposed facilities) account for approximately seven percent of the state highway system, but carry more than 45 percent of the traffic. A roadway's designation as a NCDOT SHC adds special emphasis to the preservation of regional mobility within the context of local access.



The Strategic Highway Corridors Vision Plan identifies two corridors in the Goldsboro Urban Area:

- Raleigh to Morehead City (Corridor 46) – US 70 – Freeway, Boulevard.
- Wilmington to Wilson (Corridor 50) – US 117 – Expressway.

These corridors are placed into one of four categories (freeway, expressway, boulevard, or thoroughfare) according to their intended function.


Designation as a SHC allows NCDOT, other agencies, and stakeholders to respect the long-term vision for the corridor, ensure consistency in the decision-making process, and maintain appropriate land use, design, and operation parameters. For each corridor segment, the Concept Development Report assigns a status of Existing, Needs Upgrade, or Recommended. The status of the SHCs within the GMPO area was considered during the needs assessment and development of recommendations.

US 70 Corridor Commission

The US 70 Corridor Commission is a united effort involving Johnston, Wayne, Lenoir, Jones, Craven, and Carteret counties intended to create positive change along the US 70 corridor. By working together, this coalition of government agencies can attract the needed resources to realize a shared vision for the corridor. The US 70 Corridor Commission envisions converting the corridor to a full freeway, replacing traffic signals with interchanges, and driveways with rear or side access to a connected secondary street system.



To accomplish this, the US 70 Corridor Commission partners with local, regional, and state government agencies to support initiatives promoting safety, mobility, and economic vitality along the corridor. This is a multi-year initiative promoting land use planning, transportation improvement, and



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economic development strategies. Short-term safety enhancements are implemented along the most needed corridor sections as funding becomes available. Longer-term access management strategies and feasibility studies work towards the ultimate goal of establishing a controlled access corridor.

Village of Walnut Creek, North Carolina Code of Ordinances

Section 92.07 (Comprehensive Plans) of the Village of Walnut Creek, North Carolina Code of Ordinances includes details pertaining to how comprehensive plans should be applied to development within the village. The ordinance states “The comprehensive plans, with the accompanying maps, plats, charts and descriptive matter, shall be and show the Planning Board's recommendations to the Village Council for the development of the area, including, among other things, the general location, character and extent of streets, bridges, boulevards, parkways, playgrounds, squares, parks, aviation fields, and other public ways, grounds and open spaces.”

The comprehensive plans and any ordinances or other measures to effectuate the plans are intended to guide and help accomplish a coordinated, adjusted, and harmonious development of the village and its environs which will, in accordance with present and future needs, best promote health, safety, morals, and the general welfare, as well as efficiency and economy in the process of development. This includes adequate provision for traffic, the promotion of safety from fire and other dangers, adequate provision for light and air, the promotion of the healthful and convenient distribution of population, the promotion of good civic design and arrangement, the wise and efficient expenditure of public funds, and the adequate provision of public utilities, services and other public requirements.

Town of Pikeville, North Carolina Code of Ordinances

The Town of Pikeville, North Carolina Code of Ordinances contains regulations pertaining to traffic, businesses, and land use. The ordinances regulate building structures, zoning, and subdivisions. Within the ordinances, the Pikeville Historic District is defined (Chapter 156) as the original downtown business district of the town and its accompanying residential areas. This area has been deemed historically significant to the local economic well-being of the greater Pikeville area.

Vision

The vision for the 2040 GMTP was developed in collaboration with the Steering Committee and validated through public outreach. The Vision is:

The 2040 Metropolitan Transportation Plan will provide a safe, efficient, and sustainable regional multimodal transportation system that meets the diverse needs of the Goldsboro area's residents, businesses and visitors.

The MPO planning process meets the considerations of the eight MAP-21 planning factors, as listed below. These planning factors provide a reasonable and practical method to assess how a transportation plan addresses the community's vision for transportation for the life of the 2040 GMTP. For practicality, the plan's goals are grouped according to eight planning factors.

Federally-Required 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 the **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 **preservation** of the existing transportation system

Goals and Objectives

Achievement of plan goals is measureable through objectives. The Steering Committee was challenged during the process of the 2040 GMTP to begin thinking about measures/targets to track progress toward the 2040 GMTP goals and objectives. Once there are federal and statewide rules established for MAP-21, NCDOT will require MPOs to conform their MTPs to those rules.

1. Economic Development

- a. **Highway Connections** - Recognize the importance of connections between US 70, I-795, and I-40 for economic development in the region.
- b. **Rail Connections** - Leverage the existing rail infrastructure to create long-term passenger and commuter rail service to Wilmington, Raleigh, and points beyond.
- c. **Aviation** - Recognize the importance of aviation to the region as an economic development driver as well as a viable transportation option.
- d. **Downtown Access** - Improve access to downtown Goldsboro.

2. Safety

- a. **Limit Crashes** - Provide a safe traveling experience for all users by improving crash locations.
- b. **Bicycle & Pedestrian Connections** - Improve facilities and connections for bicyclists and pedestrians.

3. Security

- a. **Evacuation Routes** - Protect the capacity of US 70 and other regional corridors that serve as evacuation routes for natural disasters.
- b. **Flexible Recovery** - Maintain a flexible transportation system that aids the response to and recovery from natural and manmade disasters.
- c. **Seymour Johnson Access** - Provide safe access to Seymour Johnson Air Force Base (SJAFB).

4. Accessibility

- a. **Manage Access** - Develop an access management tool, including typical cross sections, that illustrates real-world methods to address safe site access and improves system efficiency.

5. Environment

- a. **Protect** - Protect natural habitat quality to the extent practicable.
- b. **Coordinated Growth** - Integrate land use and transportation policies to limit impacts to sensitive land, focus development in prime locations, encourage trips by modes other than personal automobiles, and enhance the region's quality of life.

- c. **Preserve Greenfields** - Prioritize improvements to the existing transportation network before impacting new development areas.
- d. **All Modes** - Encourage connections and development types that support bicycling and walking.

6. Connectivity

- a. **Networked Facilities** - Connect key destinations to one another through a coordinated multi-modal network of transportation facilities.
- b. **Sidewalks** - Promote a pedestrian-friendly environment by filling gaps and improving connectivity throughout the sidewalk system.

7. Efficiency

- a. **Policy Coordination** - Outline how local policy can encourage a network of Complete Streets that operate efficiently as conduits of travel and elements of public space.
 - i. **ITS** - Identify opportunities to integrate Intelligent Transportation Systems (ITS) as part of an overall transportation management strategy.

8. Maintenance and Operations

- a. **Preserve the Network** - Emphasize preservation of the existing network that maximizes benefits to the transportation system while minimizing costs.

Plan Organization

A typical MTP consists of two parts: a description of the vision for the region and a detailed list of goals, strategies, and projects to achieve the vision. The 2040 GMTP integrates these two parts through the presentation of a series of elements dedicated to specific modes of travel. Analysis and recommendations for all modes of transportation have been created in tandem to produce a series of actions that lead to an integrated intermodal transportation system that efficiently moves people and goods within and beyond the Goldsboro region.

Chapter 2. Context

The regional, environmental, and social impacts to a community must be considered during the development and implementation of transportation improvements, particularly in regards to scale of the project. For example, large roadway projects (highway construction or expansion) or transit implementation (light rail) would require system-wide analysis to determine the impact to the natural and social environment. Smaller-scale projects such as sidewalk improvements or installation of bicycle facilities would incur less of an impact to the natural or social environment of a planning area.

Regional Context

Founded in 1789 on the banks of the historically significant Neuse River, Goldsboro became the Wayne County seat in 1847 and functioned as the transportation center for the agriculture industry. As a central junction on the railroad line, the region grew economically and served important roles throughout the Civil War and into the twentieth century. Today, Goldsboro is home to SJAFCB, Wayne Community College, Wayne Memorial Hospital, and other growing businesses. The



Historic Goldsboro, 1914

Source: Goldsboro, NC City Hall



Downtown Goldsboro

Source: URS

Neuse River continues to serve as an important natural feature in the region both for environmental tourism and conservation.

Goldsboro's historic downtown is organized in a grid pattern along the original railroad corridor. Traveling from this urban core to the edges of the Goldsboro Urban Area, development occurs at lower suburban and rural densities. The goal of providing updates to the existing transportation network is to ensure that the Goldsboro Urban Area

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grows in accordance with relevant development polices, while also considering the existing and future needs of the community. This includes increasing regional accessibility to North Carolina's robust Piedmont-Triangle area to the west, and coastal areas to the east. Accessibility will be achieved through strengthened transportation networks. As stipulated by federal and state legislation, current transportation planning processes focus on the benefits and impacts of projects on both the natural and human environment through technical analyses and public participation. The natural and human environment have the potential to be impacted during roadway or other infrastructure improvements and are considered in detail in this plan.

Planning Implications

The planning process for the 2040 GMTP incorporates an analysis of the environmental and social context of the Goldsboro Urban Area. This allows for an evaluation of system-wide and project-specific impacts potentially resulting from new transportation projects. This chapter assesses the area's environmental and social features and includes maps, figures, and tables that further illustrate the natural, cultural, and demographic occurrences and trends in the Goldsboro Urban Area.

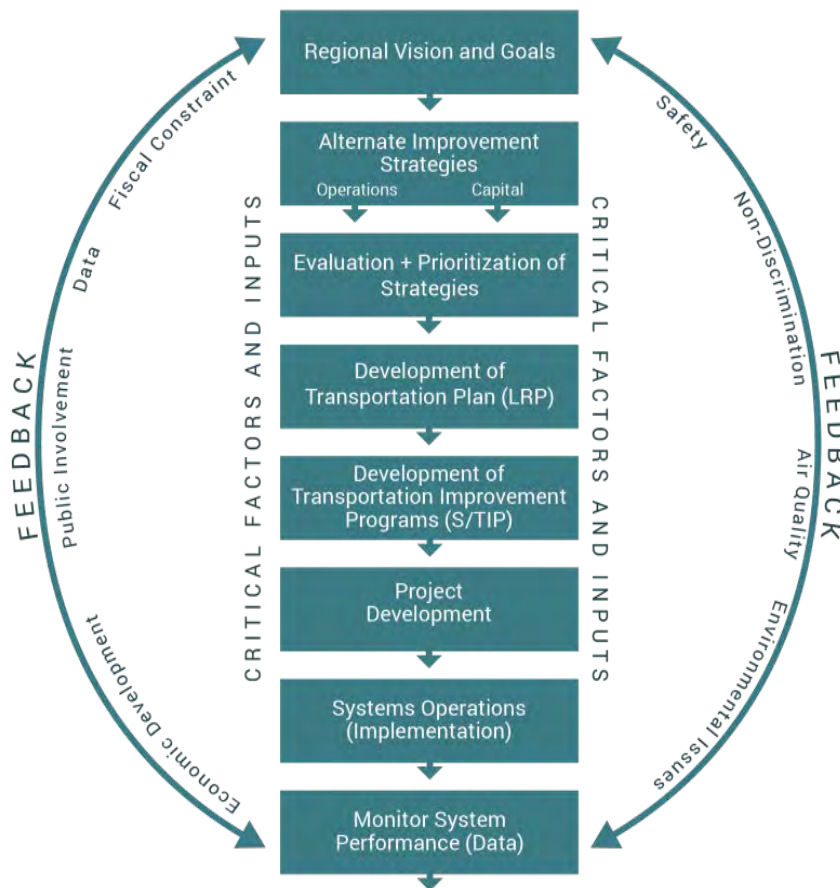


Exhibit 2-1: Planning Process Matrix

Source: FHWA, URS

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Environmental Stewardship

Environmental stewardship serves the unique purpose of raising awareness to the conservation of natural resources during the planning and implementation of transportation projects. This includes the identification of important and/or sensitive environmental features that are in need of protection or conservation. The 2040 GMTP coordinated with local efforts to identify and take appropriate steps toward environmental stewardship. This is encouraged and addressed throughout this document in each recommended transportation improvement.



Waynesborough Park, Wayne County

Source: URS

Environmental Justice

In coordination with the US Department of Transportation (USDOT), environmental justice efforts are a key part of developing transportation updates for the Goldsboro Urban Area. Since the Civil Rights Act of 1964, environmental justice has been a federal requirement. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The focus is placed on mitigating the use of federal funds for project, programs, or activities that have the potential of generating disproportionate or discriminatory impacts on minority or low-income populations. This includes an evaluation of health and environmental effects, as well as providing opportunity for full and fair community participation throughout the planning process.

Stipulated in the USDOT environmental justice efforts, the unique needs of distinct socioeconomic or community groups must be considered in coordination with transportation projects. The following principles from USDOT environmental justice guidance were incorporated into the planning process for Goldsboro's transportation update:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- Ensure all potentially affected communities' full and fair participation in the transportation decision-making process.

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- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Guiding Principles

Environmental resources and social characteristics of communities throughout the Goldsboro Urban Area shall be considered throughout the process of developing new transportation projects. A goal of new transportation projects is to provide both connectivity and mobility for people and goods while preserving natural heritage and quality of life. Natural heritage is the term used to describe all elements of biodiversity, including flora, fauna and ecosystems in association with geological structures and formations. The process of identifying transportation improvements to serve the community, and the consideration of measures to protect the unique natural and social characteristics that define the community come together through an integrative planning process that strikes a balance between development (mobility, economic, and growth factors) and conservation (natural, social, and historic features). This process also aims to alleviate community histories that were disproportionately impacted by urban renewal projects as well as reduce unnecessary cost factors that may arise throughout project implementation.

Information collected was used as a guiding principle in the development of the project evaluation matrix (Table 4-3), and was used to screen each identified and potential project in relationship to potential environmental and social impacts. Public Participation also played a substantial role in developing project recommendations for the financially constrained plan.

The following set of principles was used as guidance during the consideration of transportation improvements. These principles consider best practices that are consistent with MAP-21 provisions, including the provision to protect the environment. Analysis was performed (Table 4-3), using spatial analysis (GIS mapping, Google Maps) and past reports. GIS data was received from the county and GMPO. State-side GIS data including NCDENR, NC Flood, and US Census was also incorporated into the analysis.



Berkeley Boulevard

Source: URS

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- Natural Environment
 - Avoid or minimize impacts to wetlands.
 - Avoid or minimize impacts streams and bodies of water.
 - Avoid or minimize critical watershed areas.
 - Avoid or minimize number and size of impacts to threatened and/or endangered species.
 - Consider Federal Emergency Management Agency (FEMA) designated floodplains.
 - Consider topography.
- Built Environment
 - Avoid or minimize disproportionate impacts to minority and/or low-income communities.
 - Avoid or minimize impacts to the built environment.
 - Avoid or minimize impacts to neighborhoods.
 - Avoid or minimize impacts to parks and open spaces.
 - Avoid or minimize impacts to schools.
 - Avoid or minimize impacts to historic sites or districts.
 - Consider existing and future land use.
 - Consider existing and future street connectivity.
 - Consider and promote multimodal systems including pedestrian, bicycle, and alternative transit opportunities.

Environmental Context

The Goldsboro Urban Area has an abundance of natural resources as shown on Figure 2-1. This includes 12 urban parks, one mountain bike trail, 140 acres of greenways, two recreation centers, and a 135 acre golf course managed by the Parks and Recreation Department. The Cliffs of the Neuse State Park and Waynesborough State Park, amongst other regional natural spaces provide many diverse natural resources to the area. There is also hope that the Mountains-to-Sea Trail, an on-going effort to link Clingman's Dome in the Great Smoky Mountains National Park to Jockey's Ridge State Park on the Outer Banks, can be routed through Wayne County.

The region is home to natural and historic water features including Lake Wackena, Little River, Neuse River, Quaker Neck Lake, and Walnut Creek. The Neuse River is the primary water source for the region and drains approximately 90 percent of Wayne County. The Cape



Stoney Creek Park

Source: URS

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Fear River drains the remainder of the county. There are four significant natural heritage areas (SNHA) designated by the North Carolina Natural Heritage Program (NCNHP) within the Goldsboro Urban Area.

According to the NC Department of Environmental and Natural Resources (NCDENR), these include more than 700 acres of both protected and unprotected areas that feature high levels of



Neuse River at crossing of US 117

Source: Google Maps

natural diversity. Wetlands contribute to these diverse ecosystems and are present throughout the Goldsboro Urban Area, particularly to the south around the Cliffs of the Neuse State Park. According to the Goldsboro Urbanized Area Comprehensive plan, approximately 17 percent of the urbanized area is classified as wetland, located primarily in FEMA-defined flood hazard areas. With many natural water features, approximately 44 percent of the Goldsboro Urban Area has access to good water supplies for drinking, culinary, or food processing purposes (designated as Water Supply IV, or WS-IV, according the NC Division of Water Resources).

A large portion of the Goldsboro Urban Area supports farmland. This includes prime farmland and farmland in Agricultural District programs. The purpose of Voluntary Agricultural Districts (VADs) is to encourage the preservation and protection of farmland and non-farm development. In the Goldsboro Urban Area, there are approximately 83,670 acres of prime farmland (48 percent of total land) and over 4,000 acres of VADs according to the Wayne County US Department of Agriculture (USDA) Extension Office.

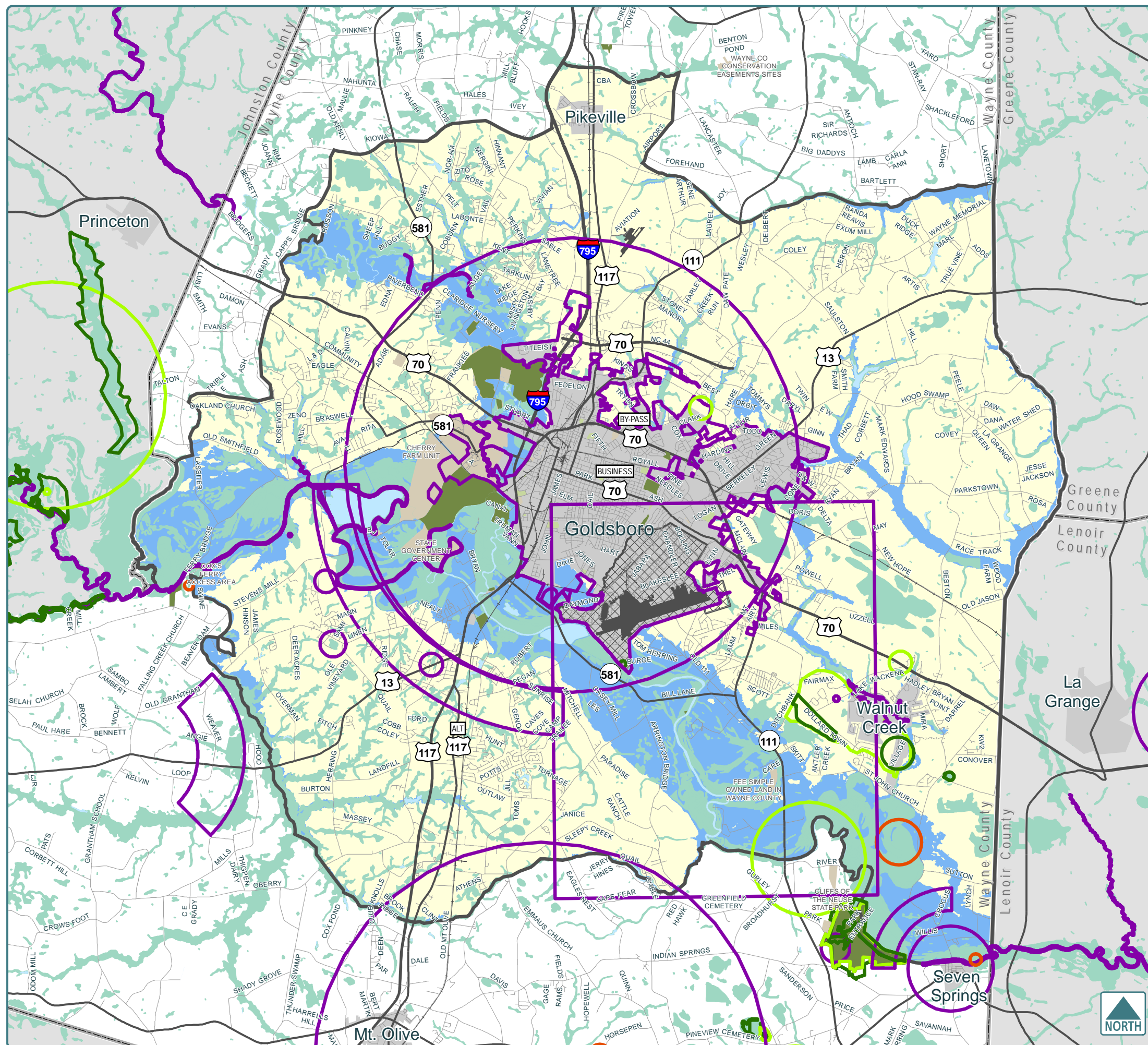
The conservation of these important natural resources can be accomplished through adequately identifying and coordinating environmental stewardship, local initiatives, and other protections. The sustainable growth of the Goldsboro Urban Area is largely dependent on the balance of expanding to accommodate growth while managing and minimizing impacts to the area's vital natural resources. Through the identification of these resources, planning guidelines are established that inform the process of developing transportation updates for the Goldsboro Urban Area.

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Figure 2-1: Environmental Resources



- Interstate
 - US Route
 - NC Route
 - Secondary Road
 - Railroad
 - Airport
 - ▣ Seymour Johnson AFB
 - ▣ Body of Water
 - ▣ Wetland
 - ▣ 100 Year Flood Zone
 - ▣ Urban Park
 - ▣ Land for Conservation / Open Space
 - ▣ State Owned Land
 - ▣ Goldsboro ETJ
 - ▣ Goldsboro Metropolitan Area
 - ▣ Municipal Boundary
 - ▣ Wayne County
- Natural Heritage Elements**
- ▣ Animal
 - ▣ Animal Assemblage
 - ▣ Natural Community
 - ▣ Plant

Notes:
- Data and symbology sourced from NCDNR Natural Heritage Element Occurrences, 2014.

0 105 210 Miles October 2014



Goldsboro Urban Area

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Social Context

Relationships between transportation and land use exist within the larger context of metropolitan growth and community structure. The 2040 GMTP considers the location and distribution of social resources and the demographics of the Goldsboro Urban Area as shown on Figure 2-2. Identifying key social resources in the community allows for support of the growth and development patterns expected for the Goldsboro Urban Area.

The social resources of a community provide essential needs for the entirety of the population, including the provision of basic services and recreational opportunities. Transportation planning plays a key role in connecting these resources and planning for future development and growth, enabling more efficient and sustainable movement to and from community resources. A primary resource that requires reliable access is the Goldsboro Urban Area's medical services. One resource of major importance is Wayne Memorial Hospital, the area's only acute care hospital that provides primary medical services to Goldsboro and surrounding communities. Additional health and wellness services are available in the area, including services focused on health promotion, minority health, food initiatives, and much more. The abundant recreational areas including parks and activity centers help promote physical activity for improved health.



Goldsboro Post Office

Source: URS



Wayne County Public Library

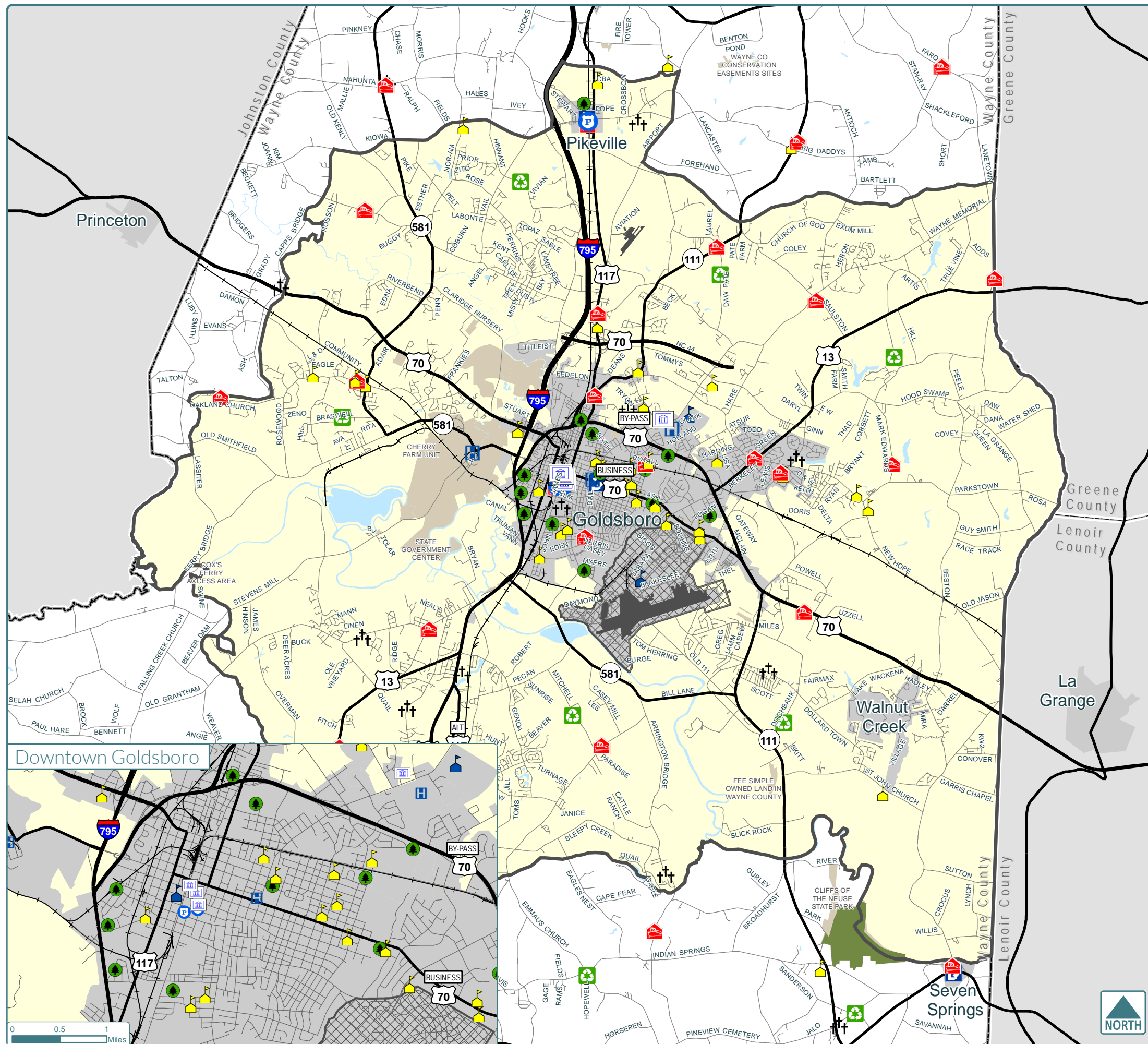
Source: URS

GOLDSBORO URBAN AREA

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Figure 2-2: Social Resources



- | | |
|--|---|
| <ul style="list-style-type: none"> Interstate US Route NC Route Secondary Road Railroad Airport Seymour Johnson AFB Body of Water Cliffs of the Neuse State Park State Owned Land Goldsboro Metropolitan Area Municipal Boundary Wayne County | Social Resources <ul style="list-style-type: none"> School College Government Building Hospital Fire Station Police / Sheriff Park Recycle Center Library Cemetery |
|--|---|

0 1 2 Miles October 2014



Goldsboro Urban Area

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Safety provisions such as police, fire and rescue, and EMS all offer a wide range of emergency services that require timely response and travel times to efficiently serve and protect the Goldsboro Urban Area. Social resources in the community extend to government facilities including the Goldsboro City Offices and other municipal and regional services. There are a number of educational centers that require attention when considering transportation improvements to plan for ease of access and for growing areas.

Amongst a number of public and private schools and institutions, Wayne Community College and North Carolina Wesleyan College serve as the area's higher academic institutions.

According to the Envision 2035 Plan, the protection and enhancement of its historic structures and neighborhoods are critical to the revitalization of the Central Business District and local character of Goldsboro. Seven structures, including the historic train station, factory buildings, churches, and homes, are listed on the National Register of Historic Places. Many of these historic residential and commercial structures date from the mid-1800s to the 1950s, where some are located in Goldsboro's nationally designated historic district (designated in 1984).

Other features include churches that function as social and cultural resources for the communities they serve, varying greatly in denomination. These facilities may also be used as community



First Pentecostal Holiness Church

Source: URS



Farmers Market at Herman Park

Source: URS



Wayne County Community College

Source: URS

Goldsboro Urban Area

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gathering spaces or for other neighborhood functions. The Wayne County Public Library is also an important cultural feature and provides a number of resources to the community it serves. These include meeting spaces, educational or training opportunities, and access to internet and computer services in otherwise underserved households.

The provision and accessibility to these social resources are important in the development of recommendations for transportation improvements. The identification of these resources is necessary because they serve as centers of activity and have prime influence on the location and distribution of transportation needs. Many of the medical and safety services are evenly distributed throughout the Goldsboro Urban Area, while many of the cultural resources such as historic sites, churches, and libraries are more densely located within the municipal bounds of Goldsboro.



Goldsboro City Hall Complex

Source: URS



First Presbyterian Church

Source: URS



Saint Mary Roman Catholic Church

Source: URS

Goldsboro Urban Area

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Existing Demographics

As a part of the 2040 GMTP, a demographic analysis was completed to provide an overview of the existing population. The analysis was based on 2000 and 2010 US Decennial Census data and 2007-2011 American Community Survey (ACS) estimate data.

The minority and low-income populations were identified to particularly assess what impacts might be incurred as a result of the transportation recommendations developed. This is also an important measure in avoiding or minimizing potential impacts to a community or specific neighborhood.

Population and Age

Goldsboro serves as Wayne County's center of government, economy, and culture. With an area of 269 square miles, the Goldsboro Urban Area holds the majority of the county's population at 102,918 people in 2010, a 4.1 percent increase from a population of 98,047 in 2000 (see Figure 1-1 for the Goldsboro Urban Area). Wayne County's population was 121,324 in 2010, a 7.0 percent growth in population in the last decade. This increase is below statewide population changes, which

experienced a 17.0 percent growth from 2000 to 2010 (8,049,313 people in 2000 and 9,418,736 people in 2010 statewide). A comparison of growth at the county and Goldsboro Urban Area levels suggests that more people are choosing to reside in the suburban extents of the county located outside of the Goldsboro Urban Area. Much of this movement could be a result of the availability of more affordable land or newer housing stock in suburban areas.

The Goldsboro Urban Area has maintained high levels of attractiveness for a diverse age range, with a high proportion of both male and female working-age individuals. Based on 2007-2011 ACS data, the Goldsboro Urban Area has a median age of 38, while

Wayne County is slightly younger with an average age of 36. These numbers nearly parallel the state median age of 37.

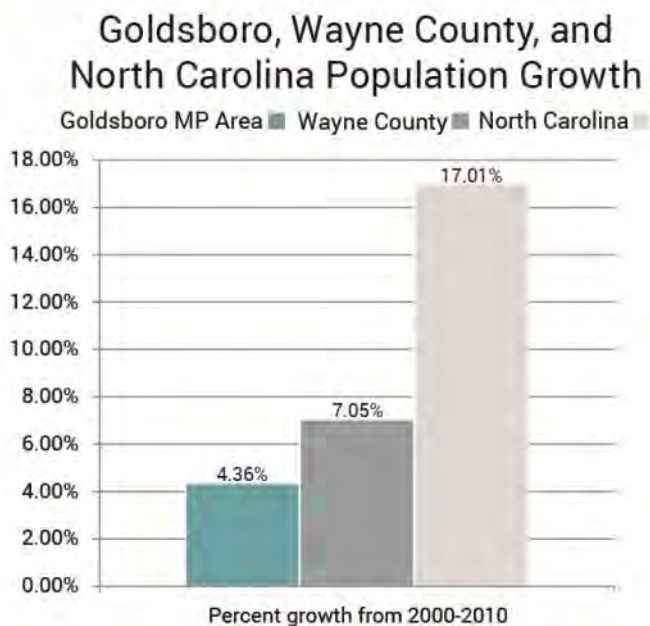


Exhibit 2-2: Goldsboro, Wayne County, and North Carolina Population Growth
Source: US Census, ACS 2007-2011

Goldsboro Urban Area

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Approximately 26 percent of the population in the Goldsboro Urban Area is under 18 years old, 46 percent is between the ages of 30 and 64, and 12 percent is age 65 and older.

Compared to the county as a whole, 21 percent is under 18 years old, 45 percent between the ages of 30 and 64, and 13 percent is age 65 and older. Consistent with age demographic throughout the state, approximately 27 percent of the population in North Carolina is under 18 years old, 47 percent is between the ages of 30 and 64, and 13 percent is age 65 and older.

Improvements to roadway and transportation networks will be imperative as the area continues to attract a population that requires diverse transportation needs. These improvements include more efficient roadways for increased growth in traffic and options for the aging population that may require alternative transportation.

Minority and Race

The minority population¹ in the Goldsboro Urban Area is 45,697 people, approximately 44 percent of the total population as shown on Figure 2-3. The minority population for the county as a whole is equal to the Goldsboro

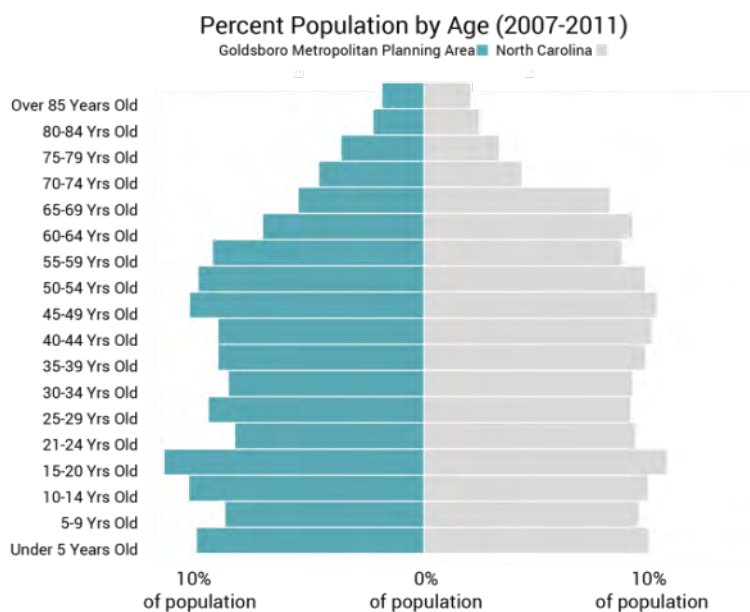
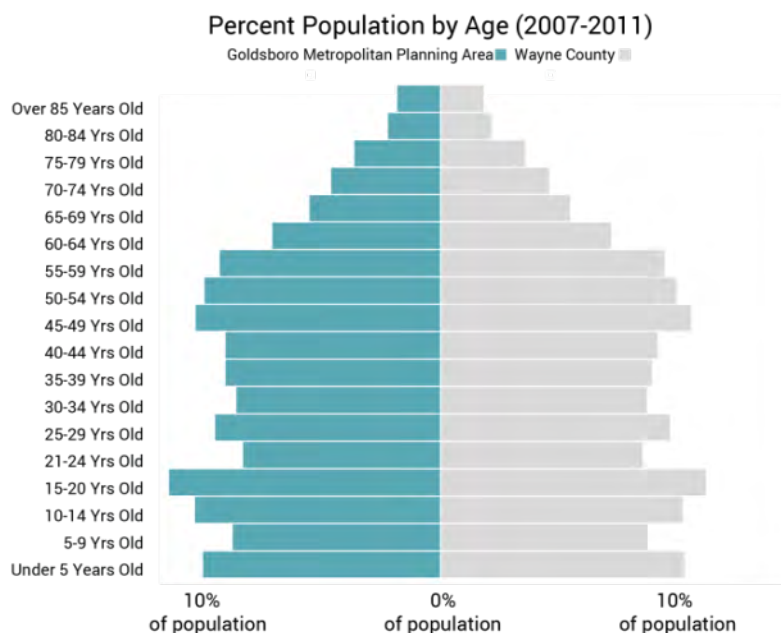



Exhibit 2-3: Percent Population by Age

Source: US Census, ACS 2007-2011

¹ Calculated by subtracting White, Non-Hispanic population totals from the Total Population based on 2007-2011 ACS data.



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Urban Area distribution, of 53,449 people, 45.0 percent of the Wayne County population is considered minority. When compared to North Carolina averages, the minority population is 34.3 percent (3,234,959 people).

The Goldsboro Urban Area is predominantly white (57.5 percent) and African-American (33.1 percent), with the remainder of its population defined as American Indian, Asian, Hawaiian/Pacific Islander, or Other. The Hispanic/Latino population comprises 7.8 percent of the Goldsboro Urban Area as shown on Figure 2-4. Wayne County has a similar composition of predominantly white (58.2 percent) and African-American (31.0 percent) population, with the remainder of its population defined as American Indian, Asian, Hawaiian/Pacific Islander, or Other. The Hispanic/Latino population comprises 9.5 percent of the county, moderately higher than the Goldsboro Urban Area. In the state of North Carolina, the white (65.7 percent) and African-American (21.2 percent) populations define the majority with the remainder of its population defined as American Indian, Asian, Hawaiian/Pacific Islander, or Other. The Hispanic/Latino population represents 8.1 percent of the population in the state. Such minority and racial compositions indicate a more diverse composition of people living in the area. This will require greater attention to diverse planning needs that may be necessary as a result of the demographic environment.

Regional Poverty Rates

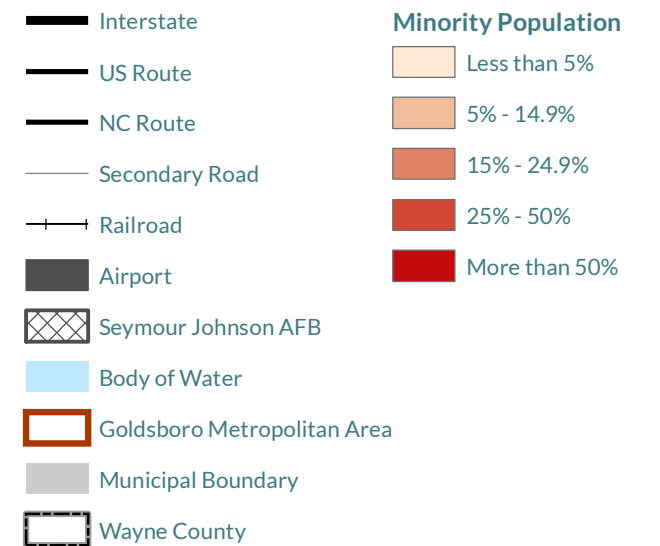
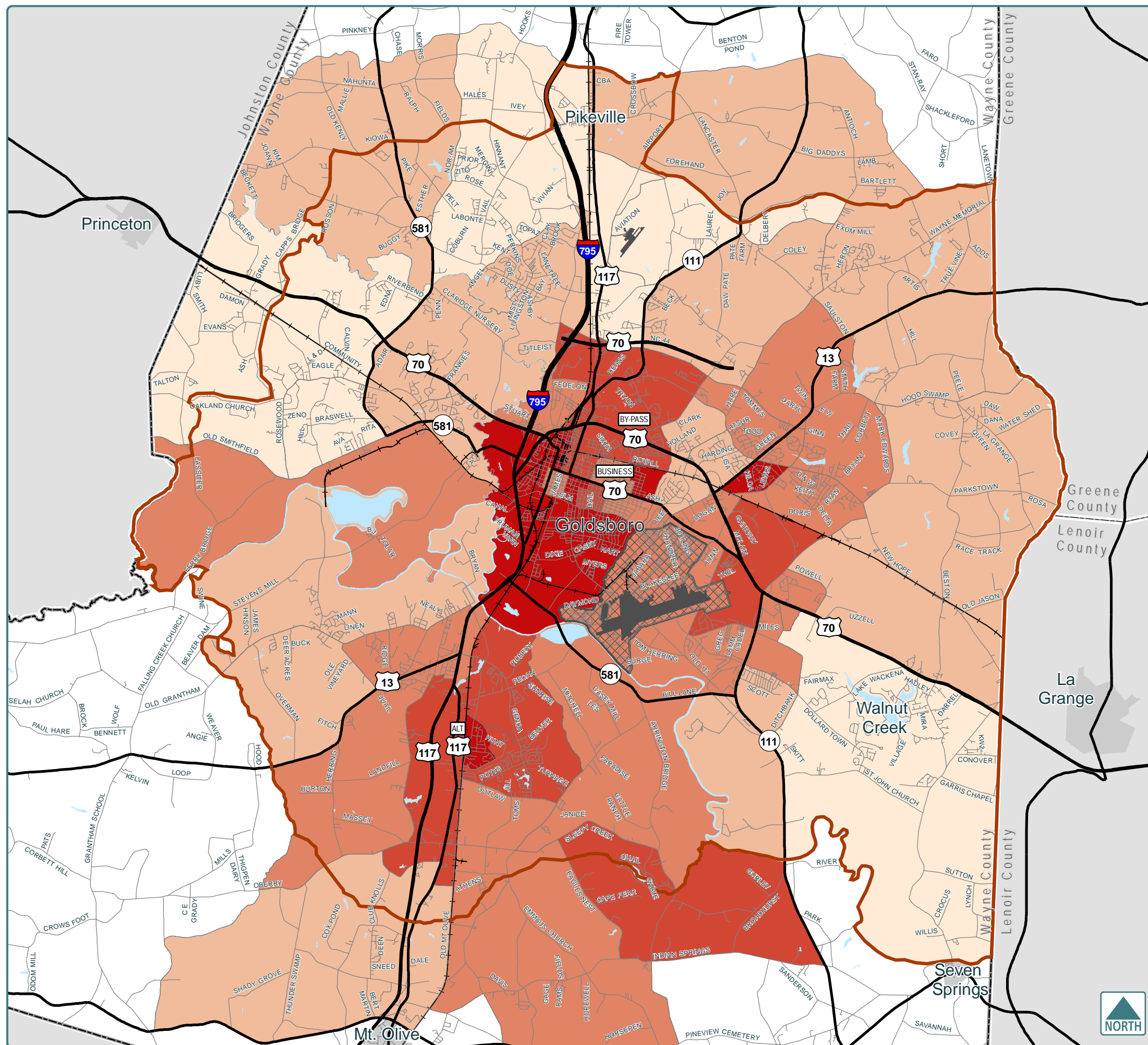
Individuals living below the poverty line in the Goldsboro Urban Area comprise approximately 19.0 percent of the population as shown on Figure 2-5. This is marginally lower than the county population below the poverty line at 20.0 percent, but higher than the state at 16.8 percent. These poverty rates have increased since 2000, where the Goldsboro Urban Area had a 12.0 percent rate, the county 13.8 percent, and the state 13.1 percent. The increase reflects national shifts in higher poverty rates, due strongly to the 2008 financial recession. The national poverty rate for the country in 2000 was 12.4 and increased in 2011 to 14.3 percent.

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Figure 2-3: Minority Population



Notes:

- Data is shown at the block group level based on US Census ACS 2007-2011 count data.
- Data is normalized against total population count to reflect the percent of total contained in shown feature.

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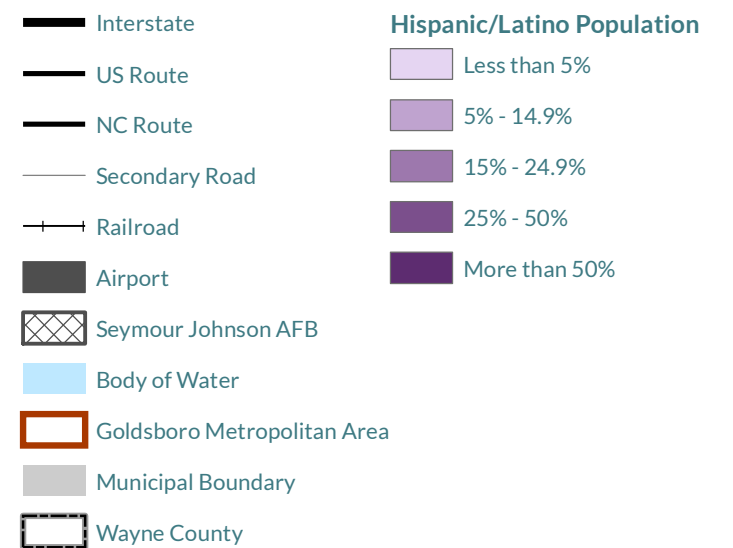
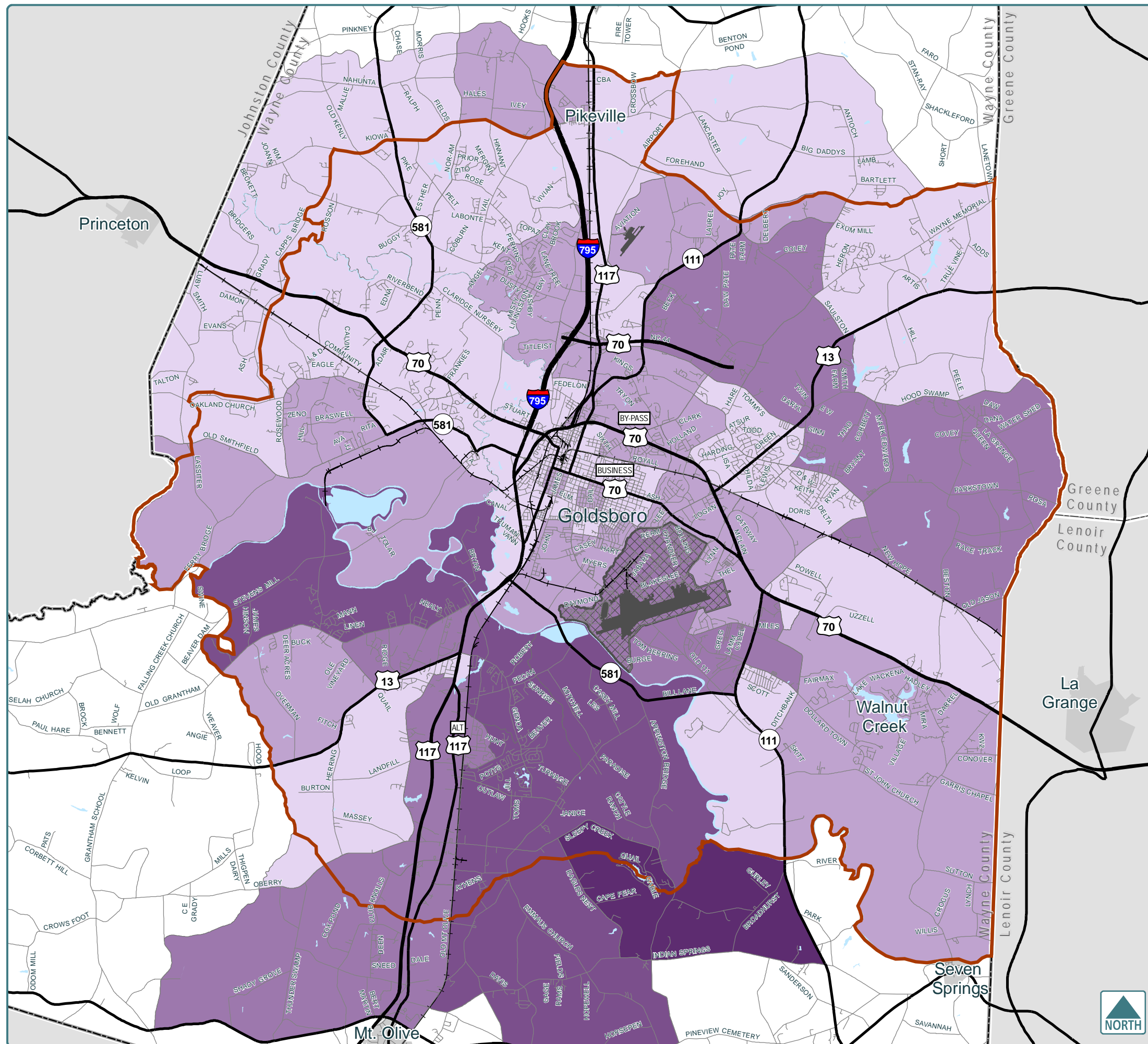


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Figure 2-4: Hispanic/Latino Population



Notes:

- Data is shown at the block group level based on US Census ACS 2007-2011 count data.
- Data is normalized against total population count to reflect the percent of total contained in shown feature.

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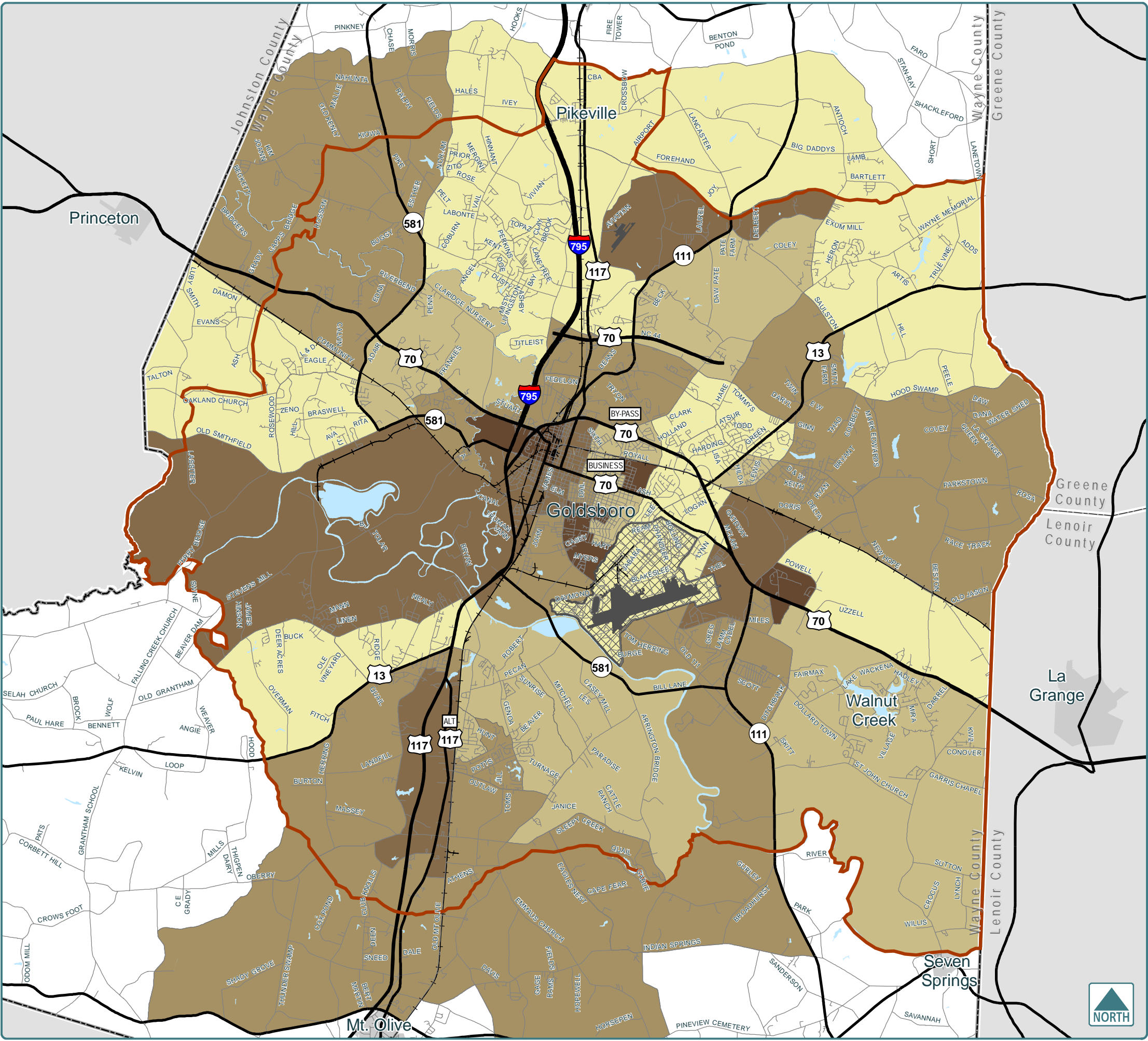


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Figure 2-5: Population Below the Poverty Line



Interstate

US Route

NC Route

Secondary Road

Railroad

Airport

Seymour Johnson AFB

Body of Water

Goldsboro Metropolitan Area

Municipal Boundary

Wayne County

Population Below Poverty

Less than 5%

5% - 14.9%

15% - 24.9%

25% - 50%

More than 50%

Notes:

- Data is shown at the block group level based on US Census ACS 2007-2011 count data.
- Data is normalized against total population count to reflect the percent of total contained in shown feature.



Chapter 3. Existing Travel Network Conditions

Introduction

Current conditions of travel within the Goldsboro Urban Area were studied and analyzed to gain an understanding of how the population moves. The analyses included a study of employment and commuting trends and an understanding of activity centers and transportation context. Additionally, a crash analysis was conducted using NCDOT planning-level data.

The transportation context is the entire network which includes all modes of travel:

- Roadway
- Public Transportation
- Bicycle and Pedestrian
- Freight Movement
- Aviation
- Rail

A successful network involves the ability of each mode to work in concert with other modes.

Employment and Commuting Trends

Employment

Primary employment centers in the Goldsboro Urban Area that attract peak hour trips each day include the City of Goldsboro, Wayne Memorial Hospital, Wayne Community College, and SJAFB. Commercial development along corridors such as US 70 and US 117 contribute to traffic congestion throughout the Goldsboro Urban Area. Traffic volumes to these employment centers and along primary transportation corridors will continue to worsen as population increases. The existing transportation network will experience insufficiencies as a result and will rely on transportation planning to prepare for these shifts in growth and development.

Assessing the existing transportation system will aid in developing key transportation recommendations for the Goldsboro Urban Area. These needs and priorities are evaluated through



Wayne Memorial Hospital

Source: URS

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employment and commuting trends, the existing transportation context, functional classification, corridor operations, traffic safety and crash history, and bridge conditions.

The Wilmington and Weldon Railroad stimulated early job growth and economic prosperity in the Goldsboro region. Today, both the Goldsboro Urban Area and Wayne County have a diverse mix of industry with predominate employment sectors county-wide in management/business (29.0 percent), education (25.2 percent), manufacturing (13.5 percent), retail trade (11.0 percent), and armed forces (3.8 percent - as a result of SJAFOB). Total employment² (the percent of the population active in the labor force) in the Goldsboro Urban Area is consistent with the Wayne County average (approximately 63 percent in both). Unemployment for Wayne County as a whole in 2011 was 6.3 percent, below the state rate of 10.2 percent.³



Seymour Johnson Air Force Base

Source: URS

Vehicle Access and Commuting Modes

According to US census data, approximately eight percent of the labor force population does not have access to a vehicle to travel to work.⁴ Approximately three percent of the labor force in the Goldsboro Urban Area and Wayne County are one-vehicle households. These statistics are relatively low for the area and indicate a predominate dependency on vehicular use, as shown in Exhibit 3-1. Nearly 95 and 99 percent of the total population commute by car, truck, or van in the Goldsboro Urban Area and Wayne County, respectively.



Gateway Transit Services

Source: URS

The overall population utilizing public transportation is low compared to the total population in the region. The use of the Gateway Transit bus service dominates public transit commuters. Those

² Rates shown as percentage of the labor force derived from the US Census, ACS 2007-2011.

³ Bureau of Labor Statistics, 2011 Local Area Unemployment Statistics.

⁴ US Census, ACS 2007-2011.

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individuals using bicycles or walking to commute are most likely associated with the college and universities in the area.

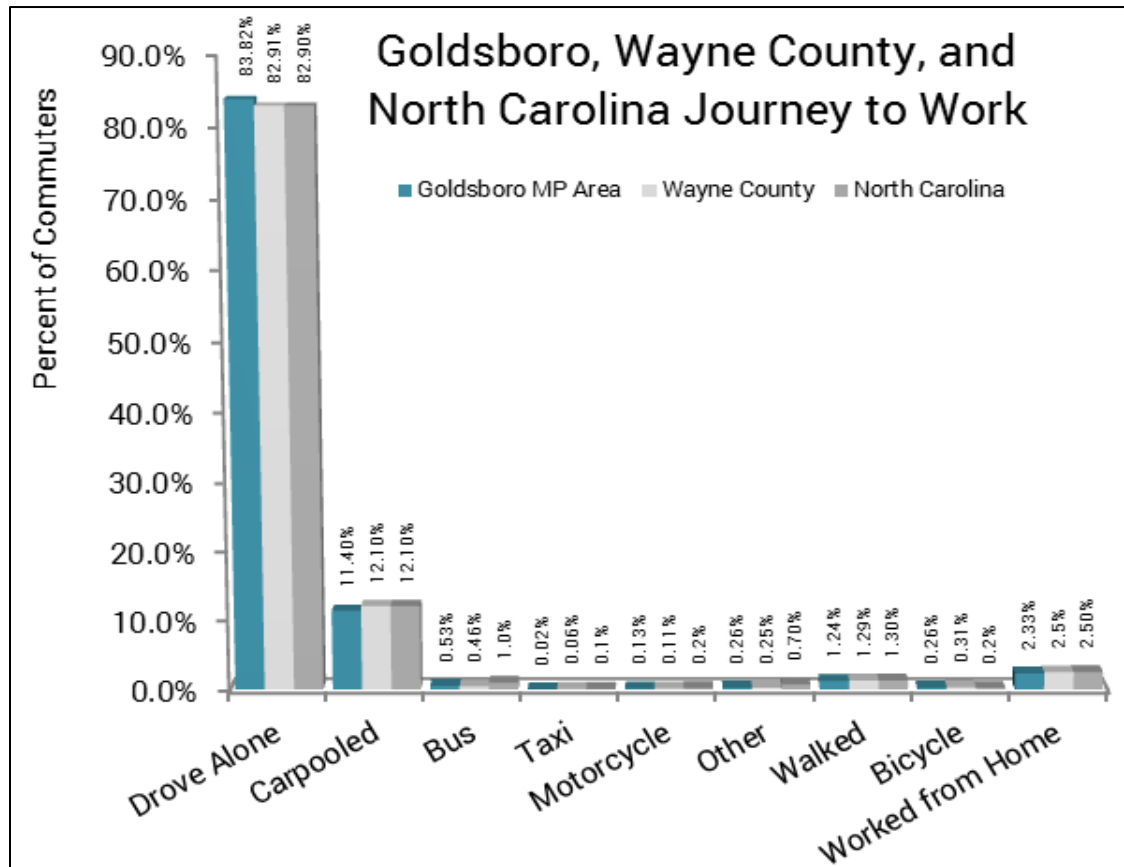


Exhibit 3-1: Goldsboro, Wayne County, and North Carolina Journey to Work

Source: US Census, ACS 2007-2011

Commuters in both the Goldsboro Urban Area and Wayne County have minimal commute times, averaging between five and 19 minutes as shown in Table 3-1. With more commuters traveling less than 20 minutes to work, it can be assumed many individuals in the labor force live within close proximity to their place of employment.

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Table 3-1: Commuting Patterns by Time

	MPO	County	State*
Total Commuters	45,133	51,730	4,221,511
Time	Percent		
Less than 5 min	4.8	4.7	13.5
5-19 min	53.1	49.7	33.0
20-29 min	20.9	21.5	22.8
30-39 min	9.2	11.1	16.2
40-59 min	5.7	6.6	9.3
60-89 min	4.1	3.9	5.3
90+ min	1.9	2.0	5.3

US Census, 2007-2011 ACS data

*State data are approximations based on divergent time ranges at the state level to time ranges of the GMPO and county level data.

Transportation Context

Centers of Activity

As the center of activity and commerce in Wayne County, Goldsboro attracts a high volume of vehicle trips per day. This is particularly true for the area's large employment centers including SJAFB, Wayne Community College, and Wayne Memorial Hospital. Primary transportation corridors such as I-795, US 70, and US 117 serve as the predominate linkage between residential areas and commercial development, as well as other regional centers including Wilson to the north and Kinston to the east. It is necessary to plan for growing and shifting population and traffic increases in order to mitigate potential traffic safety and efficiency issues. Through the process of developing transportation updates for the Goldsboro Urban Area, the needs and priorities of traffic-related concerns are addressed by analyzing existing activity centers, road networks, corridor conditions, traffic counts and crash data.



Steering Committee identifying Centers of Activity Source: URS

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Identifying activity centers provides insight into the region's most significant destination places. Improvements to roadways often enhances access to these centers of activity and results in raising the price of land while attracting more development. This connection between land use and transportation is an interdependent relationship and links key activities in an area. Key activities include residential needs, educational opportunities, employment clusters, social destinations, and recreational activities (including retail and natural areas).

Activity centers can generally be grouped into three categories: regional, community, and neighborhood (as illustrated in Table 3-2 and Figure 3-1). The hierarchy is based on population size and intensity of land use and transportation options. A challenge in connecting these activity hubs is balancing enjoyable, efficient, and safe transportation options for all three scales. This is particularly important in ensuring that transportation options meet the needs of neighborhood activity centers, as the needs and priorities may differ greatly from larger, dominant regional activity centers. Understanding and planning for the interaction between these areas of activity and the transportation corridors which connect them is vital to provide efficient access, preserve local character, and conserve the natural environment.

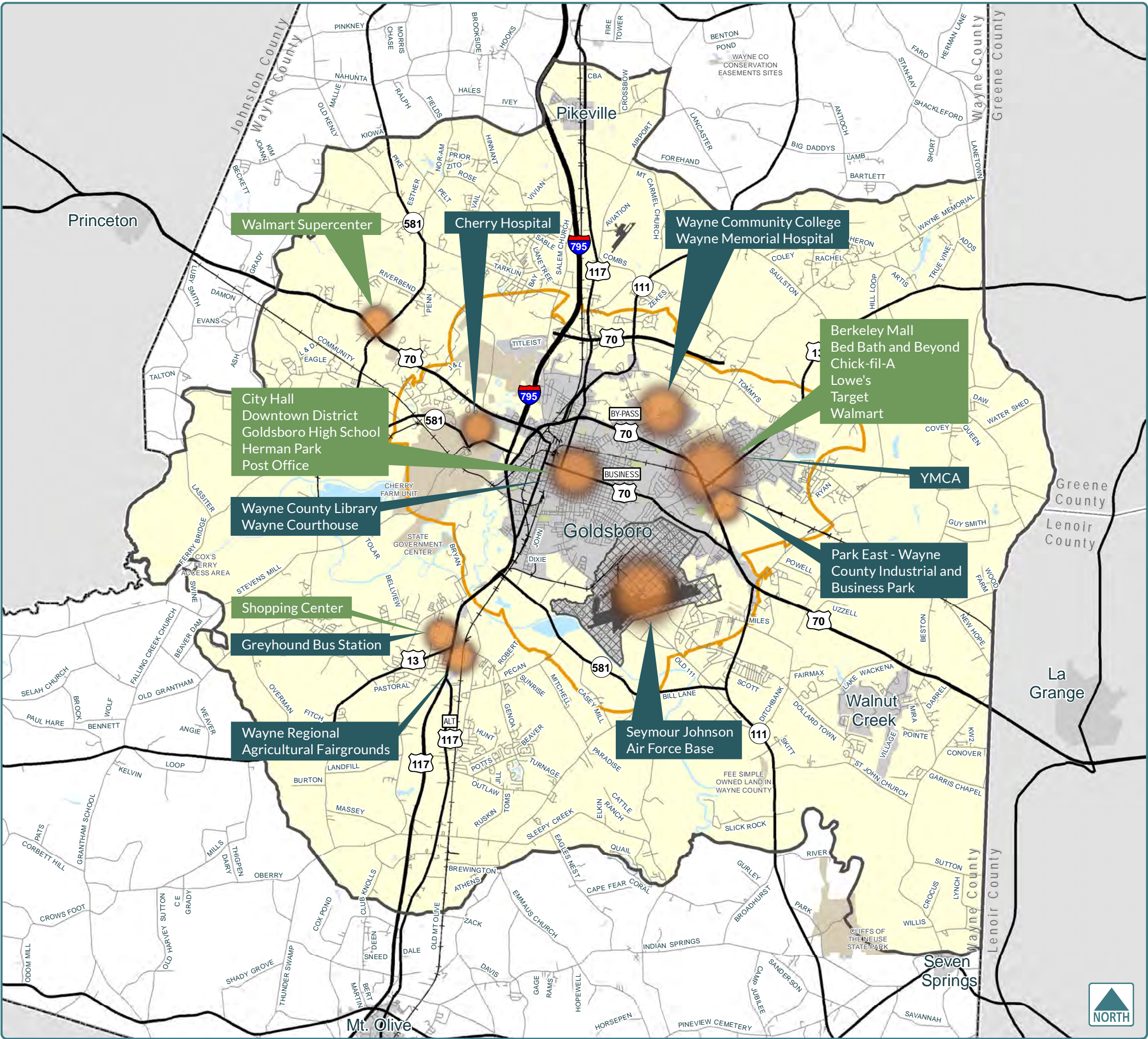
Table 3-2: Centers of Activity
Regional Activity Center
Larger in scale based on population size and function as employment center
Higher intensities of land use in core areas, including higher densities of commercial and residential areas
Transit services are available in greater density
Served by municipal water and sewer
Accessed by expressways and freeways, principle arterials, and public transportation
Community Activity Center
Smaller in scale than a regional activity center based on medium-scale development
More balanced diversity of land use intensities in core areas, including a more even mix of residential and commercial functions (40% / 60%) and transit services
Accessed by major arterials and public transportation
Served by municipal water and sewer
Neighborhood Activity Center
Smaller in size based on population and mostly residential development
Mixture of land uses in core area in close proximity, including commercial and residential uses providing specific needs for a neighborhood
Transit services are less dense
Accessed by minor arterials, collectors, or local roadways
Water and sewer services are more generally independent

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Figure 3-1: Centers of Activity



Interstate

US Route

NC Route

Secondary Road

Railroad

Airport

Seymour Johnson AFB

Body of Water

Urban Park

State Owned Land

Goldsboro ETJ

Goldsboro Metropolitan Area

Municipal Boundary

Wayne County

Centers of Activity

Centers of Activity by Scale

Regional

Community

Neighborhood*

Notes:

- Activity Center locations are based on the Data Collection/Centers of Activity Exercise that took place during the June 11, 2014 Steering Committee Meeting.
- See Table 3-1 for descriptions of Regional, Community and Neighborhood Activity Centers.
- * There are no Neighborhood Activity Centers displayed on this map due to scale of map.

0 1 2 Miles October 2014



Existing Roadway Conditions

Functional Classification

Streets and highways provide connectivity amongst and between our urban and rural areas and are classified by the FHWA into three distinct categories according to function. These systems include arterials, collectors, and local roads. Land access (both existing and future) and roadway mobility provide the basis for the classifications, which range from expressways to local roads.

Classifying roadway systems in this way offers commonality of language amongst stakeholders involved in the development process when planning transportation systems. Identifying the function of different systems also offers more in-depth studies of the context of that roadway. This allows for more specific transportation upgrades to be determined for increased efficiency and local needs. The roadways within the Goldsboro Urban Area have been identified on Figure 3-2.

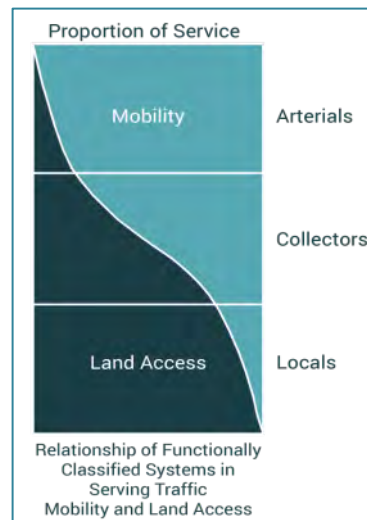


Exhibit 3-2: System Relationships
Source: FHWA, Adapted by URS

Arterial Roadways

Arterials (45 mph or higher) provide a high level of service and speed with strict control of access and minimal site driveways. This classification has the longest uninterrupted distance with minor access on and off the system. Expressways and freeways are considered arterials and offer the longest distance of travel with the highest speeds. Arterials can also be classified into major and minor arterials, differing in increased points of access (tightly controlled access points versus major driveways and access points) and moderate-to-low speeds. They are the predominate roadways which connect to other arterials and collector streets. New arterials and improvements to existing arterials are generally funded by the state. Arterials are essential in supporting regional mobility.

Table 3-3: Arterial Roadways in Goldsboro

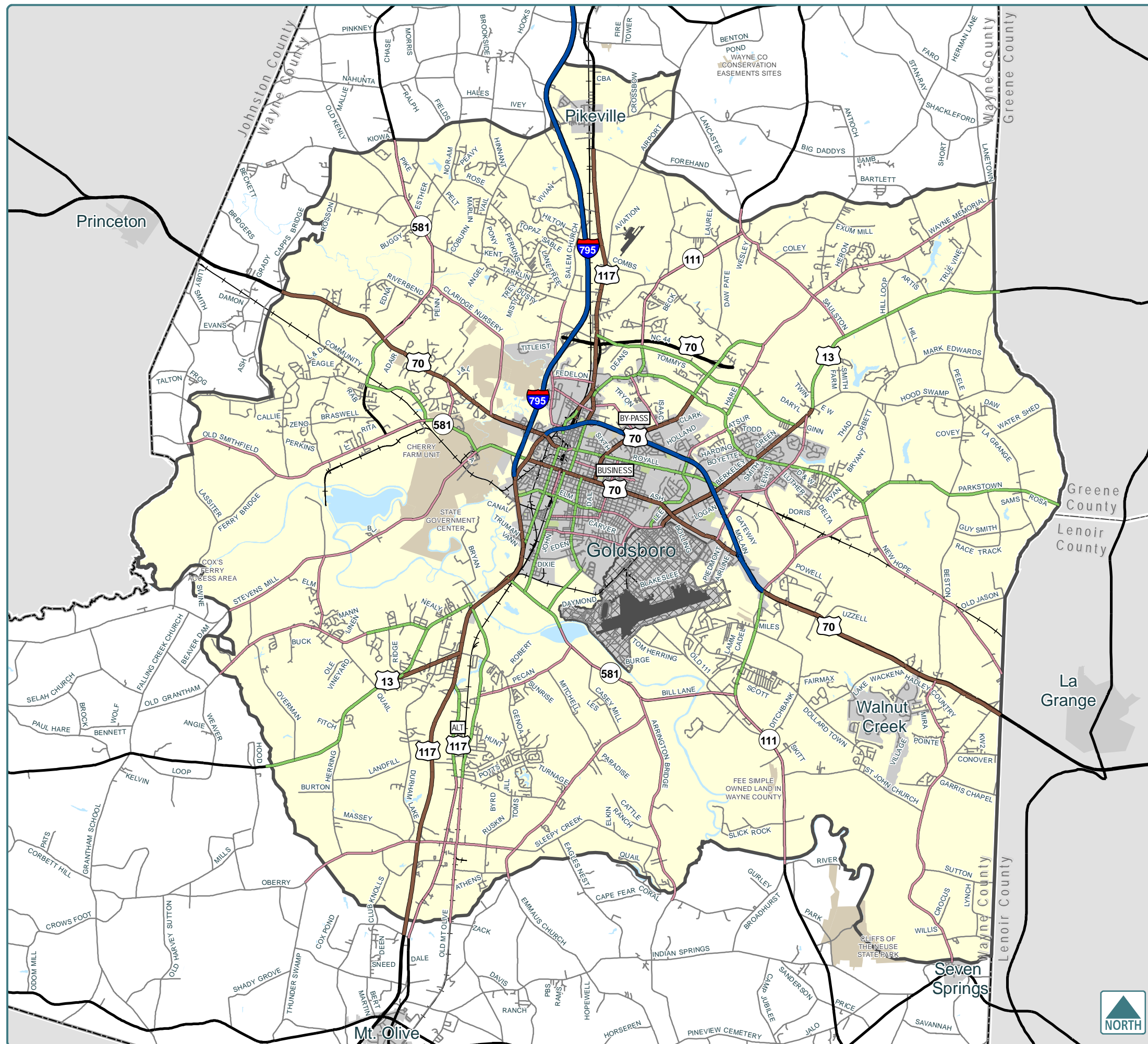
Functional Classification	Example
Expressways and Freeways Higher mobility, low degree of access	I-795 US 70 Bypass
Major Arterials Higher mobility, lower degree of access	Berkeley Boulevard US 70 east of Ash Street US 117 east of Ash Street
Minor Arterials Higher mobility, lower degree of access	Ash Street Tommys Road Arrington Bridge Road

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Figure 3-2: Functional Classification



- | | |
|---|--|
| <ul style="list-style-type: none"> Railroad Airport Seymour Johnson AFB Body of Water Urban Park State Owned Land Goldsboro Metropolitan Area Municipal Boundary Wayne County | <p>Functional Classification</p> <ul style="list-style-type: none"> Interstate Major Arterial Minor Arterial Collector Secondary Road |
|---|--|

Notes:
 - Functional Classifications are based on information provided by the NCDOT Travel Demand Model for the Goldsboro Urban Area.

0 1 2 Miles October 2014



Collector Roadways

Collectors (35 mph or less) are less developed than arterials and function at a lower speed for shorter distances of travel. Their main function is to collect traffic from local roads and connect them to arterials. Many collectors have two lanes and often have exclusive left turn lanes at intersections with major and minor arterials. Collector roads have increased access control with regard to driveways. Collectors are rarely funded by the state, where development and maintenance is managed by local governments. Although collectors provide less mobility than arterials, they are essential in providing connectivity amongst and between activity centers.

Table 3-4: Collector Roadways in Goldsboro	
Functional Classification	Example
Collectors Medium mobility, medium degree of access	Royal Avenue Pecan Road 11 th Street

Local Roadways

Locals (25 mph or less) provide the greatest amount of access to land with the least amount of mobility. They consist of all roads except arterials or collectors. Locals connect diverse land uses in a community and generally best serve short travel distances. In Goldsboro, local streets primarily connect areas with single-family homes to the broader transportation networks. They are funded by local governments and provide the greatest breadth of connectivity in an urban or rural area.

Table 3-5: Local Roadways in Goldsboro	
Functional Classification	Example
Locals Low mobility, low degree of access	Neighborhood Streets Secondary Roads Other Side Streets

Corridor Operations

Regional Mobility

In the Goldsboro Urban Area, US 70 is the primary corridor that provides connections to Raleigh in the west and Morehead City in the east. The US 70 corridor also provides connection to the State Ports of Morehead City and Wilmington, as well as to the North Carolina Global TransPark in Kinston and various military operations. The I-795 and US 117 corridors provide north-south connectivity to Wilson in the north and Wilmington in the south. Maintaining and increasing mobility for the area helps to preserve existing regional connectivity, which has the potential of stimulating economic

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growth. In coordination with maintaining existing corridors, planning for growth mitigates existing and future congestion. This will assist in easing over-capacity and bottlenecks at intersections and along high-trafficked corridors.

Congested Corridors

Congestion on roadway corridors is primarily the result of bottlenecks and roadways operating over-capacity. Congestion is related to a number of factors and can occur in varying locations, but is often found at intersections and freeway access points.

Average Annual Daily Traffic

The average annual daily traffic (AADT) represents the total number of vehicles that travel along a roadway segment on an average day. AADT volumes, as shown on Figure 3-3, help to identify primary corridors in the Goldsboro Urban Area for further study when making transportation recommendations. AADT count data is created by the Traffic Survey Group and SRMU Mapping section of NCDOT. Statistics used here were derived from 2012 data.

In the Goldsboro Urban Area, the highest traffic volumes occur on US 70 Bypass west of Luyler Best Road, servicing 41,000 vehicles per day (vpd). The US 70 corridor experiences the highest traffic volumes in the region. Nine out of the top ten highest traffic

volume locations occur along the US 70 corridor. Other corridors with high traffic volumes include US 117 south of Arrington Bridge Road and Wayne Memorial Drive south of Ham Spring Road (29,000 vpd and 27,000 vpd, respectively). The arterials in the Goldsboro Urban Area with high traffic volumes include Berkeley Boulevard south of US 70 and Ash Street west of Spence Ave (18,000 vpd and 15,000 vpd, respectively). Minor arterials with high traffic volumes include Royal Avenue west of Spence Avenue which supports 11,000 vpd. Traffic volumes on collectors and locals are significantly lower (ranging between 100 and 9,000 AADT) due primarily to design and location.



Primary roadway corridors

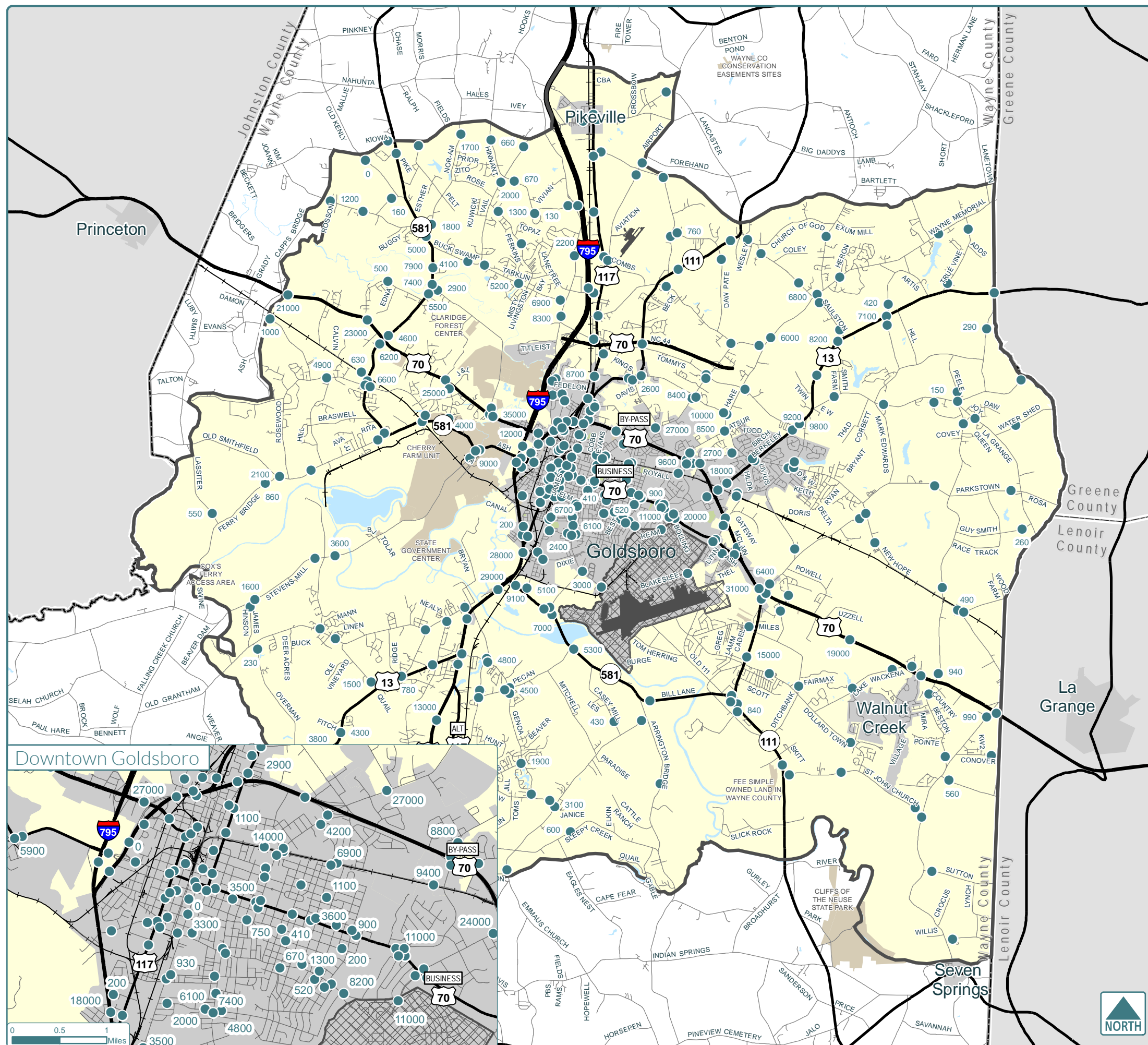
Source: URS

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Figure 3-3: Average Annual Daily Traffic



- 2012 Average Annual Daily Traffic**
- 2012 AADT
 - Interstate
 - US Route
 - NC Route
 - Secondary Road
 - Railroad
 - Airport
 - ▤ Seymour Johnson AFB
 - Body of Water
 - Urban Park
 - State Owned Land
 - Goldsboro Metropolitan Area
 - Municipal Boundary
 - Wayne County

Notes:
- Average Annual Daily Traffic (AADT) count created by the Traffic Survey Group and SRMU Mapping Section, NCDOT.

0 1 2 Miles October 2014



Volume-to-Capacity Ratios and Level of Service

Volume-to-capacity ratio is a universal measurement that quantifies the mobility and quality of travel along a particular corridor. It compares roadway demand (volume of vehicles on the road) to roadway supply (capacity of the roadway) to determine congestion and performance measurements. The 2040 GMTP uses a diverse range of measurements to determine congested corridors in the Goldsboro Urban Area, particularly as traffic volume statistics alone do not incorporate the functional classification or capacity of a roadway system. The volume-to-capacity ratio is defined according to the following capacity measurements:

1. Approaching Capacity ($V/C = 0.8$ to 1.0): A roadway with a V/C less than 0.8 typically operates with efficiency. As the V/C nears 1.0 , the roadway becomes more congested. A roadway approaching capacity may operate effectively during non-peak hours, but may be congested during morning and evening peak travel periods.
2. At and Over Capacity ($V/C = > 1.0$): Roadways operating at capacity or over capacity are congested during non-peak hours and most likely operate in stop-and-go gridlock conditions during peak hours. A change in capacity due to incidents greatly impacts the travel flow on corridors operating within this V/C range. Roadways in this category represent the most congested corridors in the Goldsboro Urban Area.

Level of Service (LOS) is another way to determine transportation flow for all travel modes along a transportation corridor. A higher capacity and lower congestion of facility generally corresponds with a higher LOS value, ranging from LOS A to LOS F. The goal is to maintain the LOS on a given roadway at a LOS C or above. The Envision 2035 Plan uses LOS measurements as a way to generalize the volume of traffic along major roadways. These definitions include:

- LOS A/B: light congestion with motorists generally able to maintain desired speeds and clear traffic-controlled intersections in one green phase.
- LOS C: moderate congestion with motorists typically traveling close to their desired speeds and usually able to clear traffic-controlled intersections in one green phase; turning traffic and slow vehicles begin to have an adverse impact on the flow of traffic.
- LOS D: congestion with motorists typically traveling below their desired speeds and multiple cars unable to clear traffic-controlled intersections in one green phase; lane changes become challenging due to traffic volumes.
- LOS E: motorists experience substantially reduced speeds with brief periods of stop-and-go conditions with long vehicle queues forming while waiting for the green phase of a signal; side streets can experience significant queuing due to the lack of gaps in traffic on the mainline.

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- LOS F: motorists experience stop-and-go conditions and typically have to wait multiple green phases before clearing signalized intersections; side streets can experience significant queuing due to the lack of gaps in traffic on the mainline.

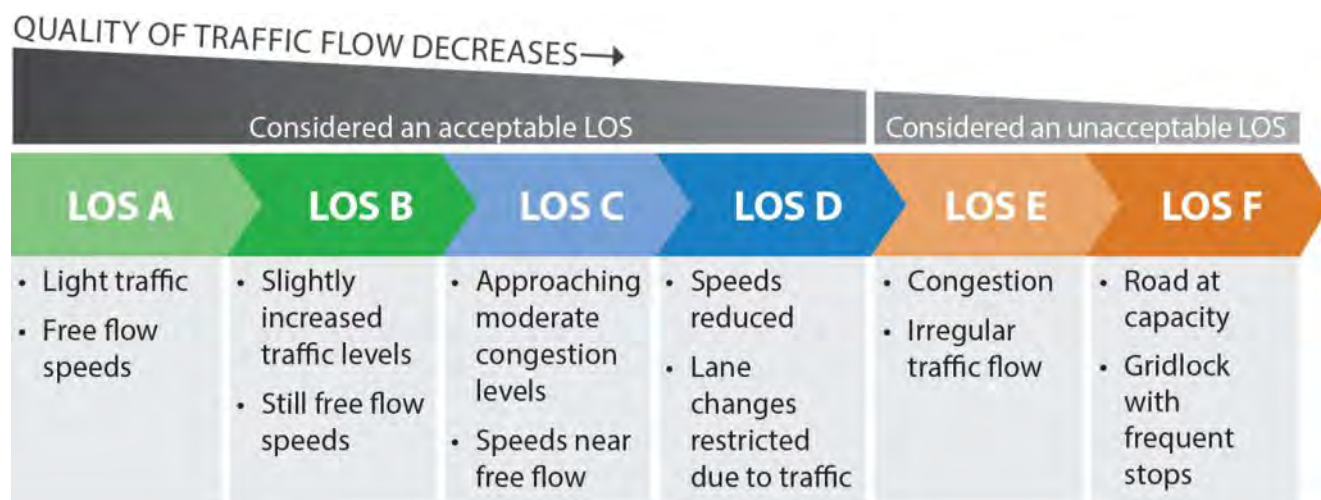


Exhibit 3-3: Level of Service (LOS) Classifications

Source: Bismarck-Mandan ND, MPO

Existing Conditions

Roadway capacities and growth in traffic have resulted in congestion along key corridors throughout the Goldsboro Urban Area as shown on Figure 3-4. Corridor congestion is calculated from NCDOT 2012 AADT compared to capacity by facility type. This data is based off LOS D Standards for Systems Level Planning,⁵ which has a driver comfort defined as *poor* with a maximum density of 42 passenger cars per mile, per lane.

The corridor in the Goldsboro Urban Area with the highest rate of congestion is US 70 between US 117 and US 13, which has congestion in this section ranging from 1.0 - 3.8 (LOS F). US 70 reaches its greatest congestion rate at the intersections of Cuyler Best Road and 11th Street in downtown Goldsboro. These segments experience congestions rates that range from 3.8 – 4.0 (LOS F). Wayne Memorial Drive, north of US 70 Bypass, ranges from 1.0 – 2.3 (LOS E and LOS F). Other corridors that experience V/C rates approaching or over capacity include:

- Berkeley Boulevard, between US 70 Bypass and Ash Street
V/C 1.9 – LOS F
- NC 111, between NC 581 and US 70
V/C 0.91 - LOS E
- George Street, between US 70 and US 13
(V/C 0.70 - LOS E)

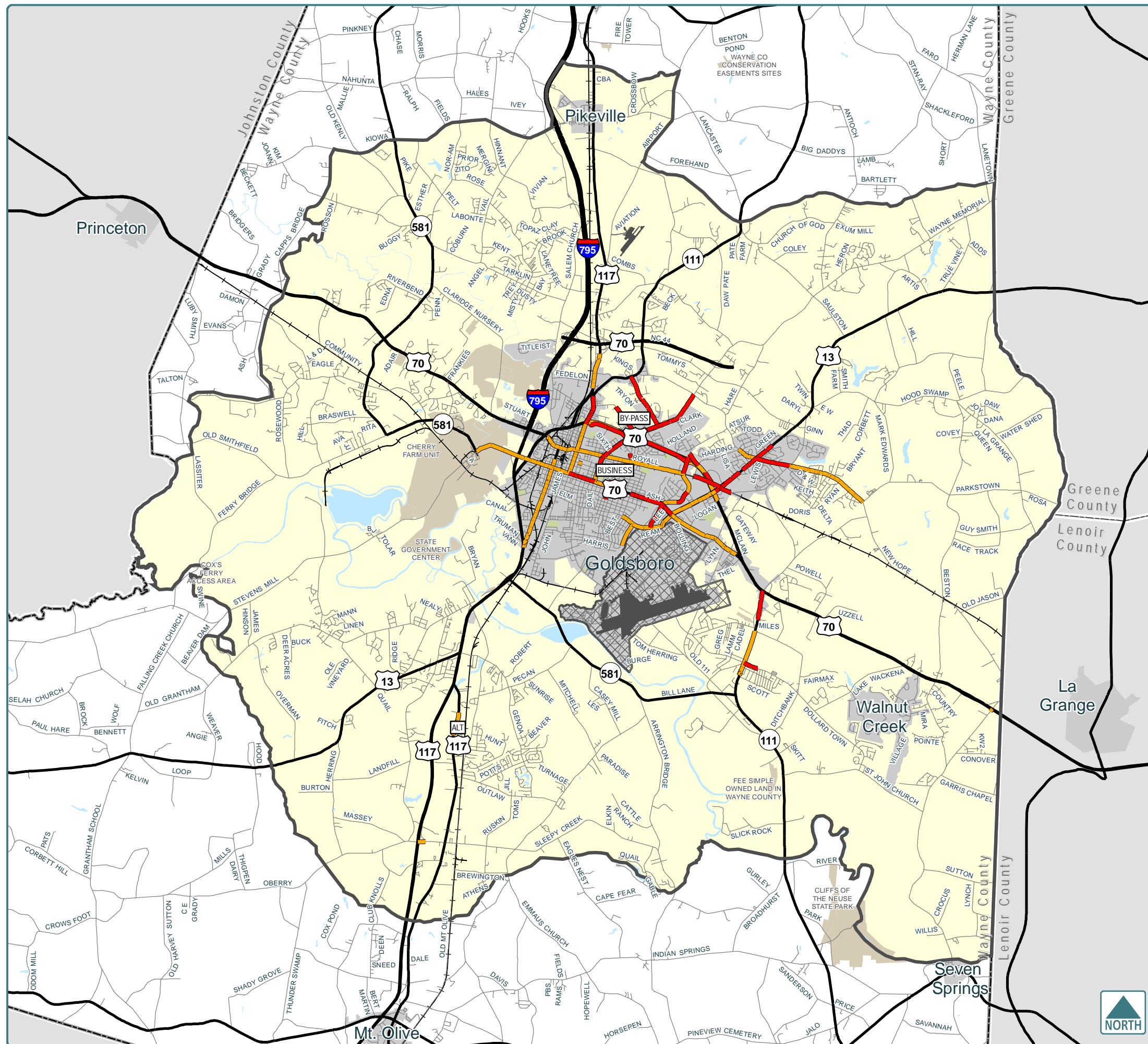
⁵ Standards are derived from the 2005 North Carolina Level of Service (NCDLOS) Version 2.1 Program, by the Institute for Transportation Research and Education (ITRE).

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Figure 3-4: Corridor Congestion



Notes:
 - Corridor Congestion data is derived from NCDOT 2012 AADT compared to capacity by facility type.

0 1 2 Miles October 2014



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Current Conditions

TIPs are prioritized transportation improvements with dedicated funds for construction. Wayne County has a series of current (2012-2013) TIP projects including the completion of US 70 Bypass. This project includes two segments which extend east of Salem Church Road to east of Wayne Memorial Drive, and east of Wayne Memorial Drive to west of Creek Road.

Other TIP projects in the Goldsboro Urban Area include the widening of US 13 Berkeley Boulevard north of Hood Swamp Road and the upgrade to

freeway standard for the US 117 relocation (NC 55 to US 117 south of US 70). Wayne County has designated TIP's that focus on safety improvements such as signal systems and turn lanes, road widening projects, and bridge improvements. A multiuse trail along New Hope Road's right-of-way (ROW) is a funded project due to begin construction in 2016.



Construction of US 70 Bypass, Goldsboro, NC

Source: URS


Committed projects according to the Envision 2035 Plan include:

- US 70 Bypass (four-lane divided freeway)
- Update Goldsboro's signal system
- US 13/Berkeley Boulevard (road widening)
- Royall Ave to New Hope Rd (construction began in 2013, completed by 2014)
- New Hope Rd to Hood Swamp Rd (ROW only, construction completed by 2016)

Identifying current conditions in coordination with growth projections is necessary to adequately identify transportation improvement projects for the 2040 GMTP.

Traffic Safety and Crash History

Traffic safety can be measured in a number of ways, but is best examined through crash history and traffic patterns of an area to forecast where detailed analysis needs to be conducted in order to make assessments of transportation improvements. In some cases, crashes for a particular intersection may also impact crash frequency. Intersections with high rates of crashes are usually located in areas with high congestion rates. Minimizing traffic congestion can reduce traffic safety concerns. The relationship between congestion and traffic safety helps to validate the need for funding of transportation improvements. Crash locations for the Goldsboro Urban Area are shown in Figure 3-5.



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Examining traffic safety is a necessary and important factor of transportation planning. The 2040 GMTP uses planning-level data for a high level picture of the severity and frequency of crashes in the Goldsboro Urban Area.

Data obtained from NCDOT was used to summarize reported crashes along major corridors in the Goldsboro Urban Area as illustrated in Table 3-6. This data is planning level information provided by NCDOT for crashes occurring from April 1, 2009 to May 31, 2014, which is the most current five-year data available. The focus for the analysis looked at over 35 intersections in the Goldsboro Urban Area with high crash rates over the five-year period from 2009 to 2014.

Crash severity was examined, focusing on fatal injury crashes, injury type (classes A, B, and C according to severity), Property Damage Only (PDO), and Equivalent Property Damage Only (EPDO). The PDO is reported based only on crash results in a certain amount of damage and the EPDO is based on crash severity and equivalent property damage only of crash cost. Crash frequency was also assessed for intersections in the Goldsboro Urban Area, focusing on crashes by type including rear end crashes, frontal impact crashes, sideswipe crashes, and the number of these crashes.

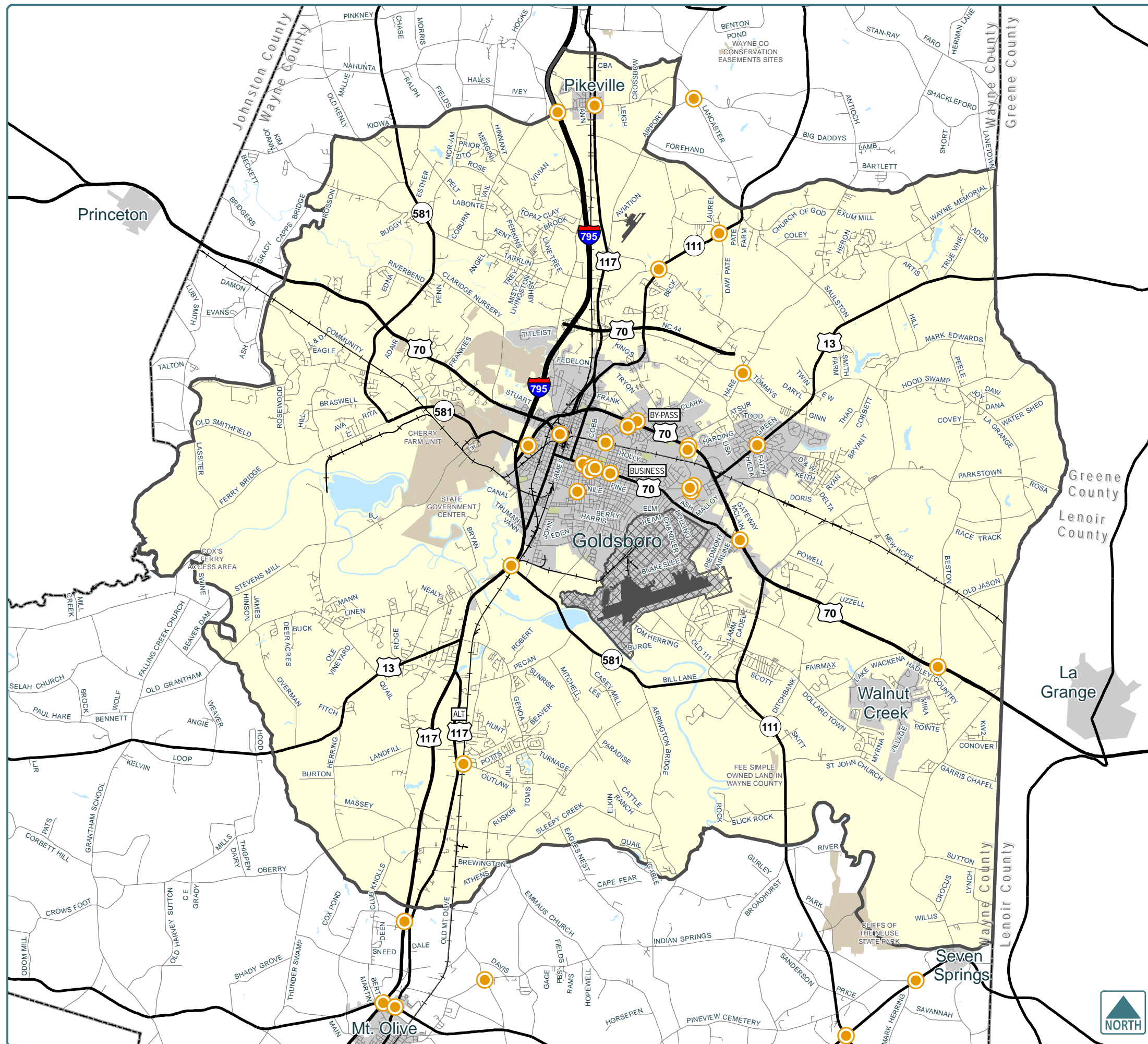
In order to assess the contributing factors to crash rates in Goldsboro, more detailed analysis will need to be conducted.

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Figure 3-5: Crash Locations



- Interstate

US Route

NC Route

Secondary Road

Railroad

Airport

Seymour Johnson AFB

Body of Water

Urban Park

State Owned Land

Goldsboro Metropolitan Area

Municipal Boundary

Wayne County
- Crash Locations at Intersections

Crash Locations

Notes:

- Crash data grouped by location based on crashes within 150' of the intersection
- Data is planning level information provided by NCDOT for crashes occurring April 1, 2009 to May 31, 2014

0 1 2 Miles October 2014



Table 3-6: Crash Locations at Intersections											
Location Description	Total Crashes	Injury Crashes	Fatal Crashes	Class (By Injury Class)			PDO* Crashes	EPDO** Crash Index	Rear End Crashes	Frontal Impact Crashes	Sideswipe Crashes
				A	B	C					
Berkeley Boulevard at Graves Drive	34	7	0	0	1	6	27	85.8	12	14	4
Big Daddy's Road at Lancaster Road	21	13	0	1	3	9	8	185.6	0	20	0
Cashwell Drive at Eastgate Drive	8	4	0	0	0	4	4	37.6	0	6	2
Cuyler Best Road at Mall	25	6	0	0	2	4	19	69.4	1	16	5
East Eleventh Street at Wayne Memorial Drive	49	18	0	0	3	15	31	182.2	21	21	5
Eastgate Drive at Mall	13	4	0	0	1	3	9	42.6	0	13	0
Elm Street at Slocumb Street	22	8	0	0	1	7	14	81.2	4	13	0
Hare Road at Tommy's Road	17	8	0	0	2	6	9	76.2	0	16	0
I-795 at Main Street	7	1	0	0	0	1	6	14.4	0	4	0
Indian Springs Road at Kelly Springs Road	12	6	0	0	1	5	6	56.4	0	10	0
Lionel Street at Mulberry Street	14	5	0	0	2	3	9	51	0	12	0
NC 111 at Daw Pate Road	8	8	0	0	2	6	0	67.2	0	8	0
NC 111 at Stoney Creek Church Road	24	9	0	1	3	5	15	159	3	18	0
NC 55 at Indian Springs Road	18	8	1	0	4	3	10	145.6	2	13	0
NC 55 at NC 111	28	13	1	0	4	8	15	192.6	5	22	0
NC 581 at Memorial Church Road	9	7	0	0	2	5	2	60.8	1	7	0
Old Mount Olive Highway at Outlaw Road	14	7	0	0	1	6	7	65.8	0	13	0
US 117 Alternate at NC 55	54	14	0	0	3	11	40	157.6	9	31	5
US 117 at Jones Grove Road	24	13	1	2	3	7	11	325.4	0	20	1
US 117 at Main Street	25	6	0	0	2	4	19	69.4	8	9	0
US 117 at NC 55	25	11	0	0	1	10	14	106.4	4	13	2
US 117 at NC 581/ Ash Street	9	4	0	0	0	4	5	38.6	4	2	1
US 117 Business at NC 111	33	8	0	0	1	7	25	92.2	7	19	4
US 13 at New Hope Road	38	15	0	0	1	14	23	149	19	13	2
US 13/US 117 at NC 581/Arrington Bridge	53	18	0	0	7	11	35	186.2	18	22	8
US 13/US 70 at Cuyler Best Road	55	9	0	0	2	7	46	121.6	14	24	10
US 70 at Beston Road	19	6	0	0	4	2	13	63.4	3	11	1
US 70 Business at Audubon	42	23	0	0	3	20	19	212.2	10	28	1
US 70 Business/Ash Street at Lionel Road	33	16	0	0	3	13	17	151.4	8	22	0
US 70 Business/Grantham St at US 117/N George St	15	9	0	0	0	9	6	81.6	8	5	0
US 70 Busniess at N Slocumb Sreet	37	16	0	0	2	14	21	155.4	9	24	0
Wayne Memorial Drive at Royal Avenue	30	12	0	1	4	7	18	187.2	2	21	5
Wayne Memorial Drive at The First Church Road	26	9	0	0	0	9	17	92.6	3	17	4

Notes: Data is planning-level information provided by NCDOT for crashes occurring April 1, 2009 to May 31, 2014 (most current available).
Crash data is grouped by location based on crashes within 150' of the intersection, and sorted alphabetically. .
* Property Damage Only (PDO) is reported based only on crash results in a certain amount of damage.
** Equivalent Property Damage Only (EPDO) is based on crash severity and equivalent property damage only of crash cost.

Existing Public Transportation

Introduction

Effective transit planning must include a holistic approach to address mobility needs. A good transit plan should include bus stop locations that are accessible to other modes of travel and are surrounded by a mix of land uses. 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. Providing a shelter, bench, and trash receptacle, as well as bicycle parking, lighting, and transit system information will create a more comfortable environment for the user. Public transportation in the Goldsboro Urban Area is an important element in the evaluation of the quality of life aspects within the community. Providing coordinated transportation options allows for ease of movement to access social or recreational events, medical or social services, employment opportunities, educational resources, retail, or other activity destinations and is part of the fabric of urban form. Transit cannot be considered in isolation, and the strategies presented in this chapter support improvements to the larger transportation system.

North Carolina General Statutes §136-66.2 require NCDOT to perform multimodal planning. They include requirements for the development of a coordinated transportation system and provisions for streets and highways in and around municipalities. The statutes state that “in the development of the plan, consideration shall be given to all transportation modes including, but not limited to, the street system, transit alternatives, bicycle, pedestrian, and operating strategies.” A MTP is North Carolina’s multi-modal transportation plan. The MTP includes community consensus on future transportation needs required to support anticipated growth and development. It is a multi-modal plan that identifies the future transportation system needs and includes highways, public transportation, rail, and bicycle facilities needed to serve the anticipated travel demand. The focus of the 2040 GMTP is to provide a comprehensive look at the transit infrastructure in order to address environmental and community friendly options that will strengthen the connectivity between an area’s transportation plan, adopted local land development plan(s), and community vision. Roads, sidewalks, bikeways and transit must provide the necessary connectivity to support mobility options



Bus stop with amenities

Source: URS

for transit-dependent and choice users of the transportation network. The citizens of the Goldsboro Urban Area should be provided with viable options to make their travel decisions based on alternatives that can meet their needs for both cost and convenience.

This policy requires that NCDOT's planners and designers will consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects within a growth area of a town or city unless exceptional circumstances exist. Routine maintenance projects may be excluded from this requirement if an appropriate source of funding is not available.

Transit and Urban Form

Transit must provide connections to the places people need to go at a time when they need to get there. As a result, transit must be introduced or expanded within a framework of transit-supportive urban form. Two development types that maximize potential transit ridership include transit-oriented development (TOD) and transit-ready development.

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 $\frac{1}{4}$ - to $\frac{1}{2}$ -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. The GUS redevelopment will give the Goldsboro Urban Area an opportunity to generate mixed urban land uses that will benefit both pedestrians and connectivity to public transit.

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.

While transit-oriented and transit-ready developments represent ideal urban form for transit destinations, many existing single-use locations in the Goldsboro Urban Area are viable long-term facilities. Destination locations such as Wayne Memorial Hospital, SJAFB, Wayne Community College, and large scale retail destinations will benefit from improved transit scheduling. Demand response transit service to other health and human service agencies will need to be coordinated to efficiently provide these vital services to these underserved populations. As densities change, GATEWAY will be best served to address future and growing transit expansion needs. As transportation has a direct impact on the economy and environment, successful transportation options will need to include both private (personal vehicle, taxi/limousine service, charter bus service, etc.) and public (bus service, paratransit service, rail service, etc.) alternatives. Most private options are available in all communities, while public options are specifically tailored to a given community's needs. The public transportation options in the Goldsboro Urban Area should be designed in a manner that provides mobility options

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to all residents, regardless of a particular resident's access to private options or other demographic characteristic (such as age, gender, race, disability and/or income level).

FY 2013 TIGER V Grant Award Project

The Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program, provides an opportunity for the federal DOT to invest in road, rail, transit and port projects that promise to achieve critical national objectives. This program was established by Congress in 2009, and has dedicated money to fund projects that have demonstrated the ability to have a significant impact in national, regional, and metropolitan areas.



Goldsboro Union Station

Source: Downtown Goldsboro Development Corporation

The TIGER program enables DOT to analyze an array of projects on their merits to help ensure that taxpayers are getting the highest value for every dollar invested. The City of Goldsboro submitted and received a FY 2013 TIGER V grant to support the 2013 Goldsboro Main Street Revitalization and Transportation Investment Project. This project qualified for and was awarded \$10 million in funding due to the nature of the passenger and community transportation elements that include safety, economic competitiveness, state-of-good-repair, livability and environmental sustainability. The TIGER V Grant Award Project consists of four projects that are linked together in downtown Goldsboro. They are as follows:

[Center Street Streetscape](#)

The Center Street Streetscape project consists of the reconstruction of three blocks of existing roadway to make them more pedestrian friendly and to replace aging infrastructure. The project will start at the intersection of Mulberry Street and Center Street and continue south to the intersection of Spruce Street and Center Street for a distance of approximately 1,500 feet. The project will involve the demolition of all three blocks of roadway, utilities and sidewalk and will widen the existing sidewalks from 12 feet to approximately 19 feet and will replace the existing four-lane median divided road with a two-lane median divided road that will have a larger grassed median in the middle. All existing overhead utilities will be buried underground. All storm drainage and waterlines will be replaced. There will be approximately 500 feet of sewer line replaced as part of this project. The existing signalized intersections will be replaced with functional roundabouts therefore doing away with the traffic signals. All work will be accomplished within the existing road right of way which is 140 feet wide.

Union Station Streetscape Work (connector):

This portion of the project involves making streetscape improvements to the streets that Union Station fronts on including the blocks of N. Carolina Street, Georgia Avenue, W. Mulberry and W. Chestnut Street. The plans propose to construct new sidewalks and make landscaping improvements (trees) within the right of ways of these streets to make pedestrian access to the Union Station facility safer and more pleasant. The section of streetscape proposed for Walnut Street running from Carolina Street to just east of the intersection of S. James Street and Walnut Street (to connect with previous sidewalk and streetscape improvements) is to remove the existing dilapidated sidewalks and replace with newer sidewalks and add landscaping (trees) to improve the appearance of the corridor. The corridor is approximately 1,400 feet in length. All work will be performed within existing right of way.

Gateway Transfer Center Construction:

This project will consist of constructing an approximately 4,800 square foot facility that will provide administrative offices, waiting rooms and covered bus canopies for Gateway bus service. The Gateway Transfer Center (GTC) will serve as the administrative offices for Gateway staff, a centralized transfer point for the entire urban bus route system, a waiting point for transfer of passengers and is also planned to serve as the point of operations for the rural demand-response system that currently utilizes 22 vans. The site is designed to provide parking for ten buses. The project will be constructed on the north end of Union Station located at the corner of W. Mulberry Street and N. Carolina Street. A small parking area will also be constructed on the site as well as landscaping, sidewalks and security lighting.

Union Station and Gateway Transfer Center Site Improvements:

The site where the Union Station building is located and where the GTC will be constructed with TIGER V/City of Goldsboro funds, is two city blocks in size. The GTC will be constructed at the northern portion of the property and will be the sole function of the site until additional funds are secured for the Union Station rehabilitation. Thus, the property for which the GTC will be constructed will require improvements to accommodate the function of the facility to adequately serve its customers. The site work identified to be incorporated into the GTC TIGER V funding will include all basic site work necessary for the property with the exception of the area immediately surrounding Union Station (six feet from the building edge). The site work plans serve the functions of GTC and address the approved historic character of the space per NC Historic Preservation Office review. The site work to be funded as part of the TIGER V grant includes: grading, driveways, sidewalks, lighting, landscaping, parking and inclusion of pedestrian/alternative transportation mode amenities such as bike racks and benches. In addition, new underground utilities and an environmentally conscious cistern will be implemented to collect storm water from the GTC and Union Station buildings for reuse to flush plumbing fixtures in both building and irrigate the landscaped area. Overall, the completed site work will result with a decrease in impervious surface area.

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Upon completion, the future GATEWAY transit services will need to re-route their fixed route services to utilize this site as an urban transfer center. However, it is important that GATEWAY officials recognize that there is still a need to construct an administration/operations and maintenance facility specifically for GATEWAY services. The GUS may be served by having some GATEWAY operations personnel at the GUS site, but it is not a location to fully support all of the administrative, operations, and maintenance needs for coordinated public transit services in the Goldsboro Urban Area.

Existing Public Transportation

GATEWAY – Fixed Route Service

GATEWAY Transit is responsible for providing both fixed-route and demand-responsive transportation services within Wayne County. The fixed-route service in Wayne County operates between 5:30 a.m. and 6:30 p.m. on weekdays and between 9:30 a.m. and 6:30 p.m. on Saturdays. Service is available every day of the year except Sundays, Thanksgiving Day, and Christmas Day. The five fixed routes within Goldsboro (Wayne Memorial, Berkeley Mall, Southend, North End, and Express Route) operate on one-hour headways and depart the system transfer point at half-past every hour. Ridership statistics are shown in Table 3-7, and routes and stops are shown on Figure 3-6.



GATEWAY transportation

Source: URS

The fare structures for the fixed routes within Goldsboro are as follows:

- One-Way Transit Fare – \$1.00.
- Reduced One-Way Transit Fare – \$0.50 (with GATEWAY Transit discount card, which is available to Seniors (60+), Medicare cardholders, and individuals with disabilities).
- Children under 42" – Free (limit one child per adult passenger).
- Transfers – Free, but are only valid at the Transfer Center and for the next available bus.
- One-way rides may be purchased on-board the bus for exact change; no ticket is given for one-way rides.

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Table 3-7: Urban Route Ridership Statistics, April 2013 to March 2014									
Month	Riders by Route					Total Riders	Service Miles	Service Hours	Riders per Service Hour
	Route #1 Berkeley	Route #2 South End	Route #3 Wayne Memorial Drive	Route #4 North End	Route #5 Express				
April 2013	6,421	5,800	3,935	2,486	2,071	20,713	25,106	1,610	12.87
May 2013	6,157	5,561	3,773	2,383	1,986	19,860	25,844	1,655	12.00
June 2013	5,355	4,837	3,282	2,073	1,728	17,275	23,550	1,507	11.46
July 2013	6,040	5,596	3,328	2,505	2,049	19,518	27,161	1,666	11.72
Aug 2013	6,308	6,011	3,757	2,642	2,091	20,809	26,906	1,655	12.57
Sept 2013	5,375	5,533	4,325	2,504	2,421	20,158	25,139	1,545	13.05
Oct 2013	6,049	5,331	4,102	2,484	2,246	20,212	25,489	1,666	12.13
Nov 2013	5,518	4,879	3,549	2,044	1,847	17,837	24,780	1,525	11.70
Dec 2013	6,129	5,046	3,256	2,134	1,566	18,131	24,572	1,507	12.03
Jan 2014	5,371	4,914	3,128	2,027	1,420	16,860	24,218	1,492	11.30
Feb 2014	5,384	4,562	3,233	2,003	1,901	17,083	21,591	1,330	12.84
Mar 2014	5,507	4,457	3,200	2,157	1,757	17,078	25,484	1,570	10.88
TOTAL	69,614	62,527	42,868	27,442	23,083	225,534	299,840	18,728	12.04

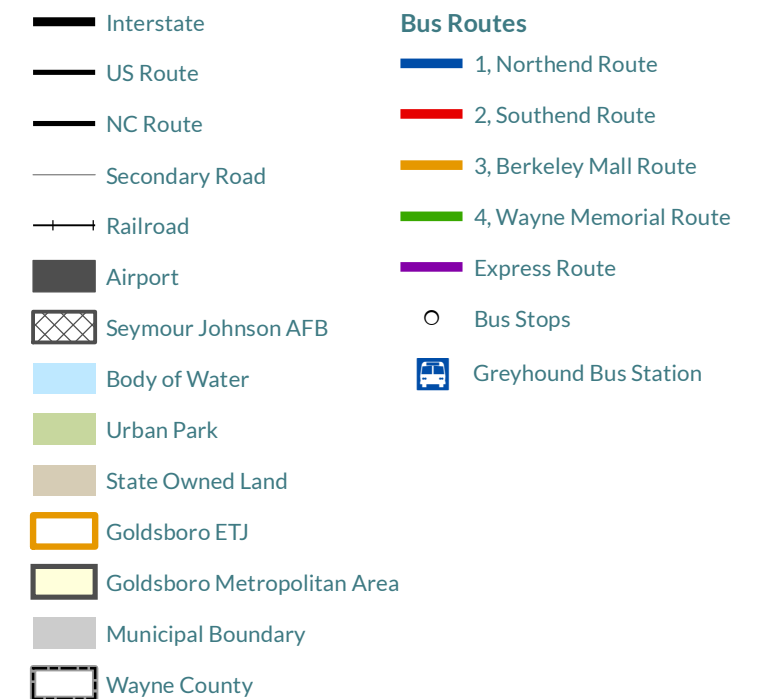
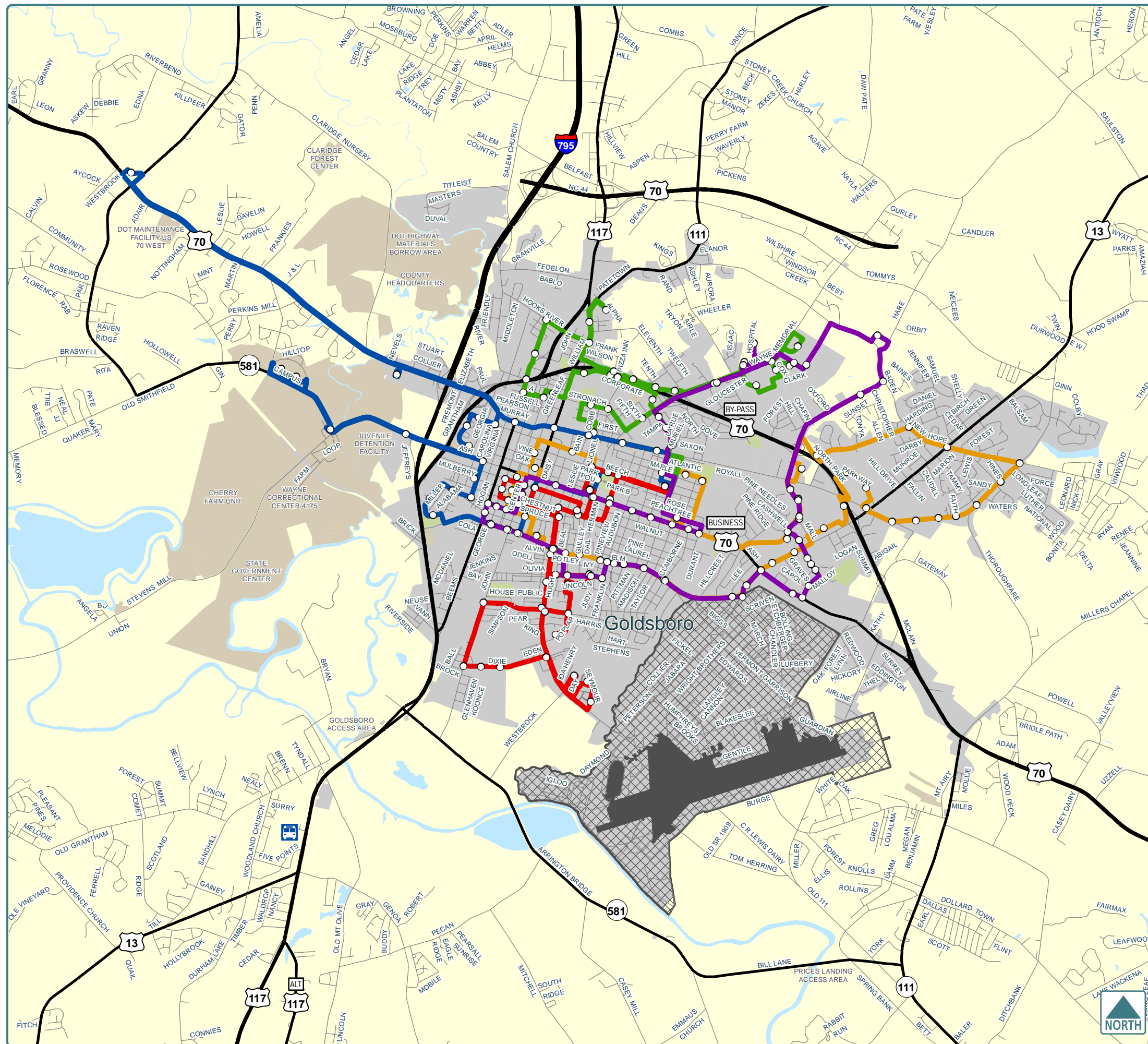
In terms of ridership, the total GATEWAY fixed route system has remained at a steady rate over the past year. However, overall fixed route ridership has slightly decreased over the past few years. This may be due to the procedures in collecting statistical data, as administrative changes implemented in the past few years has had an impact on the data collection process.

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Figure 3-6: Existing Bus Routes and Stops



0 1/2 1 Miles October 2014



GATEWAY – Demand Response Service

In accordance with FTA guidelines, GATEWAY Transit does provide a demand-responsive service throughout the Goldsboro Urban Area. This service includes Rural General Public Transportation (RGPT), Dial-A-Ride, Americans with Disabilities Act (ADA) transportation, and contracted transportation with local human service agencies to out-of-county destinations. A premium fare is charged for the out-of-county service.

Demand-responsive service hours are 4:00 a.m. to 7:30 p.m. Monday through Friday, and 4:00 a.m. to 6:00 p.m. on Saturdays and Holidays. As with the fixed-route service, there is no service on Sundays, Thanksgiving Day, or Christmas Day.

Demand-response service requires advance reservation by phone. One-way fares are \$5.00 within Goldsboro city limits, \$8.00 within Wayne County, and \$35.00 to out-of-county destinations.

[Rural General Public Transportation \(RGPT\)](#) is available to and from locations within Wayne County. The standard fare is dependent upon the destination of the trip.

[Dial-A-Ride](#) service is curb-to-curb transportation within Goldsboro city limits. One-way fares are \$5.00 per person within Goldsboro city limits.

[ADA transportation](#) provides curb-to-curb service to qualified residents of Goldsboro that reside within $\frac{3}{4}$ mile of a fixed route bus. The qualifications are for persons with a disability that prevents them from being able to access a fixed route bus. Fares for this service are \$2.00 per ADA passenger per trip. Assistants and passenger attendants may ride at no additional charge.

[Demand-Response Service](#) is a “shared ride” service and must be reserved 48 hours in advance. This service is usually provided by a lift-equipped vehicle, operating Monday through Friday from 4:00 a.m. to 7:30 p.m., and 4:00 a.m. to 6:00 p.m. on Saturday. Out-of-county medical trips are provided to destinations that include UNC Hospital (Chapel Hill), Duke Medical Center (Durham), Wake Medical Hospital (Raleigh), and Pitt Memorial Hospital (Greenville).

Other Public Transportation Providers

There are several public transportation alternatives in the Goldsboro Urban Area.

[Taxis](#)

There are three taxi companies in the Goldsboro Urban Area:

- Webb Town Taxi: (Open 24 Hours) 616 E Elm St, Goldsboro, NC 27530
- City Cab Company: 406 N John St, Goldsboro, NC 27530
- Carpool Express: 607 Woodberry Drive, Goldsboro, NC 27534

[Greyhound](#)

The Greyhound bus terminal is located at 2600 US 117 South in Goldsboro. From this terminal, the Greyhound service can



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provide passenger transportation throughout North America, which includes no less than 30 cities in North Carolina. Greyhound does provide a variety of discounts to its passengers, including military personnel. This is especially advantageous to the military personnel and their dependents stationed at SJAFB.

Regional Public Transportation

There are regional transportation providers that offer connectivity to the Goldsboro Urban Area. Many citizens utilize the air travel through the Raleigh-Durham (RDU) International Airport. Regional rail service can be accessed at Amtrak stops in Rocky Mount, Selma, Cary and Raleigh.

Triangle Transit

The Triangle Regional Transit Authority, is the regional rail transit service within a corridor study area that spans Orange, Durham, and Wake counties. On-going planning and project development will provide comprehensive analysis of new rail corridors and existing bus operations to enhance mobility, capacity, and connectivity for future services. Triangle Transit operates regional bus and shuttle service, paratransit services, and ridematching for car and vanpools. Triangle Transit works closely with municipal governments and their transportation providers, the area's MPOs, and various federal and state agencies.



- Vanpool services through Triangle Transit are operated for commuters who have more than a 20-mile round trip, provided that one leg of the trip begins or ends in Wake, Durham, or Orange County. There are commuters in the Goldsboro Urban Area who work in the triangle area, and thus are afforded the ability to utilize this service.
- Carpool matching services can be accessed through Triangle Transit. Carpooling is an effective way to reduce traffic congestion and promote less carbon emissions. The Triangle Transit carpool matching program is conducted through gathering work-related trip data for origins and destinations, including the hours of service and days of the week the work trips are needed. Through this matching service, there are many commuters who participate in this service. For more information, triangle transit can be contacted at: www.triangletransit.org.

SharetheRideNC

This organization has an interactive website to help commuters quickly and securely find carpool partners anywhere in North Carolina. An interested traveler inputs their home and work addresses, and a matched list of nearby commuters with similar schedules will be provided. The home address



North Carolina's Statewide
Ride Matching System

will not appear on any of the match lists. Once the list is provided, it is up to the commuter to make the initial contacts and follow through with the carpool coordination. To contact this organization, they can be reached at: www.sharetheridenc.org.

Transit Planning Context

Transit is a vital element of the overall transportation system and impacts land use and economic development. Public transit services should be a viable mobility option for senior citizens, persons who are physically or economically disadvantaged, and commuters who choose to ride the bus. At its best, transit is an efficient and inexpensive transportation mode for persons making the traditional suburban-to-urban commute and those traveling between activity centers. Making transit practical in less dense areas and for suburban-to-suburban commutes is more difficult and typically experiences higher costs and lower ridership. The transit planning process must combine updated analysis, feedback from the general public and stakeholders, and previous planning efforts.

There are unique opportunities in the Goldsboro Urban Area with regard to public transportation. There have been previous planning efforts that have included a focus on service planning and improvements which are outlined below. It would be of value to address the current performance of the system as well as to review alternative strategies that can enhance the future delivery of services. The core values of the service need to reflect fiscal efficiency and a convenience of access and connectivity throughout the Goldsboro Urban Area, and the region as a whole. Future planning efforts should




Bus shelter

Source: URS

place an emphasis on capital programming, to include both equipment and facility needs. Additionally, operational scheduling, staffing, training, and marketing the service should be areas that will need to be improved. Public transit services need to meet the local needs of the transit-dependent populations, but strive to be a viable option for the choice transit commuters. An improved feedback system needs to be integrated into the planning process so that local decision-makers can take a more proactive approach in the implementation of planning needs, and not be as reactive in responding to issues that arise. Analysis is an important component to the planning process, but there needs to be a process by which continuous improvements can achieve excellence in all aspects of service delivery and management.

As noted in the 2010 Community Transportation Services Plan (CTSP), the population of Wayne County is expected to reach an estimated 123,152 by 2030. The largest employer in Wayne County is SJAFB with over 530 active duty officers and over 3, 800 enlisted members and their families stationed here currently. SJAFB also employs over 1,000 civilian employees and numerous contractors. The



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City of Goldsboro has a population of over 37,639, while Wayne County has a population of over 121,000 and continues to grow. Population density in relation to existing bus stops and routes are shown on Figure 3-7.

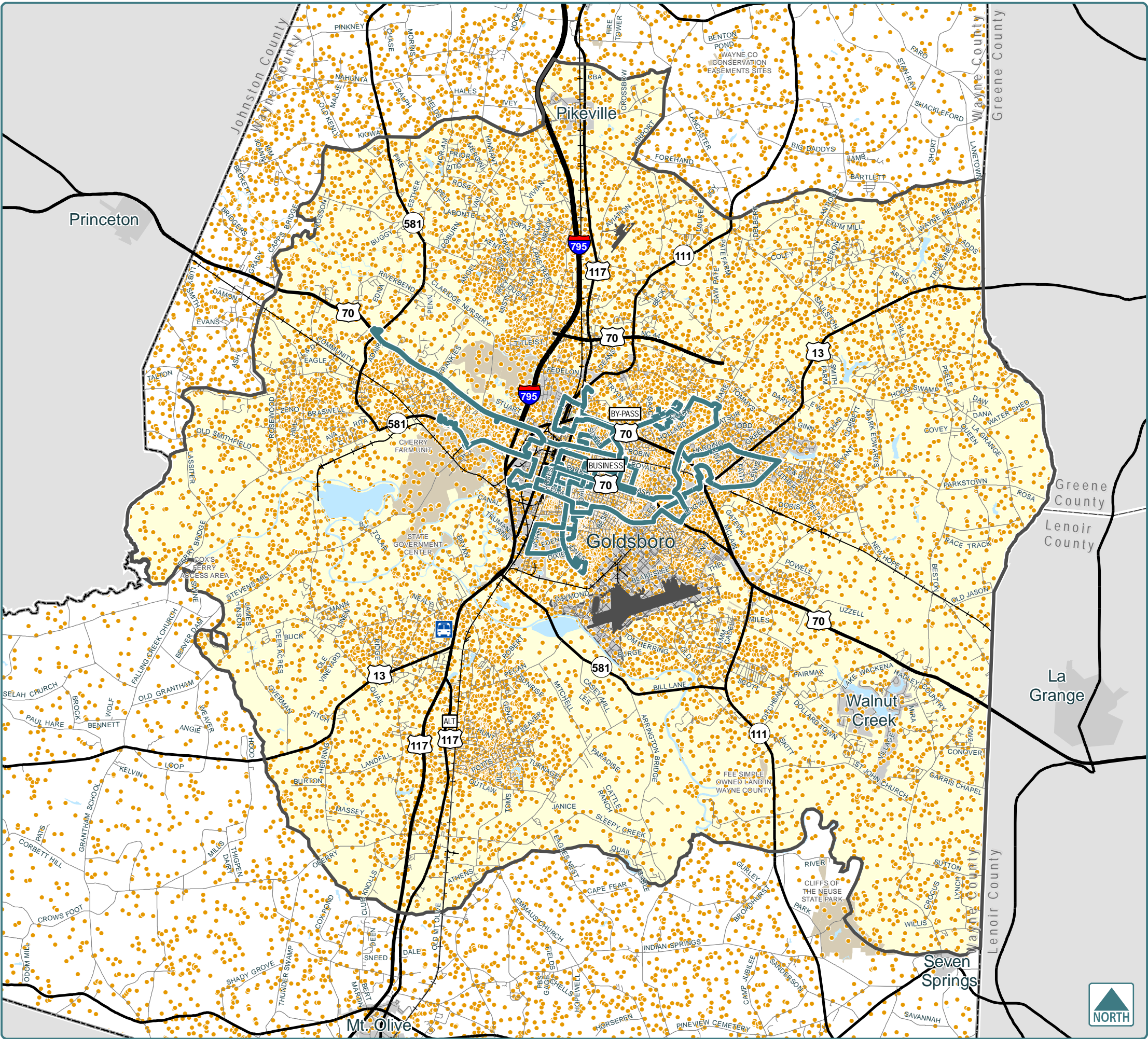
Wayne Memorial Hospital has an estimated 1,700 employees. Manufacturing, education, and public administration account for most of the remaining large employers in Wayne County. These employers represent major traffic generation for transit planning efforts. The most recent five-year CTSP noted that the county is self-contained in commuting terms, with 82 percent of residents remaining in the county to work. However, there are also a number of Wayne County residents that commute to Wake County and other parts of the Triangle Region.

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Figure 3-7: Population Density and Bus Routes



- Interstate

US Route

NC Route

Secondary Road

Railroad

Airport

Seymour Johnson AFB

Body of Water

State Owned Land

Goldsboro ETJ

Goldsboro Metropolitan Area

Municipal Boundary

Wayne County
- Bus Routes

Greyhound Bus Station

Population Density

1 Dot = 5 People

Notes:
- Data is shown at the block group level (symbolized by 1 dot = five people) based on US Census ACS 2007-2011 count data.

0 1 2 Miles October 2014



Existing Bicycle and Pedestrian Conditions

Although many people in the US choose to travel by automobile, cycling and walking remain the only options for some. Bicycling and walking may be either need based, a matter of personal preference in choice of transportation, or recreational in nature. The environmental, economic, and health benefits of cycling and walking are numerous. Taking trips by bike or on foot improves the environment, promotes good health, saves money, eases the burden on roadways, and enhances the livability of a community. Many people choose to bike or walk for one or more of these reasons. For children, persons with disabilities, elderly people no longer able to drive, and those who cannot afford an automobile, transit, bicycling, and walking may be their only option for daily trips.

The GMPO is currently planning for pedestrian and bicycle improvements outside the framework of the 2040 GMTP. The GMPO is currently engaged in the development of the GMPO Bicycle, Pedestrian, and Greenway Plan. Once adopted, that plan will provide additional analysis on existing conditions and provide guidance for further enhancements to the pedestrian and bicycle modes of movement within the Goldsboro Urban Area.

According to 2007-2011 ACS data, 15.6 percent of all households in the City of Goldsboro and 8.1 percent of all households in Wayne County do not have direct access to a personal automobile. The national average for the same time period is 8.9 percent. Children, persons with disabilities, and many elderly are not able to drive. Some households simply cannot afford an automobile.

Bicycle clubs organize weekly rides throughout the year and have an active membership. Informal joggers, bicyclists, and walkers can be seen throughout the Goldsboro Urban Area on a regular basis.

All users, regardless of need, choice, or recreational use require a complete network of bicycle and pedestrian facilities as well as programs that educate and encourage current and future users.

The public questionnaire also asked participants to list their top priorities in which they would like the community to invest. The responses indicated that roadway maintenance, more sidewalks, bicycle lanes and paths, reduce traffic congestion, traffic signal timing/coordination, pedestrian safety improvements, and bicycle safety improvements were the top priorities. Refer to Appendix A for additional details.


Bicycle Network

Bicyclists can use multi-use paths with pedestrians or mix with vehicular traffic on select roadways. Therefore, bicycle facilities include a range of treatment types such as wide curb lanes with no striping, paved shoulders, bicycle lanes, buffered bicycle lanes, protected bicycle facilities



Existing Bicycle Conditions

Source: ALTA



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such as cycle tracks, bicycle boulevards or neighborhood greenways, and off-road bicycle paths. The target users for each application and the unique circumstances of the particular roadway help to determine the bicycle treatment that is most appropriate. For example, on roadways with relatively low automobile volumes and slow travel speeds, experienced bicyclists often feel comfortable riding in mixed-flow traffic with no specific bicycle facilities provided. Marked bicycle facilities or adjacent bicycle paths are desirable as traffic volumes and travel speeds become higher.

Existing Bicycle Facilities

Existing bicycle facilities are shown by facility type in Figure 3-8. Currently, there are two miles of bike lanes in the Goldsboro Urban Area. Existing on-road facilities are limited to a few roads in Goldsboro. There are no on-road bicycle facilities in the Town of Pikeville or the Village of Walnut Creek.

Policy Review

Wayne County, the City of Goldsboro, the Village of Walnut Creek, and the Town of Pikeville do not currently have ordinance regulations or comprehensive plan guiding policies in place to encourage the construction of bicycle facilities.

The City of Goldsboro has an ordinance requiring all bicycles to be registered. Other ordinances enacted by the city prohibit the use of bicycles on sidewalks, require reflectors and lights on bicycles used after dark, and prohibit two or more bicycles riding in the same direction from riding side by side on the roadway.

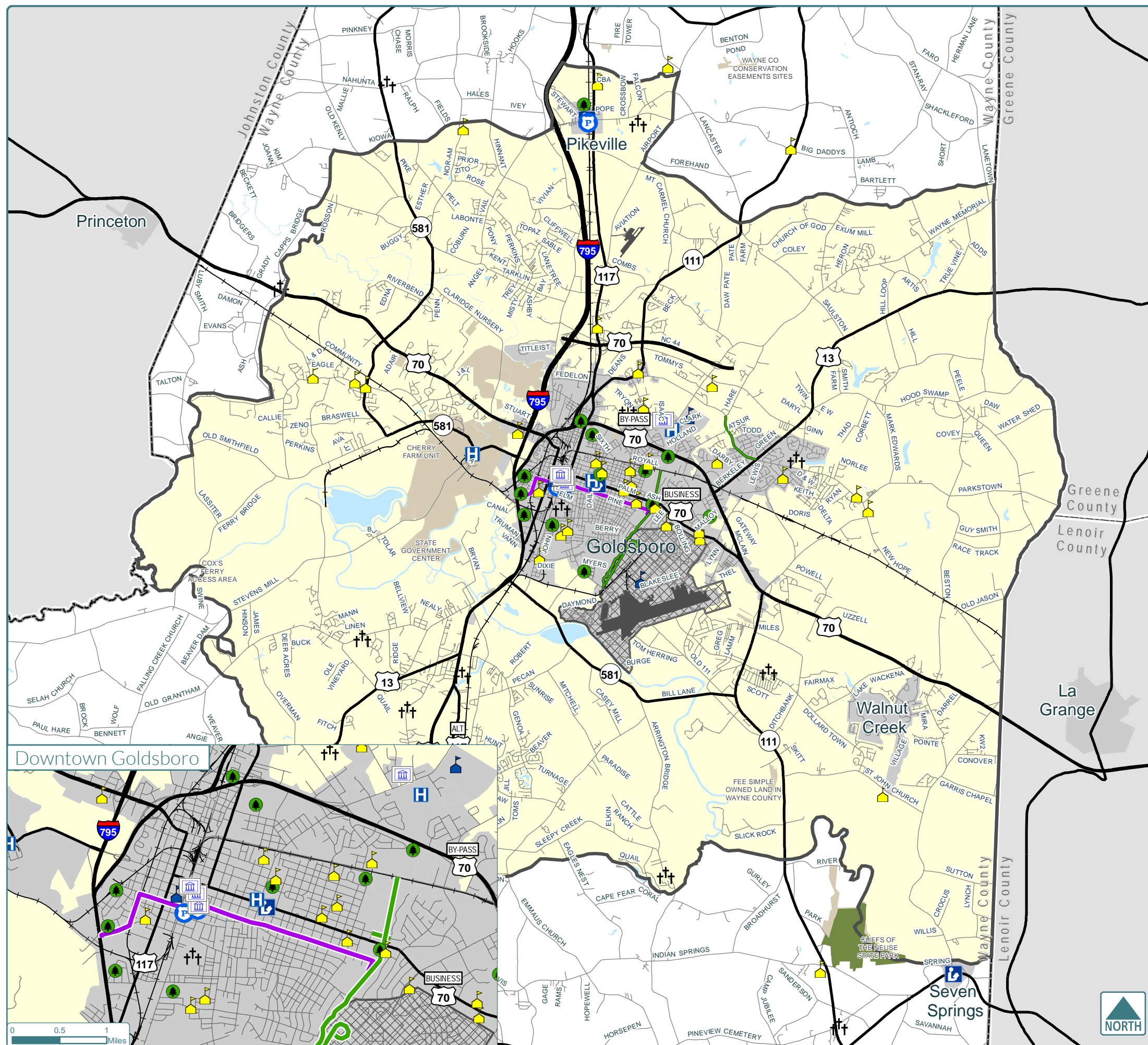
The GMPO Bicycle, Pedestrian, and Greenway Plan will include a comprehensive review of bicycle-related policies for the City of Goldsboro, Wayne County, and the Village of Walnut Creek.

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Figure 3-8: Existing Bicycle Facilities



- | | |
|---|--|
| <ul style="list-style-type: none">InterstateUS RouteNC RouteSecondary RoadRailroadAirportSeymour Johnson AFBBody of WaterUrban ParkCliffs of the Neuse State ParkState Owned LandGoldsboro Metropolitan AreaMunicipal BoundaryWayne County | Existing Bicycle Facilities <ul style="list-style-type: none">Signed Bike RouteMulti-Use Path Social Resources <ul style="list-style-type: none">SchoolCollegeGovernment BuildingHospitalPolice / SheriffParkLibraryCemetery |
|---|--|

0 1 2 Miles October 2014



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Existing Groups, Programs, and Initiatives

Currently, there is one active cycling club in the Goldsboro Urban Area. The Seyboro Cyclists are an informal cycling group that sponsor several weekly rides, small events, and promote cycling by participating in races. Their purpose is to “increase the visibility and popularity of cycling in Goldsboro and the surrounding area.” Their goal is “to promote and encourage bicycling in our community.”

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 is often a forgotten mode of transportation during the planning process. When a proper pedestrian environment is provided, walking offers a practical transportation choice that provides benefits for both individuals and their communities. The potential for increased walking is enormous since $\frac{1}{4}$ of all trips in the US are less than one mile in length. Features that contribute to making communities more walkable include a healthy mix of land uses, wide sidewalks,



Existing Pedestrian Conditions

Source: ALTA

buffers between the edge of pavement and the sidewalk, and trees to shade walking routes. Slowing traffic, narrowing streets to reduce pedestrian crossing distance, and incorporating pedestrian infrastructure (i.e., signage, crosswalks, and adequate pedestrian phasing at signals) into future roadway design plans also ensure walkability. The availability of pedestrian facilities and amenities plays an important role in encouraging the use of alternative modes of travel to the automobile. In addition to shifting trips from automobile to foot, the success of transit and other alternative travel modes depends greatly on the state of pedestrian facilities and amenities.

Policy Review

New residential construction in the Goldsboro Urban Area assists in the development of pedestrian infrastructure. The city’s subdivision ordinance requires that sidewalks, walkways, and other pedestrian-ways be constructed within and/or adjacent to any major subdivision. Sidewalks must be located on public ROW, meet city standards, and be approved by the City Engineer. Sidewalks are required along both sides of all major thoroughfares (as shown on the official Thoroughfare or Transportation Plan) and along one side of minor streets, including cul-de-sacs. In certain cases, the developer may be allowed the option of paying a fee in lieu of sidewalk construction. The fees acquired from this ordinance shall be used for sidewalk projects within the City of Goldsboro and its

extra-territorial jurisdiction. The City of Goldsboro reserves the right to require sidewalk construction and not allow an in lieu fee.

Wayne County does not require developers to provide sidewalks; however, the subdivision ordinance does state that sidewalks built to NCDOT standards are acceptable and can be counted toward open space requirements if leading to a pedestrian destination point. These destination points include schools and parks. Sidewalks must be approved by the Planning Board or the Board of Commissioners. The 2009 Wayne County Comprehensive Plan encourages multi-modal, walkable communities and includes policies to support the construction of sidewalks. Relevant pedestrian policy and actions in the plan include:

Policies and Actions for Vision 1. Transportation:

- Policy 1.3: PEDESTRIAN AND BIKEWAY FACILITIES shall be encouraged as energy-efficient, healthful, and environmentally sound alternatives to the automobile. All future road construction and expansion within the county shall consider opportunities for bikeways and pedestrian ways within the project.
 - Action 1.3: Implement the Goldsboro MPO Bicycle, Pedestrian, and Greenway Plan recommendations. Consider bike lanes as part of street construction standards for new developments in locations identified by the plan. Consider areas adjoining extra-territorial jurisdiction as places to expand bike lanes.
- Policy 1.4: The mobility needs of all citizens shall be recognized through the provision of TRANSPORTATION ALTERNATIVES TO THE AUTOMOBILE. Wayne County should work with state and federal governments to create pedestrian, bikeway and transit improvements proportionate to the large number of people benefited.
 - Action 1.4: Reexamine the county's development standards to evaluate the need for improved pedestrian systems (sidewalks, greenways, streetlights etc.) in new residential developments. Implement policy recommendations identified in the Goldsboro MPO Bicycle, Pedestrian, and Greenway Plan.
- Policy 1.5: County-wide mass transit services may be supported through the encouragement of compact, TRANSIT-SENSITIVE DEVELOPMENT PATTERNS. Higher intensity development may be encouraged along designated transit corridors, between municipalities and employment centers, Seymour Johnson Air Force Base and other population centers.
 - Action 1.5: Seek funding sources, such as Enhancement Grants, to provide sidewalks and street furniture, streetlights, etc. to improve pedestrian-oriented areas.

Policies and Actions for Vision 6. Schools:

- Policy 6.4: School campuses shall be designed to allow safe, secure PEDESTRIAN ACCESS FROM ADJACENT NEIGHBORHOODS. Travel corridors within 1.5 miles of all

public schools shall be a priority for construction of sidewalks, bike paths and pedestrian trails.

- Action 6.4: In cooperation with the Wayne County Board of Education, prepare site criteria for the placement and development of community-oriented schools, to include priorities for safe pedestrian and bicycle access, transit use, neighborhood connectivity, infrastructure availability, and environmental compatibility.
- Policy 6.5: Site planning for TRAFFIC MANAGEMENT AND SAFETY in the vicinity of public schools shall be a priority.
 - Action 6.5: Apply for a Safe Routes to School Grant through the North Carolina Department of Transportation. These Federal funds, administered by the state, may be used to construct new bike lanes, pathways, and sidewalks, as well as to launch Safe Routes education and promotion campaigns in elementary and middle schools.

Policies for Vision 9. Revitalization of Our Downtowns:

- Policy 9.8: PEDESTRIAN ORIENTED STREETSCAPE IMPROVEMENTS including, but not limited to sidewalks, street trees, landscaping, street lights, street furniture, and signs shall be supported as a means to create and maintain a downtown environment attractive to investment.
- Policy 9.9 DOWNTOWN AREA CIRCULATION SYSTEMS shall balance the needs of pedestrians, private vehicles, rail service, and public transit services.

Policies for Vision 10. Parks and Recreation:


- Policy 10.5: Efforts to develop a system of open space GREENWAYS AND HIKING TRAILS in the county shall be encouraged. Natural corridors such as streams and floodplains, and man-made corridors such as utility and transportation rights-of-way and easements may be strategically employed as appropriate.

These policies and actions are guiding principles for future implementation strategies to enhance and expand the pedestrian network in the county.

The Town of Pikeville currently does not have any policies for pedestrian accommodations, and does not have requirements for the installation of sidewalks associated with new development. Sidewalk construction requires a written permit from the town.

Sidewalks shall be provided in PUDs in the Village of Walnut Creek, as deemed necessary by the Village Council, after receiving the recommendation of the Planning Board. Sidewalk construction requires a written permit from the village.

The GMPO Bicycle, Pedestrian, and Greenway Plan will include a comprehensive review of bicycle-related policies for the City of Goldsboro, Wayne County, and the Village of Walnut Creek.



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Existing Sidewalks, Trails, and Routes

There are many roads in downtown Goldsboro that have sidewalks on at least one side of the street. The recently completed Center Street streetscape improvements included wide sidewalks with specialty pavers, ADA ramps, and high-visibility crosswalks. There have been some trails and walking paths developed in Goldsboro, primarily in Herman, Fairview, and Stoney Creek Park. The Town of Pikeville has a 0.35-mile long walking trail that meanders its way around the outer boundary of Dees Memorial Park. Village-owned park land in Walnut Creek is equipped with walking paths. A portion of the statewide Mountains to Sea Trail has been developed through Old Waynesborough Park and the Stoney Creek trail. There is a paved sidepath in Goldsboro along the south side of New Hope Road from Hare Road to Harding Drive. There are approximately 61 miles of sidewalks and three miles of paved multi-use trails in the Goldsboro Urban Area. The Mountains to Sea Trail route, existing greenways/multi-use paths, and sidewalks are shown on Figure 3-9.

Existing Groups, Programs, and Initiatives

Currently, there are several groups in the Goldsboro Urban Area that focus on healthy, active living. The Goldsboro Parks and Recreation Department leads events such as hikes and bicycle races. The GOWAYNEGO initiative meets regularly and sponsors walks, hikes, and encouragement programs for all ages. The vision of GOWAYNEGO is “A healthier, happier, and better Wayne County through active living.” The three goals of GOWAYNEGO are:

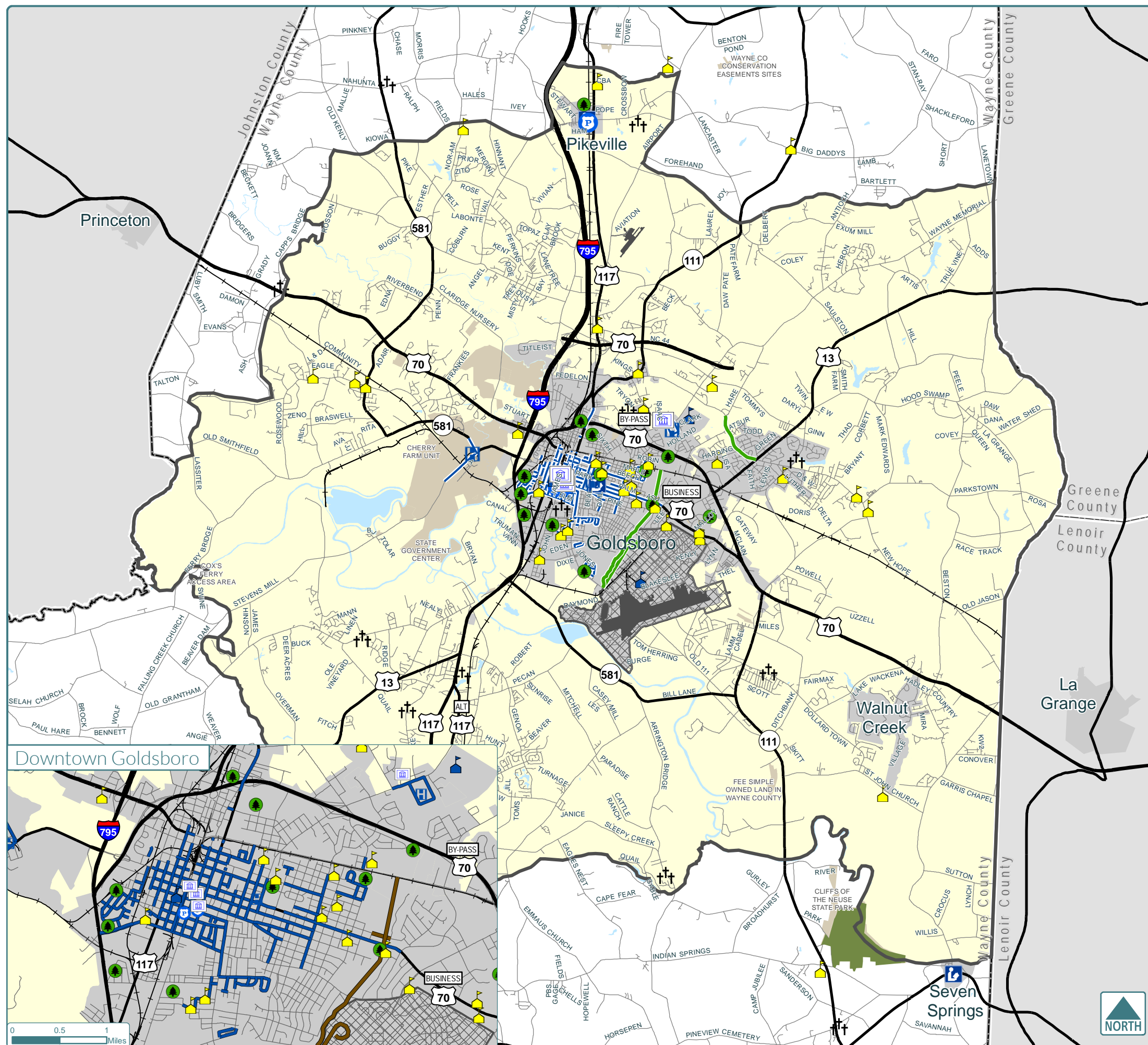
- Push Wayne County into the 50 healthiest counties in North Carolina.
- Get county residents moving and making better nutritional decisions.
- Collectively lose a MILLION pounds BY MAY of 2015.

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Figure 3-9: Existing Pedestrian Facilities



- | | |
|---|--|
| <ul style="list-style-type: none">InterstateUS RouteNC RouteSecondary RoadRailroadAirportSeymour Johnson AFBBody of WaterUrban ParkCliffs of the Neuse State ParkState Owned LandGoldsboro Metropolitan AreaMunicipal BoundaryWayne County | Existing Pedestrian Facilities <ul style="list-style-type: none">SidewalkMulti-Use Path Social Resources <ul style="list-style-type: none">SchoolCollegeGovernment BuildingHospitalPolice / SheriffParkLibraryCemetery |
|---|--|

0 1 2 Miles October 2014



Existing Freight Conditions

The movement of freight throughout the southeastern US has always played an important role in the economic vitality of the region. This statement is equally true for the Goldsboro Urban Area. Manufacturing and agriculture remain strong elements of the regional economy. In addition, the proximity of the Global TransPark in Kinston coupled with the movement of military goods, personnel, and equipment associated with SJAFB (and other nearby military bases) requires a sound interconnected system for the movement of freight.

Today, a strengthened emphasis on the importance of ports and rail to the national security and economic well-being of the country exists. This emphasis is heightened as roadway congestion through urban centers continues to increase. While the movement of freight via trucks plays an important role for long distance hauling, rail infrastructure is a much more efficient means of transporting bulk materials and containers from ports to destinations. As the cost of transportation increases and roadway congestion begins to impact travel times, enhanced coordination between modes will become even more important.

Highway Freight

When considering freight planning in the Goldsboro Urban Area, most of the enhancements relate to improvements to rail safety and roadways including the routing of trucks to appropriate locations. This also includes the creation and protection of facilities that accommodate through trips with origins and destinations outside the Goldsboro Urban Area (i.e. US 70 Bypass and I-795). Design considerations that accommodate the movement of larger trucks should also be considered for these designated facilities as well as those arterials and collector streets that feed this network of highways. NCDOT has published a NC Truck Network Map that identifies roadways appropriate for specific types of truck movements, as well as existing and future restrictions. These routes are shown below in Exhibit 3-4, which references the application of Surface Transportation Assistance Act (STAA) vehicle designations defined as:

- Twin-Trailer Truck — a vehicle combination consisting of a truck-tractor and two trailing units, 102 inches wide, as authorized by G.S. 20-115.1.
- 48-Foot Semi-Trailer Truck — a vehicle combination consisting of a truck-tractor and one trailer 48 feet in length, 102 inches wide, as authorized by G.S. 20-115.1 .
- 53-Foot Semi-Trailer Truck — a vehicle combination consisting of a truck-tractor and one trailer 53 feet in length, 102 inches wide, and a “kingpin” axle distance of 41 feet, as authorized by G.S. 20-115.1 and G.S. 20-116.

The map identifies routes designated for STAA dimensioned vehicles (including twins and 53-foot trailers), primary routes eligible for 53-foot semi-trailer trucks, primary route restrictions, and routes under study or review that may be restricted at a future date.

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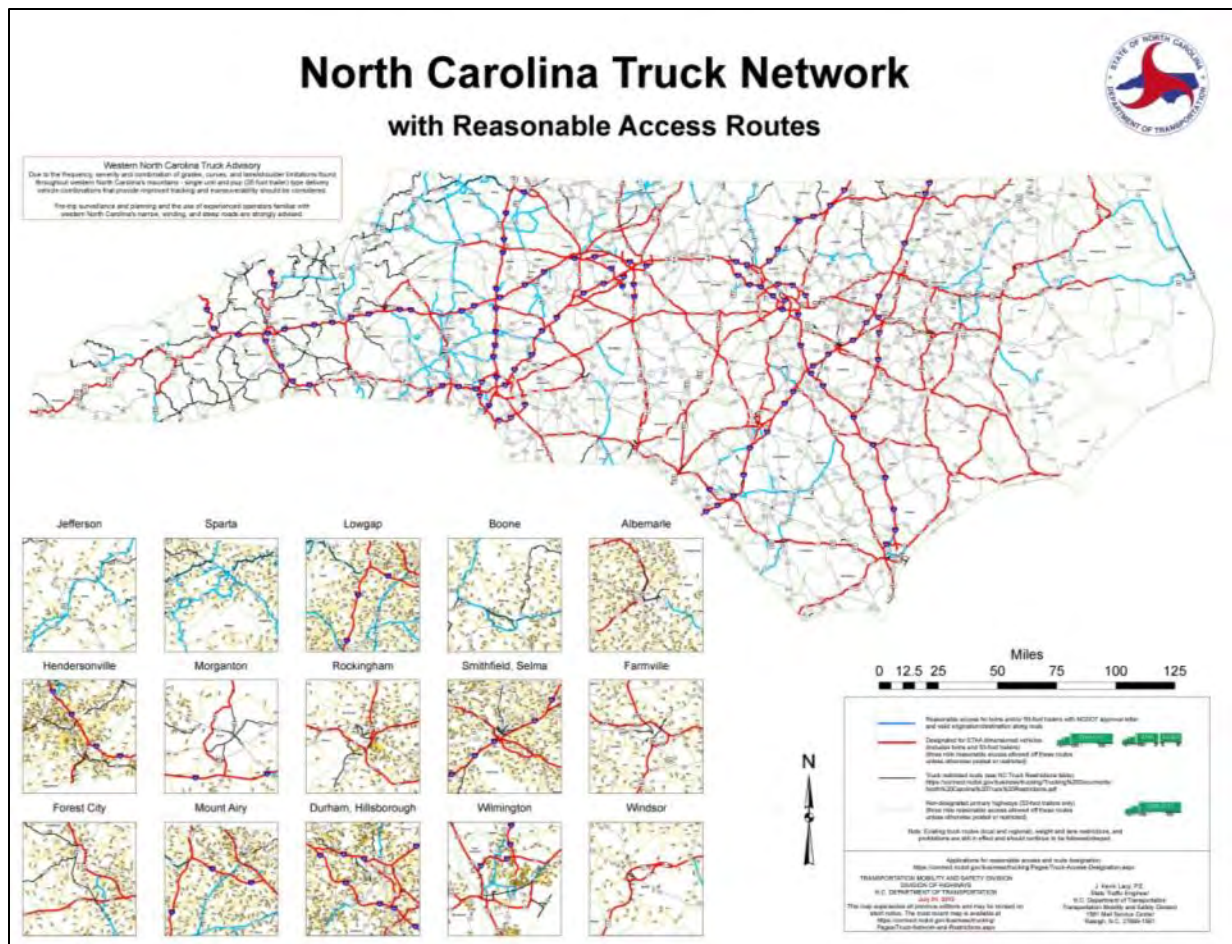


Exhibit 3-4: North Carolina Truck Network

Source: NCDOT

Rail Freight

The Goldsboro we know today has much to do with the presence of rail. The completion of the Wilmington and Raleigh Railroad (later called the Wilmington and Weldon) in 1840 launched a period of growth and change within the community. By the time Goldsboro incorporated in 1847, the community was a clear example of how the railroad could help a community thrive. As the railroad network across the US expanded, additional service was added in Goldsboro. The growth of railroads improved freight mobility and contributed to the local and regional economy. As improvements to the highway system occurred, dependence on rail for moving goods diminished. Still, rail continues to offer a competitive transportation option for some goods and remains the only option for other goods. Working in concert with highways and ports, rail can achieve the desired efficiency within the marketplace.

Since the adoption of the 2035 LRTP, the movement of goods through the Goldsboro Urban Area continues to be an important priority given the local economy's dependence on access to

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transportation. The segment of the local economy that relies on rail service includes manufacturers such as Georgia Pacific and Cooper Standard Automotive; agribusiness including the Goldsboro Milling Company and Case Farms; and the military installation at SJAFB. Ultimately, freight movements may play an even greater role in the local economy with the Global TransPark in Kinston, less than 30 miles to the southeast.

Two rail lines run through Goldsboro. These lines carry volumes of freight moved by the Norfolk-Southern Railway and CSX. The NCRR, which is operated by Norfolk-Southern, runs west to Raleigh and east to Kinston. CSX runs south to Wallace and north to Wilson and Rocky Mount. The image below illustrates the rail network at the state level. A more detailed look at the rail network within the Goldsboro Urban Area is shown in Figure 3-10.

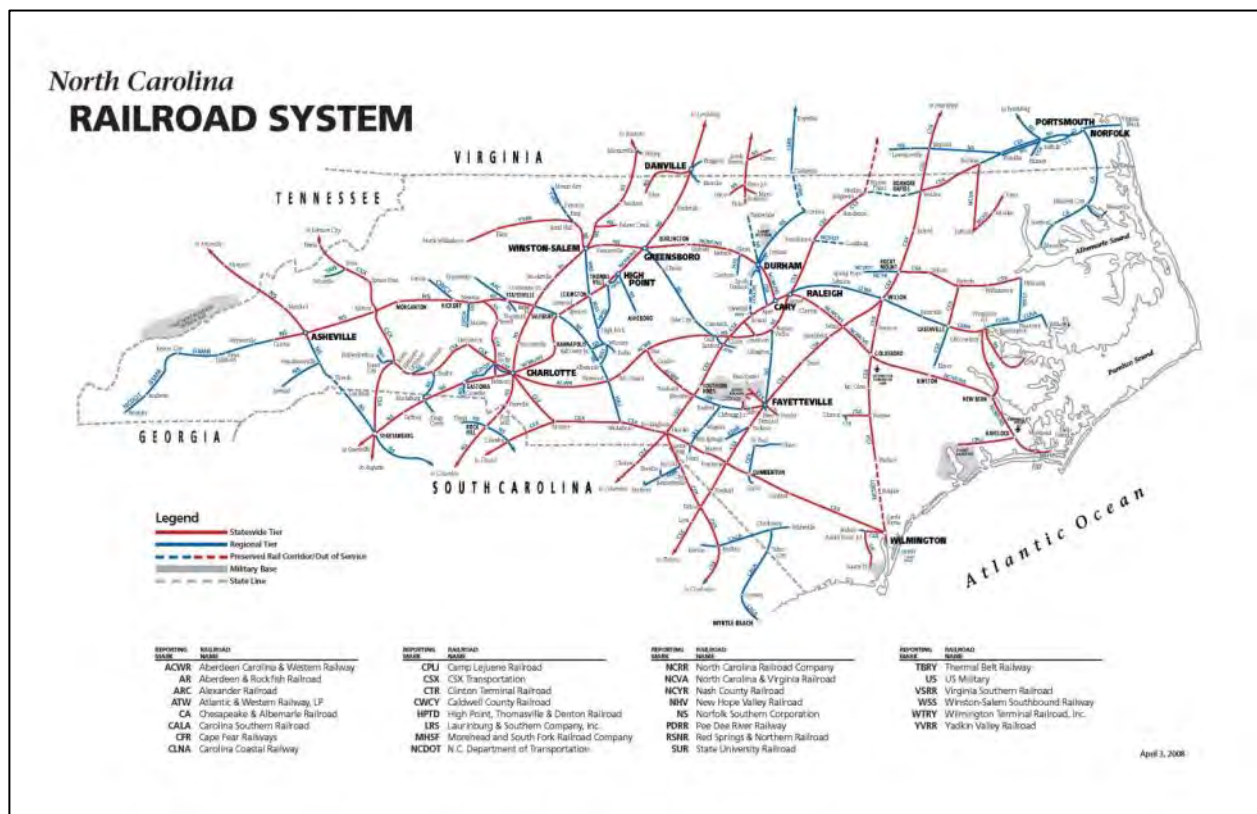


Exhibit 3-5: North Carolina Railroad System

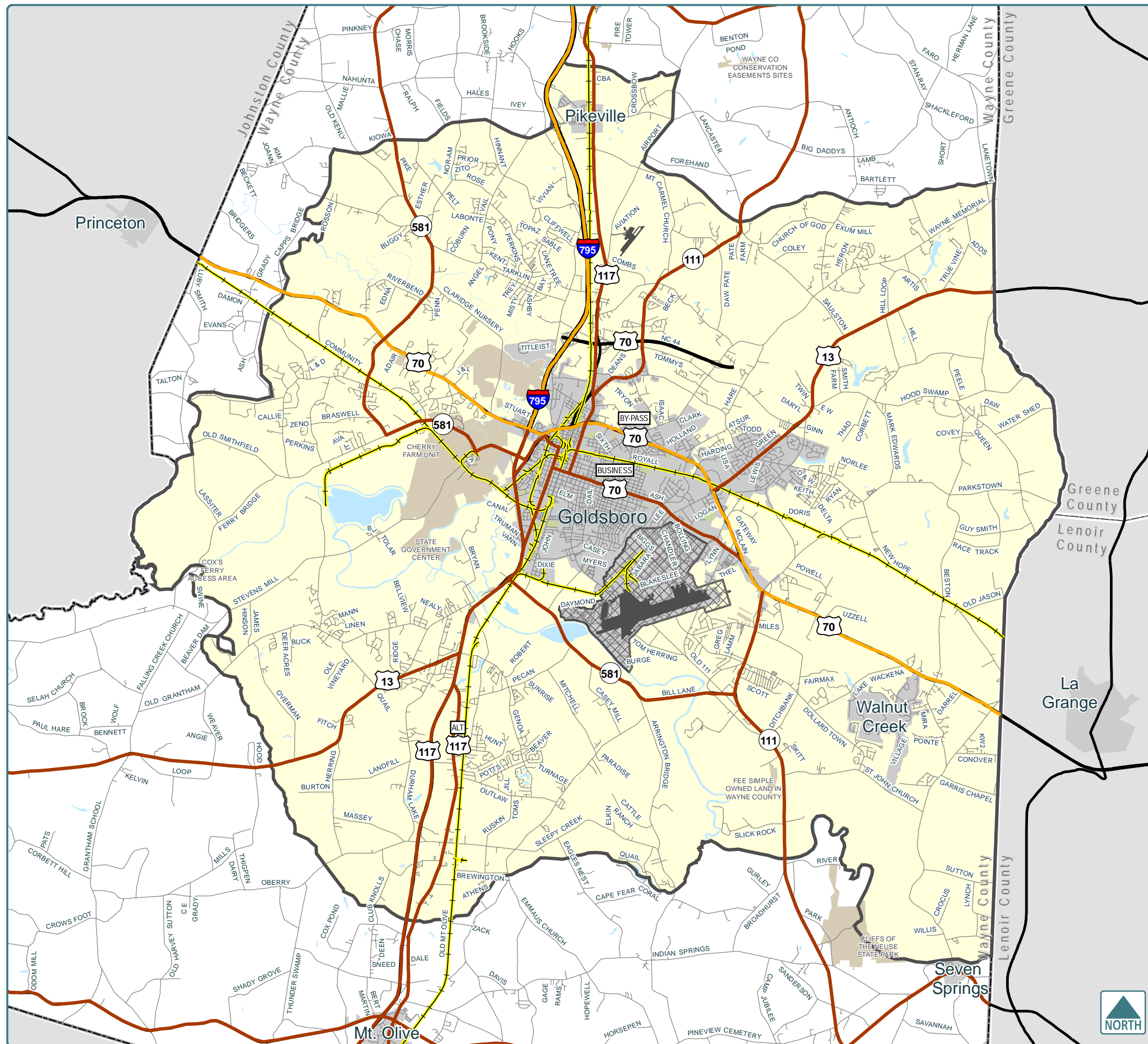
Source: NCDOT

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Figure 3-10: Existing Aviation, Freight, and Rail Facilities



- | | |
|---|--|
| <ul style="list-style-type: none"> Interstate US Route NC Route Secondary Road Airport Seymour Johnson AFB Body of Water Urban Park State Owned Land Goldsboro ETJ Goldsboro Metropolitan Area Municipal Boundary Wayne County | Aviation, Freight, and Rail <ul style="list-style-type: none"> STAA Truck Route Primary Truck Route Railroad |
|---|--|

Notes:

- STAA (Surface Transportation Assistance Act) Designated Truck Routes dimensioned vehicles includes twins and add 53-foot trailers
- Primary Truck Route eligible for 53-foot trailers; no twins unless authorized by reasonable access permit
- Three-mile reasonable access allowed off both route types unless otherwise posted or restricted.

0 1 2 Miles October 2014



Existing Aviation Conditions

The system of airports in North Carolina is an important part of the statewide transportation system as well as the state's economy. The needs of the flying public in North Carolina (both passengers on an airline and those piloting a private aircraft) are fulfilled through a combination of large airports and smaller facilities. These airport facilities can be divided into two major categories:

- **Commercial Air Carrier** — These airports include facilities that serve regularly scheduled passenger service. The three largest facilities in the state are Charlotte-Douglas International, Raleigh-Durham International, and Piedmont Triad International. Other airports with scheduled passenger service in the state include Asheville Regional Airport, Fayetteville Regional Airport, Wilmington International Airport, Craven County Regional Airport, Albert J. Ellis Airport (Jacksonville), and Pitt-Greenville Airport. Approximate distance from Goldsboro for the most accessible commercial air carriers are: Raleigh-Durham International Airport (70 miles), Pitt-Greenville Airport (45 miles), Craven County Regional Airport (60 miles), Albert J. Ellis Airport (60 miles), and Fayetteville Airport (65 miles).
- **General Aviation** — These airports include smaller facilities that exist in the majority of counties throughout the state. They typically have paved runways 2,000 feet to 5,500 feet in length and can accommodate small (single engine) and medium-sized (multi-engine) aircraft. These airports often provide opportunities for businesses with suitable aircraft to avoid the use of larger facilities and minimize air travel associated with lag time. They also have proven useful in attracting business to communities throughout the state. The closest general aviation airports to Goldsboro include the Goldsboro-Wayne Municipal Airport, Mount Olive Municipal Airport, Wilson Industrial Air Center, and the Kinston Regional Jetport.

Airports

Two civilian airports operate within Wayne County — Wayne Executive Jetport located off Old Mt. Olive Highway, north of E NC Highway 55 and Mount Olive Municipal Airport located south of the Goldsboro Urban Area near Mount Olive. Both airports are classified as general aviation facilities and neither facility currently receives scheduled passenger service. Figure 3-10 shows the location of the Wayne Executive Jetport within the context of rail and freight corridors in the Goldsboro Urban Area.



Wayne Executive Jetport

Source: URS

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Wayne Executive Jetport (GWW)

Wayne Executive Jetport is larger and busier than the Mount Olive Municipal Airport. The facility is located three miles north of downtown Goldsboro on Aviation Road and has a 5,500-foot runway. The airport's services include fueling, with self-service available; major airframe and power plant repairs; bulk and bottled oxygen; and hangars and tie-downs.

Characteristics

Runway

- Designation: 5/23.
- Length: 5,500 feet.
- Width: 100 feet.
- Surface: asphalt in good condition.



Wayne Executive Jetport

Source: Wayne County

Lighting and Approach Aids

- Runway Edge Lights: Medium Intensity Runway Lights (MIRL) with runway end indicator lights. New light-emitting diode (LED) lighting was installed in 2011.
- Runway Markings: good condition.
- Visual Glide Slope Indicators: precision approach path indicators (PAPI-4), on each approach.
- ODAL: Omni-Directional Approach Lights are located on the approach to Runway 5.
- ILS: A complete Instrument Landing System (ILS) provides a CAT I approach for Runway 5.
- AWOS: An Automated Weather Observation System is located on the airfield to provide updated weather for pilots.

Taxiways and Aprons

- Type: full parallel taxiway with five connector taxiways.
- Surface: asphalt.
- Taxiway Edge Lights: Medium Intensity Taxiway Lights (MITL). New LED taxiway lights were installed in 2011.
- Existing apron lighting enhances the security and safety on the apron area.

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Airport Master Plan

The current Airport Reference Code for the Wayne Executive Jetport is C-I with existing runway pavement strength of 30,000 pounds for single wheel and 42,000 pounds for dual wheel aircraft. The design aircraft currently is the Citation XL. There are numerous short term to long term projects and proposed development plans for the airport. These plans include a variety of planning, engineering, and construction work that include a runway and taxiway extension to 6,500 feet, various airfield pavement strengthening and rehabilitation projects, apron expansions, terminal and terminal area improvements, safety area improvements, access road improvements, new T-Hangars and corporate hangar construction, property acquisition, and security/wildlife fencing. These projects will be eligible for state and federal funding and have been included in the Capital Improvement Program (CIP) and TIP.

Mount Olive Municipal Airport (W40)

Mount Olive Municipal Airport is located in southern Wayne County, near the Town of Mount Olive, and is owned cooperatively by Mount Olive and Wayne County. This facility is located outside the Goldsboro Urban Area. The airport is currently in the process of re-paving the runway and apron.



Mount Olive Municipal Airport

Source: Bass Aviation

Characteristics

Runway


- Designation: 5/23.
- Length: 5,250 feet.
- Width: 75 feet.
- Surface: asphalt in good condition.

Lighting and Approach Aids

- Pilot control lighting with control intensity (low, medium, and high).
- Runway Markings: good condition.
- Precision approach path indicators on each approach.

Taxiways and Aprons

- Type: stub taxiway to single apron.
- Surface: asphalt.



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Airport Master Plan

According to a representative at the Mount Olive Municipal Airport, the Mount Olive Municipal Airport last updated their master plan approximately a year ago, in the summer of 2008. The master plan identifies the airport's greatest needs as a full parallel taxi-way and a new jet fuel and aviation fuel system. Additional needs not currently included in their master plan include a GPS approach and a corporate maintenance hangar. No funding currently exists for these improvements.

Additional information for both airports can be found by referencing their Airport Master Records maintained by the Federal Aviation Administration. Information also can be obtained by visiting the NCDOT Division of Aviation website at www.ncdot.org/transit/aviation.

Chapter 4. Future Transportation

This section is a primary focus of the 2040 GMTP – it describes the investments that will be made in the transportation system, when those investments will be made, and ways to make those investments sustainable and efficient.

The first section discusses future travel conditions that can be expected based on results of travel demand modeling of the Goldsboro Urban Area’s roadway network compiled with respect to local knowledge and development trends. This network includes existing roads, roads currently committed for funding by NCDOT, and future roads highlighted for funding under the 2040 GMTP.

Following the travel conditions section are the recommended project investments for the future of the region expected through the year 2040 – the horizon year of this GMTP.

The recommended investments are grouped in the following categories:

- Roadways
- Public Transit
- Bicycle and Pedestrian Facilities
- Freight
- Aviation
- Transportation Demand Management
- Transportation Systems Management
- Technology


Travel Conditions

A growing/expanding county that also contains an aging infrastructure requires additional transportation choices in order to meet the mobility needs of its residents. In addition to providing adequate capacity on existing facilities, a connected non-motorized system and public transportation options will be needed to help solve future mobility and connectivity issues.

Changes in traffic volumes and vehicle miles traveled (VMT) are the primary indicators that the Goldsboro Urban Area’s transportation system will need to add capacity and promote both transit and non-motorized travel to create a balanced transportation system.

Changes to the 2010 base year roadway highway network to define the 2040 Existing Plus Committed network were limited to those projects that meet the following criteria:

1. The project is included in the current NCDOT STIP projects list.
2. The project results in changes in travel speed/posted speed limit in a corridor.



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3. The project results in increased capacity in a corridor. If there are projects included in the STIP list that are corridor maintenance projects or rehabilitation projects (pavement overlays, bridge deck replacement, etc.) that do not result in additional intersection or segment travel lanes, these projects will not be incorporated into the model network.

Future travel conditions along the region's roadways can be examined under a variety of conditions. Some plans contain Existing Plus Committed (E+C) Conditions to show congestion if only those projects which are underway or already have funds appropriated to them are added to existing roadway facilities. For the GMPO, the Funded Plan (the 2040 GMTP) adds to the committed projects all projects slated for funding in the Goldsboro Urban Area through the year 2040.

Recommended Improvements

Increasing demands will be placed on the existing transportation network in the Goldsboro Urban Area through the year 2040. Given the expected natural, man-made, and financial barriers to building new roads, more emphasis must be placed on promoting future mobility by maximizing the existing infrastructure. The collective efforts of local staff, the TAC, the TCC, area stakeholders, the Steering Committee, and the general public have resulted in recommendations that identify improvements to key corridors throughout the region. Some of the projects were identified in previous planning efforts.

2040 Congestion

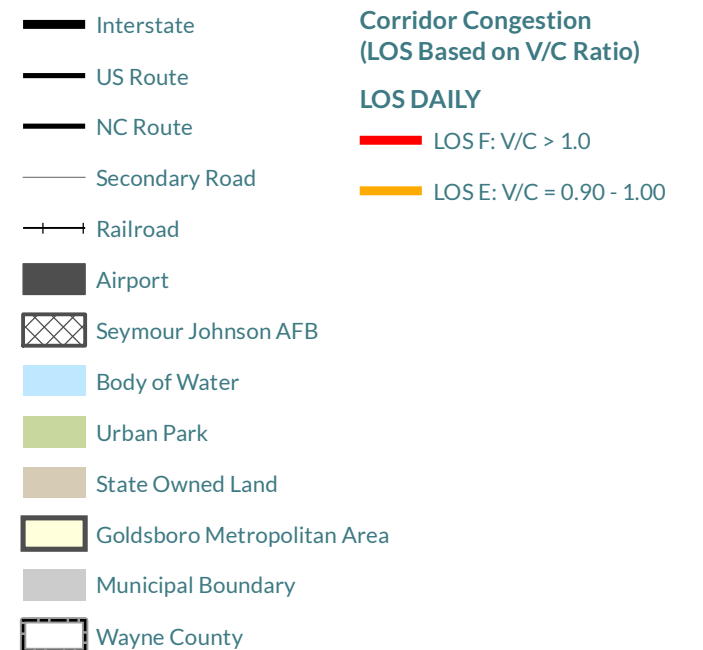
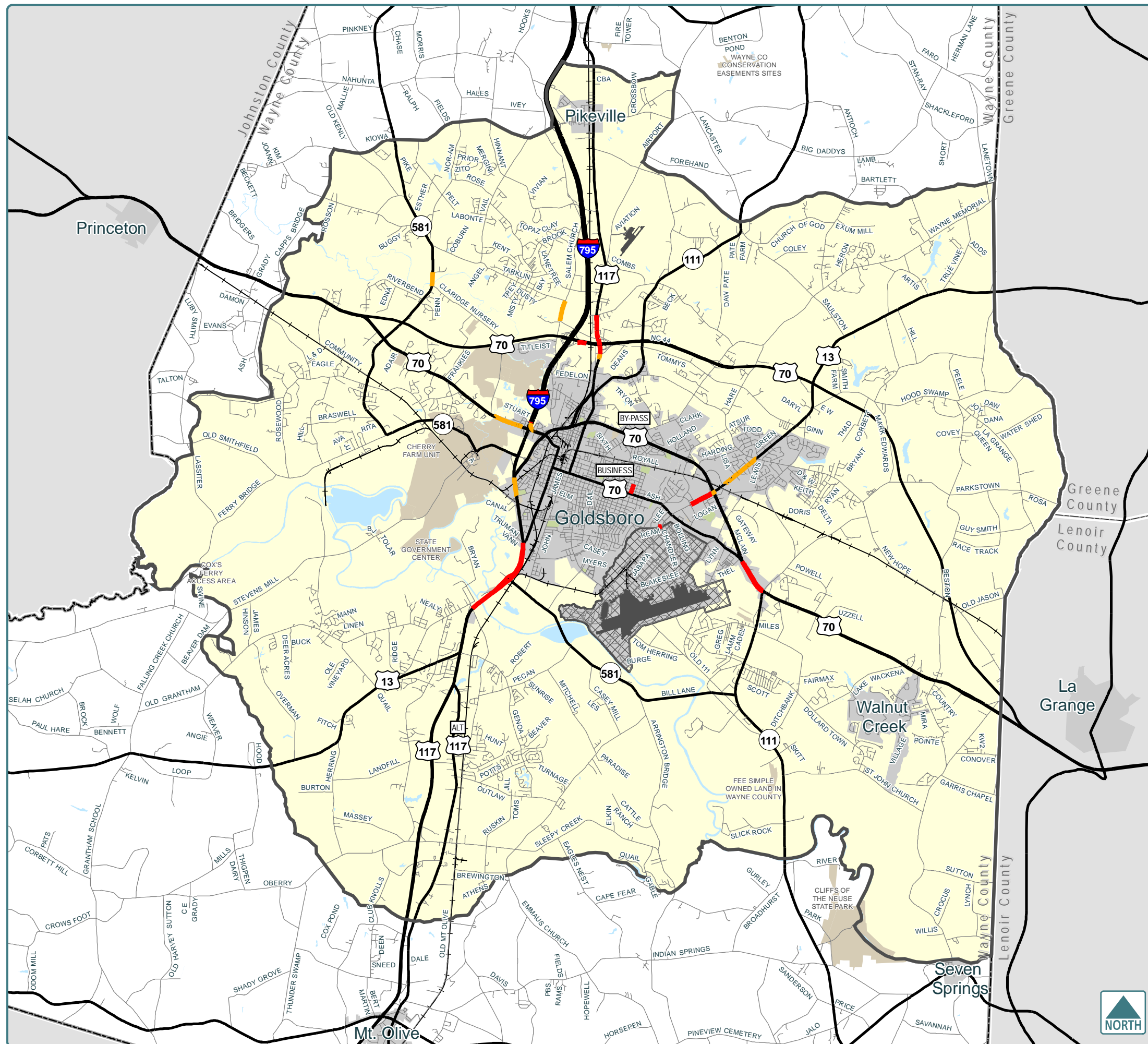
Despite the improvements provided by the committed projects, facilities in the Goldsboro area are projected to be congested in 2040. The funded plan as described in Chapter 6 includes a list of high priority projects that should address areas of most concern. Figure 4-1 displays the level of service if these financially constrained projects are constructed. As the map indicates, congestion will most subside except on major roadways such as US 70 east of Ash Street and US 117 south of South George Street and US 117 in the vicinity of the interchange with the Goldsboro Bypass. Berkeley Boulevard also remains congested south of US 70.

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Figure 4-1: 2040 MTP Level of Service




Notes:

- Data is derived from the Goldsboro MPO Travel Demand Model (2014) for 2040 projections.
- V/C is the Volume to Capacity Ratio that measures corridor congestion.

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Recommended Improvement Map

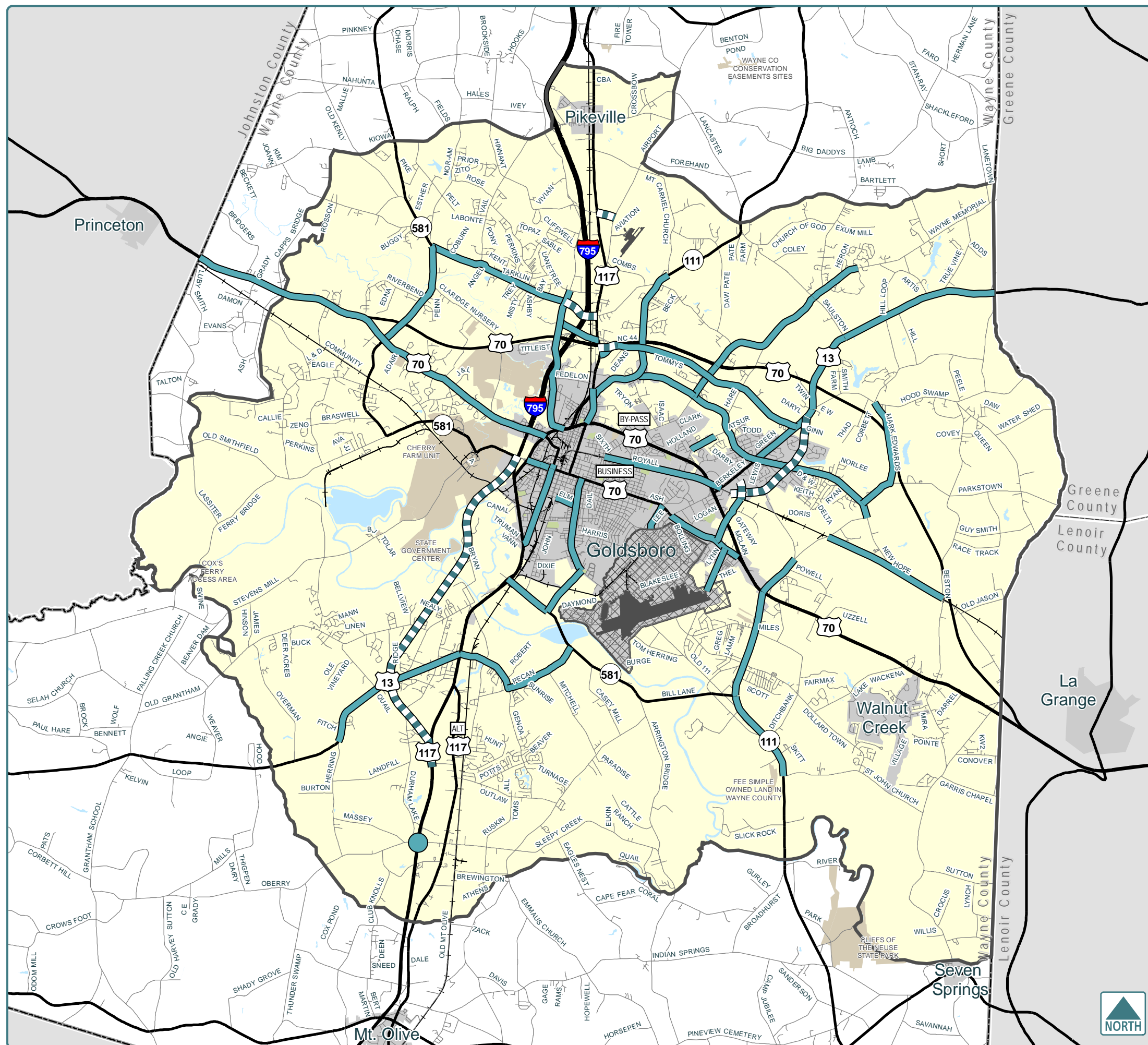
It is important to identify the improvements necessary to upgrade current streets to the preferred vision. Likewise, it is important to easily identify the location of proposed streets in a new location. The Recommended Improvement Map (Figure 4-2) shows the required improvements to the transportation system.

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Figure 4-2: 2040 Recommended Roadway Projects



- Interstate
 - US Route
 - NC Route
 - Secondary Road
 - Railroad
 - Airport
 - Seymour Johnson AFB
 - Body of Water
 - Urban Park
 - State Owned Land
 - Goldsboro ETJ
 - Goldsboro Metropolitan Area
 - Municipal Boundary
 - Wayne County
- Recommended Projects**
- Widening/Improvement
 - New Location
 - Proposed Interchange

0 1 2 Miles October 2014



Complete Streets

It is important to note that the North Carolina Board of Transportation adopted a “Complete Streets Policy” in July, 2009:

“The North Carolina Department of Transportation, in its role as stewards over the transportation infrastructure, is committed to:

- *Providing an efficient multi-modal transportation network in North Carolina such that the access, mobility, and safety needs of motorists, transit users, bicyclists, and pedestrians of all ages and abilities are safely accommodated;*
- *Caring for the built and natural environments by promoting sustainable development practices that minimize impacts on natural resources, historic, businesses, residents, scenic and other community values, while also recognizing that transportation improvements have significant potential to contribute to local, regional, and statewide quality of life and economic development objectives;*
- *Working in partnership with local government agencies, interest groups, and the public to plan, fund, design, construct, and manage complete street networks that sustain mobility while accommodating walking, biking, and transit opportunities safely.”*

This policy requires that NCDOT’s planners and designers will consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects within a growth area of a town or city unless exceptional circumstances exist. Routine maintenance projects may be excluded from this requirement if an appropriate source of funding is not available.

The following sections show recommended improvements for specific corridors and other improvements (bicycle and pedestrian, transit, and freight) as part of the multi-modal recommendations presented in the 2040 GMTP.

Roadway Recommendations

In the United States, roadways are historically the component of the transportation network that receives the majority of transportation dollars. Since the rise of the interstate system in the 1950s, the majority of drivers choose the automobile as their number one method of travel.

The projects in this section are all expected to be under construction or completed by the plan horizon year of 2040. These projects were selected through an alternatives analysis and are able to be funded through existing budgets or projected future revenue streams.

The recommendations are based on feedback from the TAC, TCC, the general public, Steering Committee, and stakeholders.

New Construction

The construction of new location roadways today typically occurs at the collector street level. These new roadways are increasingly funded by the private sector as land is developed. Building new freeways or major arterials has become less frequent as the cost of construction has risen (in part due to the need to acquire private property to add right of way) and the availability of funding has declined. The roadways recommended for new construction have long been identified by local, regional, and state officials as critical to the mobility of residents, freight operators, and tourists by improving the connectivity between higher-level facilities. Although this plan assesses impacts on vulnerable populations and geographic areas, a more detailed analysis is required and will be undertaken before engineering and construction. Prior to final alignments being selected for new location roadways, a more extensive process to meet the requirements of the National Environmental Policy Act of 1969 (NEPA) will be performed to evaluate the social, environmental, and mobility benefits and impacts.

Existing Road Widening

For some corridors, access management solutions alone will not solve congestion problems forecasted through the planning horizon year of 2040. Most of the recommended improvement projects are categorized as road widening and are displayed in Figure 4-3. The roads recommended to be widened represent facilities currently operating over capacity or projected to be over capacity by 2040. Additional lanes should accommodate the increased traffic volumes projected through the planning horizon year of 2040.

Collector Street Network

In addition to new construction and capacity-increasing projects, collector streets are recommended throughout the Goldsboro Urban Area to improve the general connectivity of the regional road network. The collector street system provides critical connections by bridging the gap between arterials and local streets. Collectors gather traffic from neighborhoods and distribute it to the system of major and minor thoroughfares throughout the region. Recommended collector streets connect some of Goldsboro's key roadways and emerging neighborhoods and activity centers. These new facilities are envisioned to have two lanes and often have exclusive left turn lanes at intersections with principal and minor arterials and less frequently at intersections with other collectors. The actual design of a collector street will depend upon the surrounding land use context, but should generally reflect spacing standards as shown in Table 4.1.

Table 4-1: Collector Street Spacing Standards

Land Use/Type of Collector Street	Intensity (dwelling units per acre)	Access Function	Approximate Street Spacing
Very Low Intensity Residential	Less than 2	High	3,000 to 6,000 feet
Low Intensity Residential	2 to 4	High	1,500 to 3,000 feet
Medium and High Intensity Residential	More than 4	High	750 to 1,500 feet
Activity Center	Mixed-use	Medium	750 to 1,500 feet

Context and Design

As roadways are engineered or reengineered, the GMPO is aware of the community's desire for great design and functionality. In addition to the carrying capacity of roadway projects, they need to 'fit' into the community aesthetic for that particular area, whether it is a single-family neighborhood, an industrial corridor, or a mixed-use downtown district.

The National Complete Streets Coalition maintains that "Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations." Goldsboro is primed for inclusion of policies and procedures that allow for Complete Streets to be developed across the GMPO.

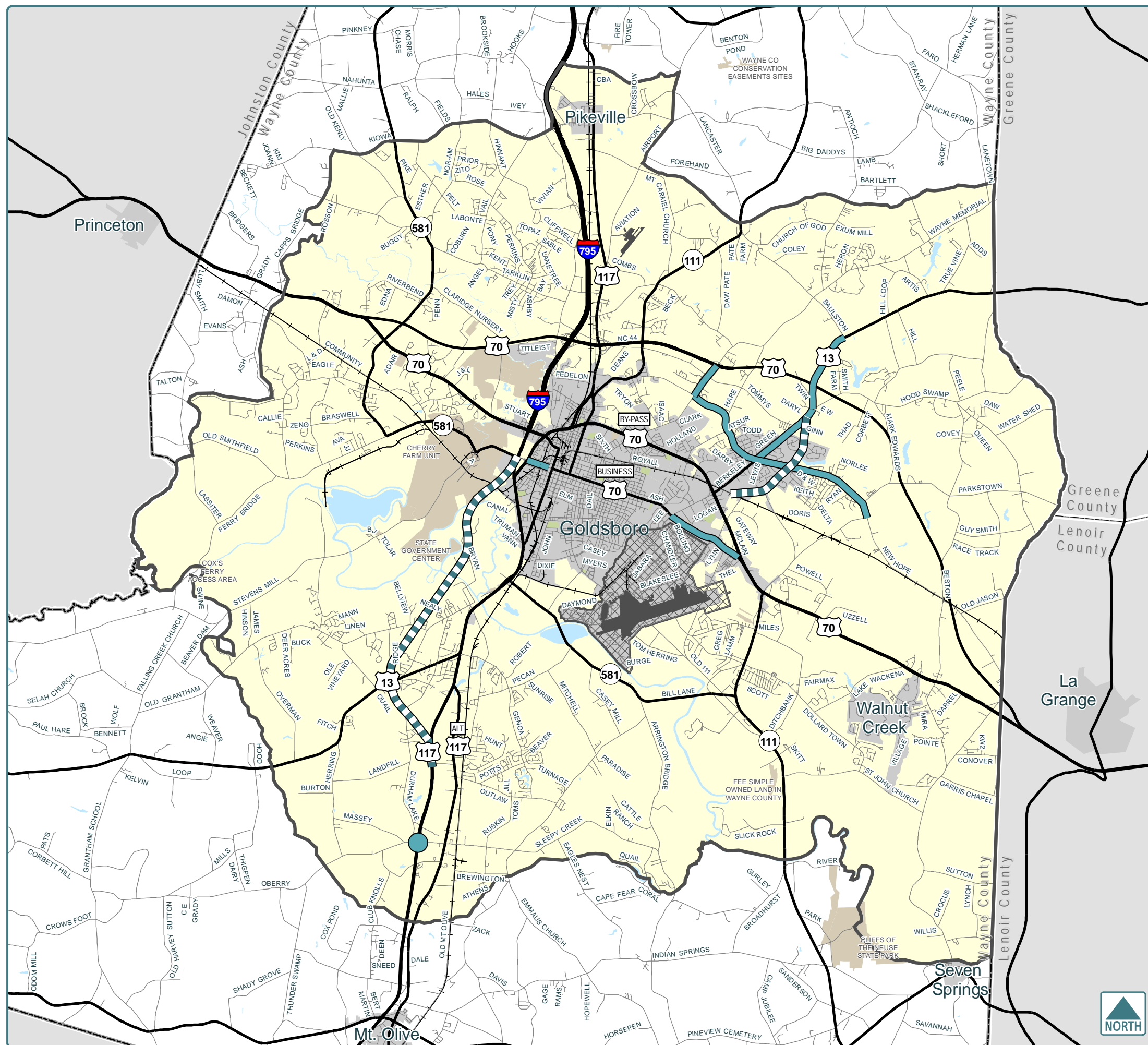
The Recommended Cross Section Map (Figure 4-4) shows the typical cross section of roadways with recommended improvements. Recommended cross section details are included in Appendix B along with more detail on Complete Streets.

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Figure 4-3: 2040 Fiscally Constrained* Roadway Projects



- Interstate
 - US Route
 - NC Route
 - Secondary Road
 - Railroad
 - Airport
 - Seymour Johnson AFB
 - Body of Water
 - Urban Park
 - State Owned Land
 - Goldsboro ETJ
 - Goldsboro Metropolitan Area
 - Municipal Boundary
 - Wayne County
-
- Recommended Projects**
 - Widening/Improvement
 - New Location
 - Proposed Interchange

Notes:
 * Fiscally constrained projects are those with revenues that are reasonably expected to be available for implementation.

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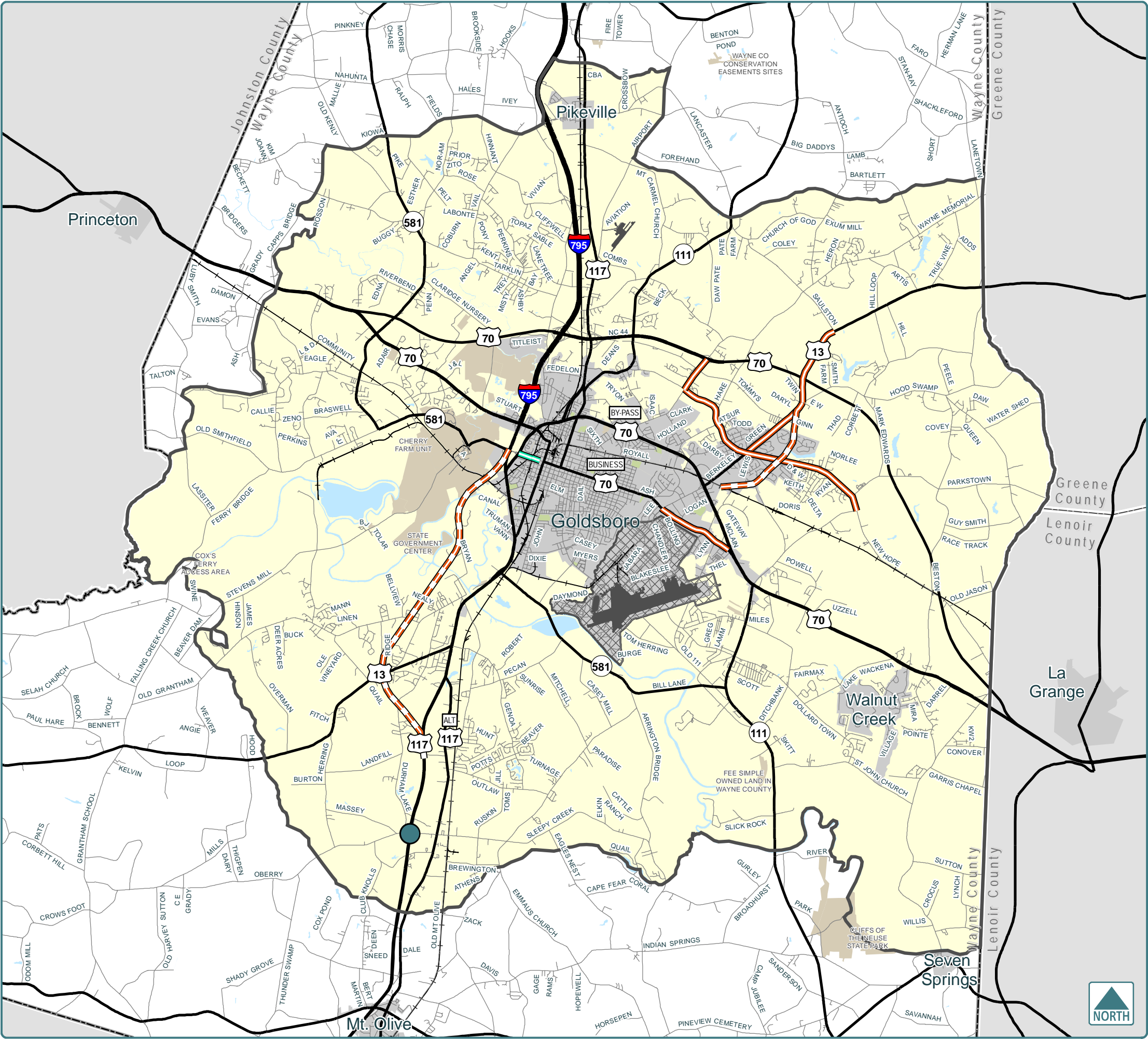


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Figure 4-4: 2040 Recommended Cross Section (Funded)



- Interstate

US Route

NC Route

Secondary Road

Railroad

Airport

Seymour Johnson AFB

Body of Water

Urban Park

State Owned Land

Goldsboro ETJ

Goldsboro Metropolitan Area

Municipal Boundary

Wayne County
- Recommended Cross Section

4-Lane Divided

4-Lane Divided (New Location)

5-Lane

Proposed Interchange

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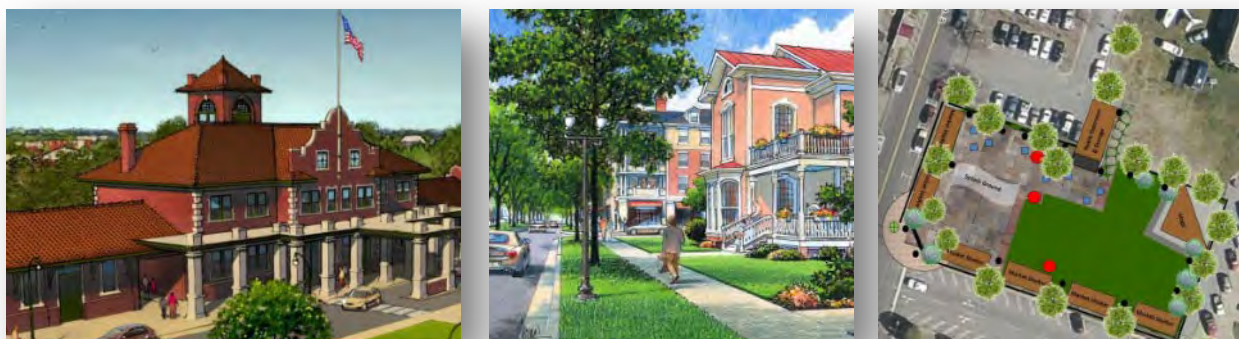
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Public Transit

The City of Goldsboro is currently working on a submittal for additional federal funding through the TIGER VI application process. This request is to receive \$10,000,000 of additional federal money to be used to complete the TIGER V funded projects discussed in Chapter 3. The projects specific to the TIGER VI request will include:

1. Union Station Rehabilitation (Interim and Long-Term Use)
2. 300 & 400 Block of S. Center Street Streetscape Project
3. Cornerstone Commons Development (City/Farmer's Market, Splash Park, Concert Venue, Public Restrooms, Information Center for Downtown/Mountain-to-Sea Trail)

The application for the TIGER VI federal funds would assist in maximizing the investments already committed to this project. This project embraces place-making concepts and addresses transportation safety, access and choice; environment, quality of life, fiscal responsibility, economic productivity, and efficiencies and effectiveness of land use and transportation.



Tiger VI Projects: Union Station Rehabilitation, S. Center St. Streetscape, Cornerstone Commons

Source: GMPO

Public Transit Recommendations

The findings and recommendations address the need to better understand existing service and demand to set an agenda to fulfill the needs of captive riders and attract choice riders. The recommended strategies emerged through a planning process that included analysis, public outreach efforts, and a review of previous and on-going planning efforts. The recommended improvements are grouped by general findings; some recommendations address more than one finding. Funding constraints will permit only a portion of these recommendations to be implemented, however it is important to present a variety of recommendations that can be considered as funding becomes available.

Service Recommendations

A variety of service alternatives were analyzed, including an analysis of system performance and ridership impacts. These are some of the recommendations to consider:

- “Rightsize” the vehicle fleet to reflect the type of future vehicle procurements that will enhance the bus/van fleet. This should be done in concert with an updated vehicle replacement plan.
- Implement a pre-paid ride card for fixed route passengers. The value would be that one ride would be “free” with this purchase, and this would allow GATEWAY to gain fare revenue in advance of the provided service.
- Establish additional transfer points at large scale retailers (such as Wal-Mart on Spence Avenue) and in the courthouse area.
- Provide improved weekend service to include service on Sunday.
- Proceed with the implementation of an administrative/operations and maintenance facility that will meet the future expansion needs of the GATEWAY services. This facility would allow GATEWAY to perform some vehicle maintenance in-house. This facility should be a stand-alone facility that incorporates the necessary safety and security measures mandated by FTA.
- Utilize and promote the GUS Transfer Center as a key component of future transportation services and serve as an attractive and functional multi-model transfer center.
- Coordinate upgrades to transit stops.
- Provide infrastructure improvements to strengthen the connecting bicycle and pedestrian network.
- Continue the deployment of bicycle racks on buses to encourage consistent travel choice across modes.

Policy Recommendations

- Establish standards for providing particular amenities such as bus shelters and benches
- Develop a “priority listing” for most frequented bus stops.
- Raise driver/operator pay to be more competitive thereby assisting to retain employees.
- Review the administrative staffing needs and hire an assistant director to oversee finance, accounting and grants administration.
- Develop a comprehensive cost analysis for contracted human service contracts.
- Continue to work with the surrounding counties’ Transit agencies as part of an effort to enhance regional coordination.
- Work with NCDOT staff to explore the scope for additional scheduled inter-city bus services.
- Implement a new “branding” and marketing campaign to foster improved awareness of transit services and transit options.
- Leverage all existing funding sources, such as FTA 5307, FTA 5309, and FTA 5311 funds to include existing NCDOT State Maintenance Assistance Program state funding. Other

federal sources to be pursued should include potential revenue from FTA 5310, FTA 5311f, FTA 5316, FTA 5317 funding sources.

- Seek to implement an annual, recurring local funding mechanism to support specific public transit needs.

Schedule Recommendations

- Implement the specific route/schedule recommendations per the Community Transportation Services Plan documents.
- Establish fixed route schedules that utilize the GUS transfer center as a main transfer hub.

Public transportation provides a vital service in daily life of passengers in the Goldsboro Urban Area. The construction of the GUS facility will have a significant impact on future public transit services in Goldsboro and Wayne County. The GATEWAY Community Transportation Service Plan identified various measures that would assist in improving the efficiency of the existing system and enhance service for captive riders. There are many recommendations (as shown above) that need to be implemented that will directly impact ridership potential and coordination of future services. These changes in turn improve mobility for all riders and support the transit vision and guiding principles. The focus of many of the recommendations for the transit element involves promoting transit as a safe, convenient, and dependable form of transportation. Longer-term solutions target improvements for captive and choice riders to ensure transit exists as a sustainable transportation alternative. GATEWAY should look to develop a funding stream that will allow for necessary capital and operating improvements.

New routes and services should be designed to improve responsiveness to the general public and agency-affiliated contracted trips. There are many pockets of underserved populations in Goldsboro and Wayne County. It is incumbent upon local leaders to foster improved communications and outreach and develop a new “brand” for the services provided. There are opportunities for improved connectivity within the Goldsboro Urban Area. Strategies for transit extend beyond what typically is considered transit planning. Many of the strategies presented in other elements of the 2040 GMTP can assist in transit becoming a viable alternative for residents. Improving roadways and creating a more connected roadway network allows transit vehicles to service people more efficiently. Constructing a consistent bicycle and pedestrian network helps residents safely move between bus stops and their final destination. Coordinating the land use and transportation decision-making process ensures that new development — whether roads, homes, offices, or shops — supports existing and future transit service. For transit to thrive in Goldsboro and Wayne County, local leaders must commit themselves to a clear vision, progressive planning, continuous assessment, and securing dedicated funding.

Bicycle and Pedestrian Facilities

The recommendations outlined below were generated and developed through interaction with stakeholders, Steering Committee members, and members of the public. Bicycle and pedestrian

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facilities need to serve the recreational user and also cater to commuters and everyday users. Key priorities from the community's input included connecting key activity points such as downtown, parks, schools, retail areas, Wayne Community College, the hospital, and the YMCA. A desire was also expressed for better connecting lower-income areas of the community to schools, convenient stores, and parks. Enhanced bicycle and pedestrian connectivity that would provide quality North-South and East-West route choices was raised as an important regional objective for potential commuters and tourists.

A public questionnaire developed as part of this plan asked participants to list their top priorities in which they would like the community to invest. As shown in the chart below (data has been excerpted from Question 12 of the public survey and does not represent all responses, only those for the categories outlined in the graph), the responses indicated that intersection improvements, more sidewalks, pedestrian safety improvements, bicycle lanes and paths, and bicycle safety improvements were desired. The questionnaire and results are contained in Appendix A.

The recommendations balance the need for improved facilities with programs designed to educate users in the safe use of these facilities, encourage the active use of facilities, and enforce the rules of the road.

As discussed earlier, the GMPO is currently planning for bicycle and pedestrian improvements outside the framework of the 2040 GMTP. The GMPO is currently engaged in the development of the GMPO Bicycle, Pedestrian, and Greenway Plan. Once adopted, that plan will provide additional analysis on existing conditions and provide guidance for further enhancements to the bicycle and pedestrian modes of movement within the Goldsboro Urban Area and should be considered the primary source for bicycle, pedestrian, and greenway recommendations.

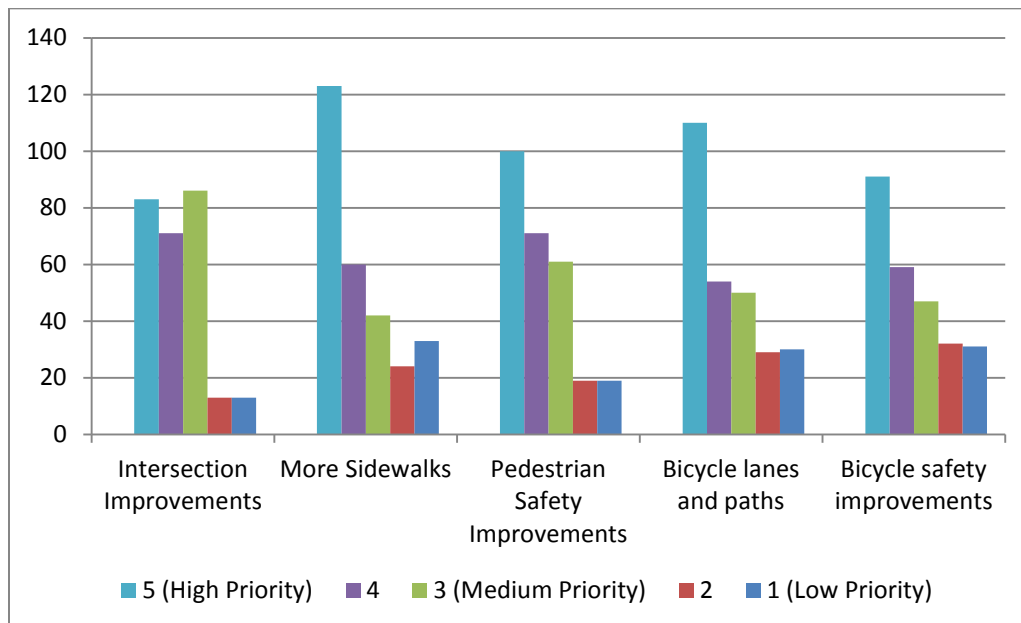


Exhibit 4-1: Public Investment Priorities

Source: URS

Sidewalks are necessary elements in urban areas that have higher land use densities and more pedestrian activity. Sidewalks downtown and in activity centers should be wide enough to provide, at minimum, a 5-foot clear width for walking, plus a furniture zone next to the street (for benches, waste receptacles, poles, street trees, bicycle and newspaper racks). Consideration also should be given to the area next to adjacent buildings. This would allow space for plants and people to stand while window-shopping or café tables if adjacent business owners want to offer sidewalk service to their customers. The minimum sidewalk width in a downtown retail area is 12 feet. When considering the placement and width of sidewalks downtown, the Downtown Master Plan (June 2007) should be consulted prior to arriving at a preferred cross-section in this area. Outside of Downtown, a network of sidewalks on one side of the street, multi-use paths, and trails should serve pedestrians. In general, sidewalk widths should be a minimum of five feet in residential neighborhoods. Installing new sidewalks adjacent to the street without a buffer should be discouraged because of the discomfort it creates for pedestrians as well as for safety considerations.

On-street facilities such as bicycle lanes, shared-lane markings, paved shoulders, and wide curb lanes should be carefully located depending upon the intended character of the street. These facilities should be supplemented with multi-use paths where appropriate.

The construction of on-street bicycle facilities and sidewalks can occur as stand-alone enhancement projects or can be incorporated into public and private infrastructure projects. The second option may be more time and cost-effective. Infrastructure projects include roadway widening, regular street maintenance, utility work, and new road construction. In certain instances, a reduction in lane width during a resurfacing project may “gain” enough width to allow for bike lanes to be incorporated. This is likely to involve partnerships and additional coordination between agencies. GMPO member agencies should develop and adopt policies that would require that new projects provide bicycle and/or pedestrian facilities.

Connectivity should be an integral part in all residential and commercial developments. Where connections for motor vehicles are not provided, multi-use paths can provide connections within and shortcuts through neighborhoods (e.g., connecting two cul-de-sac streets). At a minimum, local policies should require sidewalks in new residential developments. Many of the recommendations presented in this chapter to enhance the bicycle and pedestrian network could be implemented by the private sector during the land development process. In addition to requiring these facilities, adopted city and county policies should specify the private sector’s role in financing and/or constructing these projects.

[Bicycle Recommendations](#)

Future Analysis:

Consider a corridor study to determine the feasibility of implementing a Complete Streets approach to transform Ash Street (Bus 70).

On-Street Bicycle Facilities:

Recommended on-street facilities include bicycle lanes, cycle tracks, shared-lane markings (sharrows), bicycle boulevards (neighborhood greenways), wide outside lanes, paved shoulders, and signed bicycle routes. These facilities are shown in Figure 4-5, and are described briefly below. In total, the recommended bicycle facilities include approximately 0.53 miles of paved shoulders. Projects contained in the fiscally constrained MTP are bolded.

Wide Outside Lanes:

As roadway projects are developed, it is recommended to consider wide outside lanes that provide extra room for advanced bicyclists and motorists without having to exclusively dedicate pavement to bicyclists. The recommendations help complete the bicycle network by connecting to other existing and recommended facilities. As roads become more urbanized and move to include curb and gutter, right-of-way previously used for wide shoulders can be employed to implement wide outside lanes. The following is an ideal location for this type of treatment:

- Berkeley Boulevard, between Tommys Road and New Hope Road

Paved Shoulders:

Paved shoulders are recommended outside the city limits on key rural routes. These paved shoulders will not only serve the bicycling population, but also will serve as pedestrian facilities when a sidewalk is not present, a vehicle refuge for distressed vehicles, and a buffer for truck traffic traveling on these routes. In addition, these paved shoulders will help connect other recommended improvements to enhance regional North-South and East-West connectivity. A full map and listing of all recommended paved shoulders will be included in the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted. The following are key routes where this treatment is recommended by the TAC in their 2014 Needs List:

- Central Heights Road from Berkeley Blvd to New Hope Road
- **Wayne Memorial Drive from New Hope Road to Tommy's Road**
- Tommy's Road from Berkeley Blvd to Patetown Road
- Old Mt. Olive Hwy from US 117 to Parker Road
- NC 581 from George Street to Rosewood Road

Striped Bicycle Lanes:

Striped bicycle lanes will be proposed as part of the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted. These facilities will enhance connectivity within the downtown area and linking and critical destinations, including the SJAFB, Hospital, and Community College.

Bicycle Boulevards (Neighborhood Greenways):

Bicycle boulevards will be proposed as part of the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted, to enhance neighborhood connectivity in both East-West and North-South directions.

Bicycle boulevards utilize existing residential roadways and are designed for the preferential use of bicyclists. Various traffic calming treatments can be used to lessen the effect of automobile traffic.

Shared-lane Markings (Sharrows):

Sharrows are pavement markings that indicate to bicyclists the location and direction of travel and serve as a reminder to motorists about the possible presence of bicyclists. Sharrows are often recommended in downtown settings with slow speeds and on-street parking. They are often utilized to provide a connecting link between other bicycle facilities such as bicycle lanes. Specific locations for this type of treatment will be provided as part of the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted.

Signed Routes:

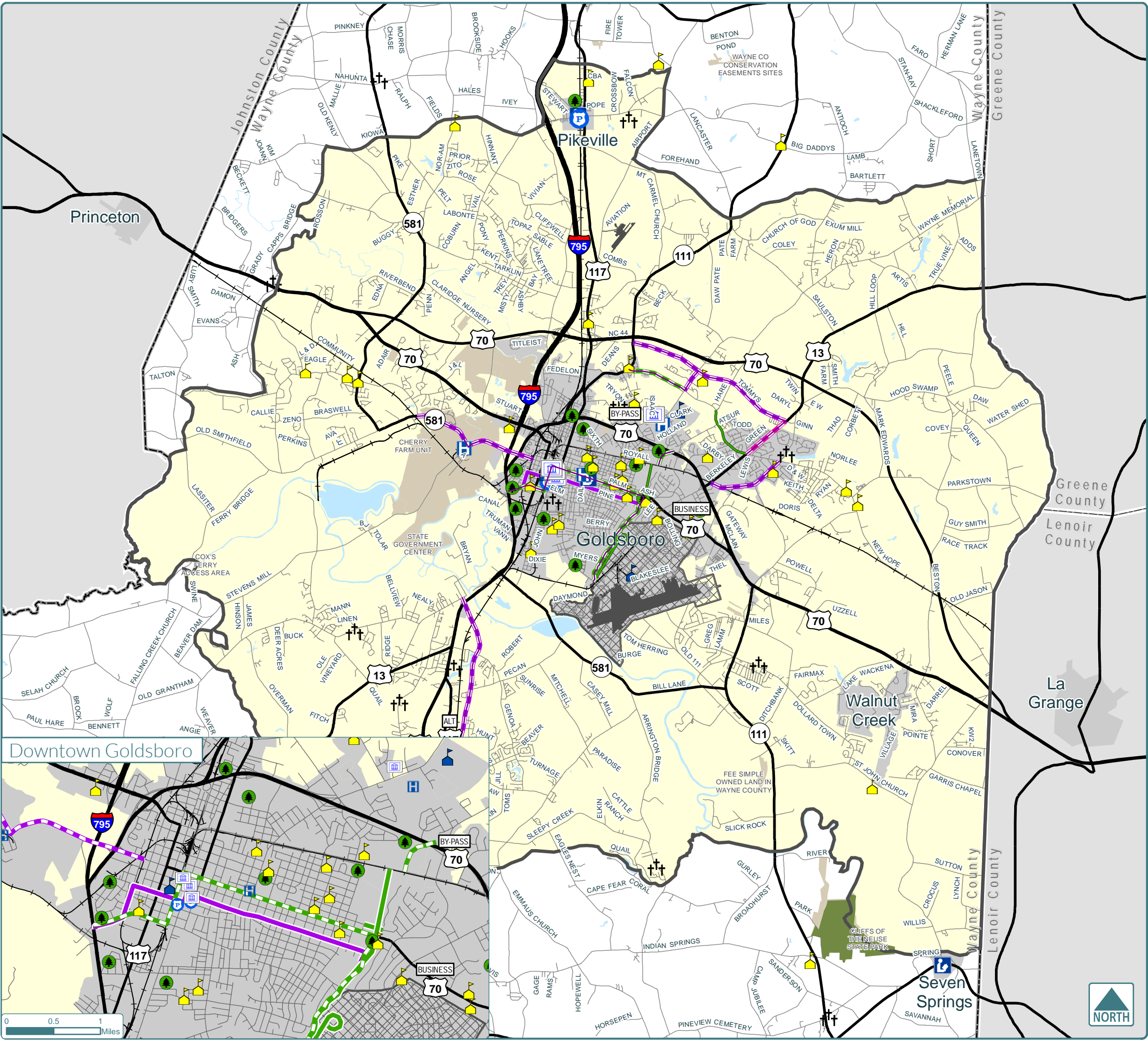
Signed routes are another integral part of the recommended bicycle network. These inexpensive facilities guide riders to bicycle-friendly roads and also help connect other bicycle facilities together such as bicycle lanes and bicycle boulevards. Specific locations for signed routes will be provided as part of the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted.

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Figure 4-5: 2040 Recommended Bicycle Facilities



- Interstate**

US Route

NC Route

Secondary Road

Railroad

Airport

Seymour Johnson AFB

Body of Water

Urban Park

Cliffs of the Neuse State Park

State Owned Land

Goldsboro Metropolitan Area

Municipal Boundary

Wayne County
- Existing Bicycle Facilities**

Signed Bike Route

Multi-Use Path

Recommended Bicycle Facilities

Paved Shoulder

Widen Outside Lane

Multi-Use Path

Social Resources

School

College

Government Building

Hospital

Police / Sheriff


Park

Library

Cemetery

0 1 2 Miles October 2014





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Sidewalk Recommendations

Sidewalks are the backbone of a pedestrian network. Outreach respondents for the 2040 GMTP and the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted, highlight sidewalks as the most important infrastructure needed. The recommended sidewalks fill locations where existing footpaths are present, fill gaps in the current sidewalk network, and connect neighborhoods to key destinations. Approximately 6.8 miles of new sidewalks are proposed in the Goldsboro Urban Area, all within Goldsboro, Walnut Creek, and Pikeville town limits. The recommended new sidewalks are shown in Figure 4-6. The following locations have been identified as important priorities for sidewalk improvements through the TAC 2014 Needs List. Projects contained in the fiscally constrained 2040 GMTP are bolded.


- **Royall Avenue (construct new sidewalk on north side) from William Street to Spence Avenue.**
- **Royall Avenue (construct new sidewalk on north side) from Spence Ave to Berkeley Blvd.**
- Harris Street (construct new sidewalk on south side) from Slocumb Street to Stoney Creek Parkway.
- **Berkeley Boulevard (construct new sidewalk on both sides) from Ash Street to Elm Street.**
- **Spence Avenue (construct new sidewalk on both sides) from existing 70 Bypass to Ash Street.**
- Central Heights Road (construct new sidewalk on both sides) from Berkeley Blvd to New Hope Road.
- **John Street (construct new sidewalk on east side) from Elm Street to Dixie Trail.**
- Elm Street (construct new sidewalk on both sides) from Slocumb Street to Berkeley Blvd.
- **Herman Street (construct new sidewalk on both sides) from Royall Ave to Beech Street.**

Additional locations for sidewalks will be provided as part of the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted.

Shared-use Paths and Greenways

Shared-use paths and greenways can accommodate bicyclists and pedestrians while providing a high-quality experience protected from traffic. Approximately 0.43 miles of new shared-use paths are proposed. The Mountains to Sea Trail is recommended through the Goldsboro Urban Area along the Neuse River with a spur through the Goldsboro downtown area and the Stoney Creek Greenway. The key recommended shared-use paths and greenways and associated improvements are indicated below from the TAC 2014 Needs List and are shown in Figure 4-6. Projects contained in the fiscally constrained 2040 GMTP are bolded.

- Multiuse Path: New Hope Road from Wayne Memorial Drive to Patetown Road.
- Greenway Facility: 10' wide boardwalk from Elm Street to Slocumb Street along Stoney Creek.
- **Greenway Facility: 10' wide asphalt path from Hwy 70 to Royall Avenue along Stoney Creek.**



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- Greenway Facility: Bridge over Hwy 70 to connect greenway along Stoney Creek.
- Greenway Facility: Mountains to Sea Trail – Designated from Elm/US117 running east along Elm Street, north on Center, east along Ash Street, south at Stoney Creek Park, crossing Elm Street and continuing to Slocumb Street.

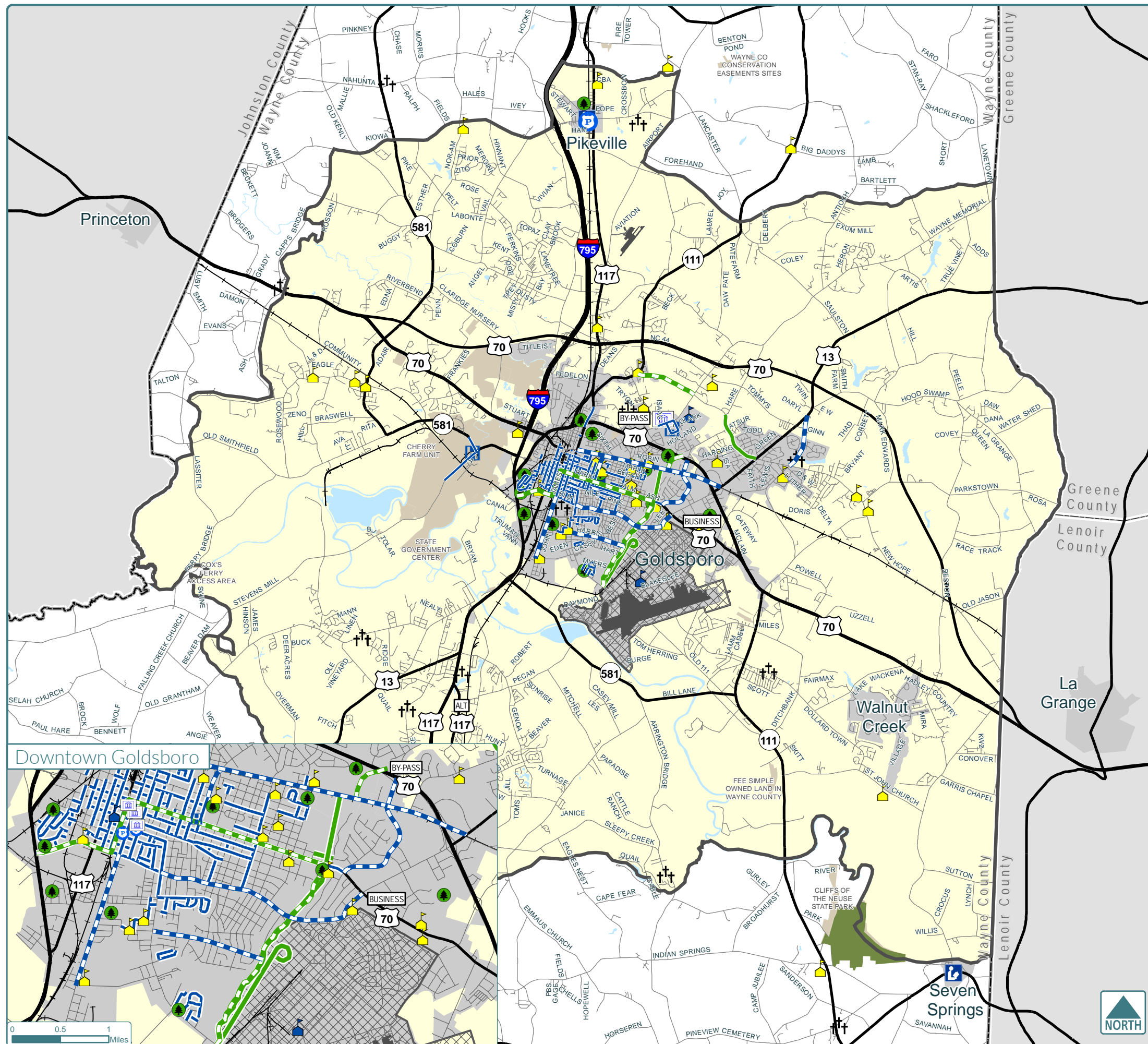
Additional recommendations for the greenway network and supplemental details will be provided in the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted.

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Figure 4-6: 2040 Recommended Pedestrian Facilities



- | | |
|---|---|
| <ul style="list-style-type: none"> Interstate US Route NC Route Secondary Road Railroad Airport Seymour Johnson AFB Body of Water Urban Park Cliffs of the Neuse State Owned Land Goldsboro Metropolitan Area Municipal Boundary Wayne County | <p>Existing Ped Facilities</p> <ul style="list-style-type: none"> Sidewalk Multi-Use Path <p>Recommended Ped Facilities</p> <ul style="list-style-type: none"> Sidewalk Multi-Use Path <p>Social Resources</p> <ul style="list-style-type: none"> School College Government Building Hospital Police / Sheriff Park Library Cemetery |
|---|---|

0 1 2 Miles October 2014



Programming

The facility recommendations described above must be supplemented with coordinated education, enforcement, and encouragement programs. Some programs instruct and encourage bicyclists and pedestrians in the full and proper use of the non-motorized transportation network. Other programs ensure the safety of the system is upheld by enforcing rules and regulations. Refer to Appendix B and the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted, for a complete programming toolbox.

Ancillary Facilities

In order to form a complete system, the recommended on-street facilities, sidewalks, and multi-use paths need to be supplemented with ancillary facilities. These facilities are often low-cost measures designed to enhance the functionality and safety of the bicycle and pedestrian network and include features such as bicycle parking racks, lighting, and benches. Ancillary facilities include physical components of education, encouragement, and enforcement programs. Refer to the GMPO Bicycle, Pedestrian, and Greenway Plan, once adopted, for the design guidelines toolbox.

Freight

Today, the efficient movement of goods along highways and by rail is one of the keys to effective competition in a global economy. As a result, local and state leaders continue to acknowledge that regions providing efficient systems for moving goods will have a competitive advantage at the local, regional, and state level. Many of the recommendations in the Future Roadway Element (Chapter 5) will positively impact the movement of freight within and through the Goldsboro Urban Area. In particular, the proposed interchange of US 70 at North Oak Forest Road will improve access to one of the area's larger concentrations of industrial activity and the new interchange on I-795 and extension of Hinnant Road NW to Airport Road NE will make air freight more economical.

Truck Freight

As the number of trucks on local roadways increases, it becomes more important to guide trucks to appropriate routes. Truck routes should be designed to safely and effectively handle the unique requirements of truck traffic. Likewise, the routes should be signed and marketed so truck operators can utilize them and the general public will recognize these streets have been designed with truck traffic in mind. Truck route designations should adhere to the NC Truck Network Map created by NCDOT. As new roadways are constructed and existing roadways are widened or improved, the following considerations should be applied:

- **Truck Classification** — Trucks should be defined as vehicles with a manufacturer's gross vehicle weight of 33,000 pounds or more. This definition excludes most straight trucks, panel trucks and delivery trucks, but includes large trucks with more than two axles, such

as tractor-trailers and tandem axle dump trucks. Also excluded from this definition would be public service vehicles such as garbage collection trucks.

- Route Designation — The selection of area roadways as truck routes should begin with the designations forwarded by NCDOT through the NC Truck Network Map (<https://connect.ncdot.gov/business/trucking/Pages/Truck-Network-and-Restrictions.aspx>). In addition, the city and county should explore additional routes that serve higher volumes of truck traffic. Also, specific areas within the planning area have established industrial use (North Oak Forest Road, Gateway Drive, Powell Road). As industrial development continues, it will be important to provide efficient truck access and circulation to improve freight mobility while limiting cut-through truck traffic in neighboring subdivisions. Additional tasks associated with the establishment of a series of truck routes through the urban area include:
 - Work with NCDOT to prioritize resurfacing of designated routes in an effort to reduce noise and vibration from trucks.
 - Adjust signal timing along high priority routes to allow uninterrupted through movements based on posted speed limits.
 - Work with NCDOT to make improvements to critical intersections on truck routes to facilitate and encourage their use by truckers. Improved turning radii, lane width, and the provision of dedicated turn lanes will greatly improve the efficiency and safety of these corridors.
- Route Education — Upon designation of routes, signs should be posted at the city limits, freeway exits, and other appropriate locations directing truck drivers to roadways on which their movements are permitted. This may include limiting travel to US and NC routes or designated/signed routes through the city. Within the city limits consideration could be given to amending the local ordinance to specifically prohibit through trip truck movements on local streets. Prohibition of trucks on any segment of state maintained roadways will require approval from NCDOT.

In addition to signage, the city and county should cooperate in the publication and distribution of educational materials to businesses and industries concerning the truck routes and restrictions.

Rail Freight

The future of rail freight between the Goldsboro Urban Area and cities throughout North Carolina will depend largely on the potential implementation of passenger and commuter rail as well as the strategic investments in the state's ports. As a general rule, the city and county should continue to monitor the progress or and work closely with state and federal agencies responsible for these

initiatives. Enhanced coordination with railroad representatives and port authorities to establish a shared vision for strategic freight activity in the region will ensure the long-term vitality of the region's rail infrastructure.

Passenger and Commuter Rail

Historically the rail lines in the Goldsboro Urban Area have only carried freight. However, in recent years studies of passenger and commuter rail potential have been evaluated. Although both have been determined as feasible within the study area, no funding has been designated for implementation.

Passenger Rail Potential

In May 2001, NCDOT conducted a feasibility study to determine interest in passenger rail service to and from Wilmington. The Southeastern North Carolina Passenger Rail Feasibility Study examined three potential passenger route options from Charlotte and Raleigh to Wilmington. The results indicated a strong interest in passenger rail service from Wilmington to both Raleigh and the Northeast. Based on these results, NCDOT revised the alternatives to include a route from Wilmington to the Northeast with stops in Goldsboro and Raleigh; a route from Wilmington to the Northeast with stops in Fayetteville and Raleigh; and a route that bypassed Raleigh and went directly north through Rocky Mount. NCDOT then conducted a more detailed study to define costs and needed infrastructure improvements associated with each of these proposed alternatives. NCDOT was charged with the following tasks:

- Conduct an inventory of stations along the designated alternate routes.
- Begin securing property for a multimodal station in Wilmington that would serve rail and bus passengers.
- Conduct further studies to determine what track capacity and safety improvements would be needed to restore passenger train service.
- Begin discussions with CSX Transportation and Norfolk Southern railroads about operating passenger rail service over their property to and from Wilmington.
- Work with the State Ports Authority to assess economic impacts of the alternative routes.
- Conduct additional attitudinal and travel surveys centered on Fayetteville.

In July 2005, NCDOT released the results of the more detailed study. Table 4-2 provides a comparison of each of the alternatives. Of the routes studied, the Wilmington to Raleigh route via Goldsboro with potential connections to Northeast cities performed the best in terms of revenue, number of riders, and operating losses. The new study estimates an 87 percent increase in ridership and more than twice the revenue from the earlier studies for the Goldsboro alternative. This alternative would require replacing 27 miles of track between Castle Hayne and Wallace, new crossing gates and flashing lights, six bridge replacements, and 128 additional crossings. The capital costs associated with restoring and upgrading this route to optimal conventional passenger train standards of 79 mph with Centralized Traffic Control (CTC) were estimated at \$184 million.

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Table 4-2: Comparison of Potential Passenger Service – Raleigh to Wilmington

	Goldsboro	Fayetteville	Rocky Mount
Route Length	132 miles	188 miles	124 miles
Travel Time by Train	2:30	3:22	2:11
Travel Time by Car*	2:30	2:30	2:30
Average Speed	53 mph	56 mph	57 mph
Capital Costs	\$184 M	\$125 M	\$188 M
Incremental Ridership+	74,100	58,900	32,000
Revenue	\$2.7 M	\$2.1 M	\$1.65 M
Operating Cost ++	\$3.9 M	\$4.3 M	\$3.7 M
Operating Loss	\$1.2 M	\$2.2 M	\$2.0 M
Crossing Improvements	158	141	144
Crossing Upgrade Costs	\$18 M	\$15 M	\$19 M

* Automobile travel time based on direct travel from downtown Raleigh or Rocky Mount

+Incremental ridership does not include those passengers already using existing passenger trains


++Operating cost was calculated using a representative travel time and associated ridership for each route

Source: *Southeastern North Carolina Passenger Rail Study*, July 2005

This alternative could produce several economic benefits including attracting manufacturing facilities, improving access to/from ports and terminal facilities (which would directly benefit the Global TransPark (GTP), and creating significant opportunities for manufacturing, construction, residential housing, and commercial activity in nearby counties.

The results of this study represent preliminary findings on the feasibility of passenger rail. Before passenger rail service could begin on any of the study routes, significant investments to the rail infrastructure would be required. Currently, no state funds are available for this investment. NCDOT recommended that the following measures be taken to preserve the option to initiate service when funds become available:

- Include the Wilmington to Raleigh routes via Goldsboro and Fayetteville in the State Rail Plan.
- Conduct further studies on commuter service from Raleigh to Goldsboro based on the findings in the Eastrans Commuter Corridor Feasibility Study.
- Implement intercity passenger rail services from Wilmington to Raleigh via Goldsboro and Fayetteville in phases as funds become available.
- Work with local governments and the railroads to evaluate initiating commuter service between Selma and Raleigh as a first step.



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- Work with state and local governments, host railroads and other business interests to help secure a federal funding partner to obtain the necessary money to develop passenger service.
- Work with the Department of Commerce, State Ports Authority and GTP to further define benefits and investments needed to reestablish freight rail service between Goldsboro and Wilmington to provide more direct freight access to markets north and west.
- Partner with the State Ports Authority and freight railroads to develop dual rail carrier access to both Wilmington and Morehead City.
- Conduct the necessary environmental and preliminary engineering analysis to clearly identify and preserve right-of-way needed along the Fayetteville and Goldsboro routes to implement future passenger rail service to Wilmington and acquire such property as it becomes available. This includes properties needed for connecting tracks in Goldsboro, Pembroke, and Selma.
- Recommend local governments, MPOs, and rural planning organizations (RPOs) coordinate land use and transportation planning to enable transit-friendly development, facilitate industrial growth, and reduce/restrict the number of at-grade crossings along the routes.
- Work with local governments along the routes to refurbish historic stations and partner with the City of Wilmington to acquire property and develop a multimodal station.


Locally, Wayne County formed a railroad task force to show their dedication to establishing passenger rail service through Goldsboro. Additionally, NCDOT purchased Union Station (a historic train depot in Goldsboro) as part of the state's Historic Station Restoration and Preservation Program. Once renovations are complete, Union Station will operate as a multimodal transportation center.

Commuter Rail Potential

During the development of the Southeastern North Carolina Passenger Rail Feasibility Study, NCDOT observed increased interest and support in commuter service from Raleigh to Selma, continuing to Goldsboro and/or Fayetteville. Service from Raleigh to Goldsboro was found to be feasible and a more detailed study, the Eastrans Commuter Corridor Feasibility Study, was completed in April 2004.

The NCRR also initiated the Shared Corridor Commuter Rail Capacity Study for a 143-mile Greensboro to Goldsboro section of its rail line in October 2007. The study determined the feasibility and associated costs of commuter rail along four segments, including a red line from Goldsboro to Durham via Raleigh. The study determined that it is feasible to run commuter rail service within the study corridor, but major rail infrastructure improvements would be needed to ensure existing freight and passenger services could maintain current performance levels.

The study reports that capital costs of track, signal, and station improvements for the 143-mile section would be approximately \$650 million, with costs for the 49-mile segment from Raleigh to Goldsboro estimated at \$115.7 million. Improvements to the Goldsboro section include track construction, signal installation, and the construction of nine stations. Additional costs for commuter rail equipment and



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facilities were estimated at approximately \$350 million for the entire 143-mile segment. NCRR owns the rail corridor, so no right-of-way would need to be purchased.

Commuter rail service could be implemented in phases to spread out costs. This study represents only an initial step toward evaluating feasibility. Future steps would need to include:

- A ridership study to assess market demand for a commuter rail service.
- Detailed environmental studies.
- Evaluation of operating, maintenance, and insurance costs.
- Developing transit-oriented development and safety standards that take into account existing and future freight operations in the NCRR corridor.
- Evaluating funding requirements and identifying sources for those funds.

NCRR is willing to work with communities interested in exploring the feasibility of commuter rail service in their communities. As with passenger rail service, no funds have been allocated for the provision of commuter rail service.


Freight Recommendations

The planning efforts of studies dedicated to analyzing trends and selecting alternatives for passenger and commuter rail in Goldsboro have provided significant detail. The scope of these projects exceed that which can reasonably be attained in the 2040 GMTP more general exploration of using the city and county's rail corridors to transport people. As such, the recommendations that follow simply forward the strategies of these previous plans. These recommendations include:

- Implement recommendations consistent with the Southeastern North Carolina Passenger Rail Study (July 2005).
- Implement the next steps as set forth in the NCRR Company Shared Corridor Commuter Rail Capacity Study (October 2008).
- Partner with NCRR to further explore the feasibility of commuter rail service to Goldsboro.
- Undertake additional local efforts (such as the formation of the railroad task force) to establish passenger rail service through Goldsboro.
- Actively pursue funding to develop passenger rail service and commuter rail service through Goldsboro.

Aviation

The Wayne County Chamber of Commerce and other entities acknowledge that the aerospace industry in eastern North Carolina is becoming an attractive big business and expect future growth to occur. Spirit AeroSystems formally opened a 500,000-square-foot manufacturing facility in Kinston, N.C., on July 1, 2010 at the GTP near Kinston to design and manufacture portions of the Airbus A350 commercial aircraft. The relocation and expansion of these types of businesses requires continued investment in local aviation facilities.



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The Goldsboro Urban Area benefits from the relative proximity to both Raleigh-Durham International Airport and Pitt-Greenville Airport for commercial air service and freight air service. The Goldsboro-Wayne Municipal Airport and the Mount Olive Municipal Airports also provide important service to the people and economy of the county. The following recommendations aim to ensure the long-term vitality of aviation in Wayne County:

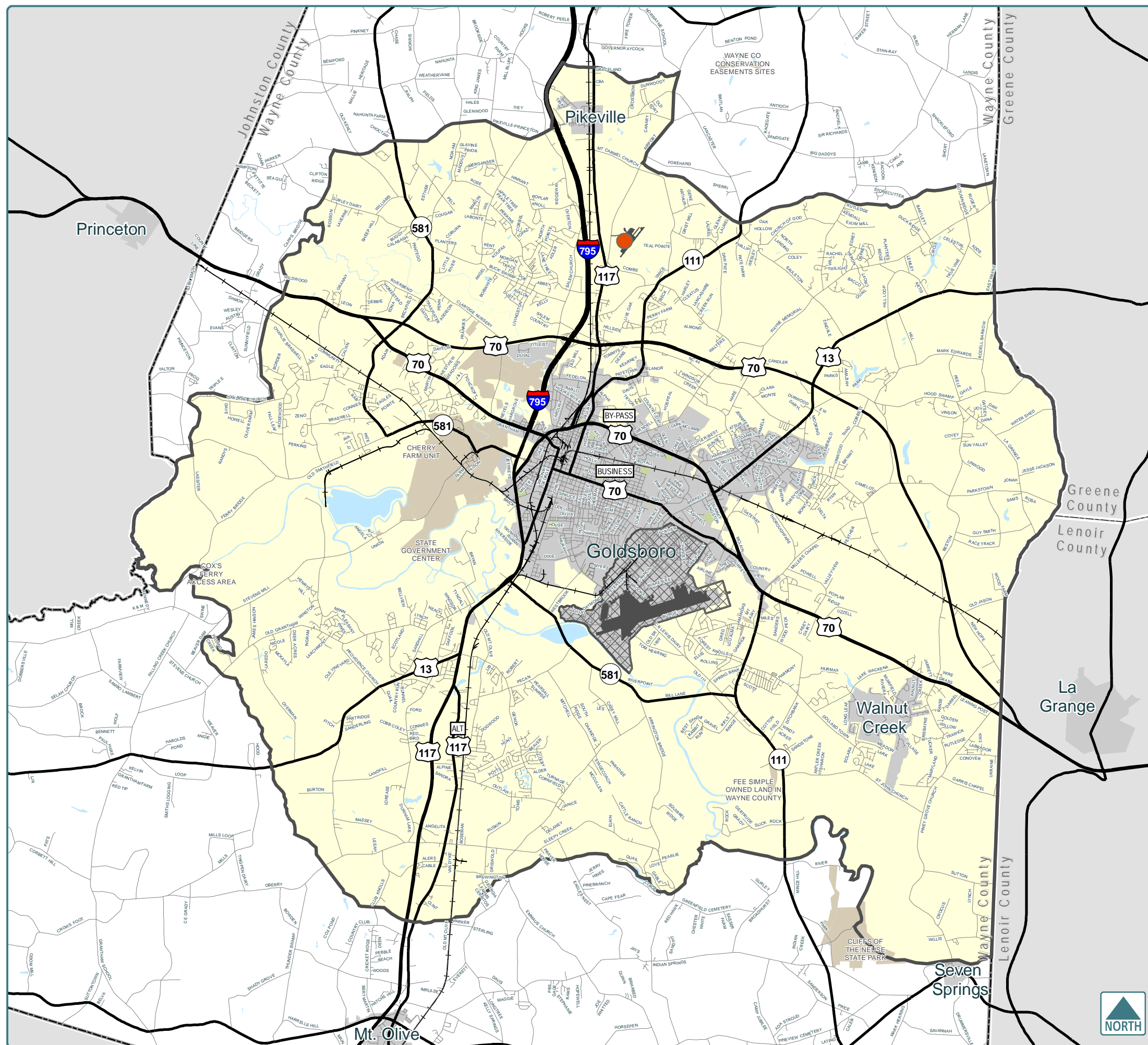
- Wayne Executive Jetport plans to acquire approximately 35 acres of property in the Runway Safety Zone and transitional surface (see Figure 4-7).
- Extend Hinnant Road NW to Airport Road NE and construct a new interchange at I-795 to provide more direct access to the Goldsboro-Wayne Municipal Airport.
- Implement recommendations consistent with the master plans for both the Mount Olive Municipal Airport and the Goldsboro-Wayne Municipal Airport.
- Continue to review and update master plans annually, or as needed.
- Partner with NCDOT and federal agencies to secure funding and initiate improvement projects.
- Actively pursue funding for needed improvements/upgrades.

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Figure 4-7: 2040 Aviation Projects



- Interstate
- US Route
- NC Route
- Secondary Road
- Railroad
- Airport
- Seymour Johnson AFB
- Body of Water
- Urban Park
- State Owned Land
- Goldsboro ETJ
- Goldsboro Metropolitan Area
- Municipal Boundary
- Wayne County

2040 Aviation Projects

- GWW Wayne Executive Jetport improvements*

Notes:

* Includes acquisition of +/- 35 acres of property in the RPZ (Runway Safe Zone) and transitional surface.

0 1 2 Miles October 2014



Transportation Demand Management

Establishment of a Transportation Demand Management program at the MPO level can save commuters money, reduce single-occupancy vehicle travel, and lower congestion-related mobile-source air pollutants.

A well-designed and properly managed regional commuter assistance program can do everything smaller local programs can do, and can do it more efficiently and in a more cost effective manner. By combining administrative resources at one location and consolidating marketing materials/advertising, the region will benefit from greater economies of scale and more programmatic consistency.

The program would have outreach personnel and a centralized administrative office, most likely located at the City of Goldsboro. This office would house the management program that will develop and maintain the various programs and would likely be housed within an existing office such as the GMPO.

Recognizing that different areas have special needs and distinct business environments, key stakeholders will be identified in the service area to help guide the program's local activities and provide input into the regional efforts. A steering committee will meet at least twice a year to establish/monitor local work plans, and provide input into new programs and outreach efforts.

At a minimum, the program would include proactive, employer based outreach, regional marketing, worksite operational energy audits, on-line rideshare matching, vanpooling, an Emergency Ride Home service, and a program evaluation system. An annual, independent evaluation is highly recommended to ensure tax dollars are spent wisely. Additional programs, such as transit pass promotion/sales, teleworking, flextime and shuttles will be implemented as necessary to meet local needs. Local service areas would be encouraged to enhance the statewide programs with local funding and contributions. Marketing materials and advertising would be designed so that they can be customized for each outreach area to enhance and encourage local support.

Transportation Systems Management

A primary requirement of the 2040 GMTTP is to provide documentation of how the existing transportation system is being maintained by the responsible jurisdiction with the goal of extending the useful life of the roadways, trails, and sidewalks that are in the current inventory. Integral to the process of documenting the system preservation actions is presenting information on "management" of the system including:

- Roadway pavement conditions.
- Bridge conditions.
- Congestion along roadways in the current network.
- Safety along roadways in the current network.

Typically, management plans for each of the listed systems are developed and implemented by the state DOT, the county or the local community. For the Goldsboro Urban Area, the vast majority of the system mileage addressed through the metropolitan transportation plan is under the jurisdiction of the NCDOT.

Traveler Information

Traffic information for the State, including the Goldsboro Urban Area, is included on the NCDOT website (tims.ncdot.gov/tims/).

Variable message signs (VMS) are currently in place in the region. VMS are also used to direct drivers to special events in a more efficient manner, allowing high-speed corridors to continue to operate efficiently. In addition, traffic information kiosks are to be placed at local/regional attractions to provide real-time traffic information.

NCDOT also implemented a 511 telephone-based traveler information system statewide in the summer of 2004. It uses an automated voice response system to provide information about traffic incidents, closures and other important roadway conditions on major corridors.

Traffic Safety and Emergency Roadside Assistance

Traffic safety is an important management strategy. In addition to health implications of high-crash locations these crashes can cause severe congestion. Addressing the safety problems of high-crash locations improves the efficiency of the network.

While crash data is not specifically incorporated into the analysis of existing or projected conditions, safety is always an important consideration in transportation planning. Hazardous locations are identified using a Severity Index, an Equivalent Property Damage Only Rate, a Fatal Crash Analysis, a Corridor Improvement Program, and requests for service from the public. From this analysis, intersections are ranked and identified for spot safety improvements. These recommendations serve as the basis for a list of Safety Program Improvements.

Although emergency roadside assistance is perhaps one of the least technologically intensive strategies currently being implemented across the country, it is often the most obvious to the traveling public. Because it is one of the most obvious strategies, a successful emergency roadside assistance program offers a great opportunity for recognition in the public eye, which is important when implementing such programs. Traffic congestion due to non-recurring events, such as crashes and other roadside incidents (e.g., vehicles out of fuel or with flat tires), can account for a substantial portion of travel delay.

NCDOT provides emergency roadside assistance through the Incident Management Assistance Patrol (IMAP) on major corridors across North Carolina. The task of the program is to provide

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motorists with the assistance they need in order to clear incidents as quickly as possible, avoiding additional crashes or cause significant traffic delays.

Access Management Improvements

Access Management improvements typically occur without altering the existing right-of-way. These projects include retrofitting a median into an existing two-way left-turn lane or implementing other access management strategies. Although these improvements will increase the capacity of the roadway to a degree, the main outcome of the projects will be greater access and mobility and enhanced traffic safety along the corridor. More information on access management principles is available in Appendix B.

The role of a collector street in a balanced transportation system is to collect traffic from neighborhoods and distribute it to the network of arterials. As such, these streets provide relatively less mobility but higher overall accessibility compared to higher level streets. The lower design speeds and multimodal amenities make these streets attractive for bicyclists and pedestrians. The proper design and spacing of collector streets is critical to ensuring the balanced transportation network envisioned by the residents and local officials in the Goldsboro Urban Area.

Street Spacing, Access, and Design

Local officials also must consider street spacing guidelines that promote the efficient development of an expanding transportation system. Ultimately, these street spacing guidelines could be used as “rules of thumb” during the development review process. Different spacing standards are necessary for different development types and intensities. Understanding this principle, a theoretical model largely influenced by land use intensity ranges shows the desired collector street spacing for different intensities (see the graphics to the right). In addition to these recommended street spacing standards, individual driveway access to collector streets should be limited to local streets when possible.

Municipalities across the country have been implementing “complete streets” as one way to transform their transportation corridors from vehicle-dominated roadways into community-oriented streets that safely and efficiently accommodate all modes of travel — not just motor vehicles. The complete

Very Low Intensity Land Use



Street Spacing: 3,000' to 6,000'

Low Intensity Land Use



Street Spacing: 1,500' to 3,000'

High Intensity Land Use



Street Spacing: 750' to 1,500'

Exhibit 4-2: Public Investment Priorities
Source: URS

street movement does not advocate a one size fits all approach — a complete street in downtown Goldsboro may look quite different from a complete street in Pikeville. However, both facilities are designed to balance mobility, safety, and aesthetics for everyone using the travel corridor. Furthermore, design considerations supportive of complete streets include elements in both the traditional travel corridor (i.e., the public realm) as well as adjacent land uses (i.e., the private realm) for reinforcing the desired sense of place.

Intelligent Transportation Systems (ITS)

ITS encompass a broad range of wireless and wire line communications-based information and electronics technologies focused on relieving congestion and improving traveler safety. When integrated into the transportation system's infrastructure, and in vehicles themselves, these technologies provide many of the tools necessary to address current transportation problems, particularly in the areas of safety improvements and enhanced traveler information. ITS also helps transportation officials anticipate and address future demands through an intermodal strategic approach to transportation.

ITS applies current and emerging technologies in such fields as information processing, communications, control, and electronics, into an integrated system capable of providing real-time traffic information to the traveling public. Effectively integrated and deployed, ITS technologies offer many benefits, including more efficient use of our infrastructure and energy resources, significant improvements in safety, mobility, accessibility, and productivity.

ITS is a federally supported program and was initiated with enactment of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). It continues to be supported by categorical funding through the current Federal Surface Transportation Authorization Act, MAP-21.

ITS Architecture

It is requirement in the MAP-21 legislation that each metropolitan planning area develop and maintain what is called an ITS system architecture. This architecture is a blueprint of means and methods in which the region and the state will integrate technology into the overall management of the system. Presently, an ITS architecture has not been developed for Wayne County. A statewide architecture has, however, been developed by the NCDOT and provides the similar roadmap for ITS integration throughout the state for a period of the next 20 years.

The statewide architecture has been developed through a cooperative effort by the state's transportation agencies, covering all modes and all roads in the state. The architecture represents a shared vision of how each agency's systems will work together in the future, sharing information and resources to provide a safer, more efficient, and more effective transportation system for travelers in the state.

The architecture is an important tool that will be used by:

- Operating agencies to recognize and plan for transportation integration opportunities in the state and, more importantly, in their specific region.
- Planning agencies to better reflect integration opportunities and operational needs into the transportation planning process.
- Other organizations and individuals that use the transportation system in the state.

The architecture provides an overarching framework that spans all of these organizations and individual transportation projects.

The timeframe considered in the statewide architecture is a 20-year outlook. This means that the architecture addresses existing ITS systems as well as those planned for development over the next 20 years. More specifically, the statewide ITS architecture focuses on systems or elements that will be deployed over the next five years. Still, the statewide ITS architecture represents a snapshot of the currently anticipated ITS and other projects based on information gathered from stakeholders, and research from agency websites or documents. As such, the architecture will require regular updates to ensure that it maintains accurate representation of the region.

The architecture covers services across a broad range of ITS, including traffic management, maintenance and construction operations, emergency services, transit management, traveler information, archived data management, electronic payment, and commercial vehicle operations.

Safety and Security

With the adoption of MAP-21, the federal government established safety and security as independent planning factors for consideration in long range transportation plans.

Safety and Transportation Planning

For safety fully to be integrated into the transportation planning process, it must be a focus at all levels of planning — from the US Department of Transportation to local neighborhoods. At the federal level, MAP-21 has established this focus. The Governor's Highways Safety Program administered by NCDOT promotes highway safety awareness and oversees numerous safety programs aimed at reducing the number of traffic crashes statewide. Other programs at the state and federal target work zones, older drivers, bicyclists, and pedestrians. At the local level, residents of the Goldsboro Urban Area spoke out at public meetings in support of safety measures on the region's highways as well as their neighborhood streets. In addition, safety improvements have been identified as a key component in evaluating the efficacy of recommended highway improvements. The following guidelines are presented to ensure safety remains a core component of transportation planning in the Goldsboro Urban Area.

Engineering

The roadway recommendations represent a series of engineering enhancements that should improve easier traffic flow while increasing safety for all users. The GMPO has also demonstrated an emphasis on safety planning by incorporating a crash analysis and ranking system to identify high priority crash locations throughout the Goldsboro Urban Area. 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; and maintaining adequate standards for railroad crossings

Enforcement

At the public workshops, many attendees express concern for the lack of enforcement of traffic laws. Enforcement activities typical include ways to monitor and maintain the appropriate behaviors of road users (motorists, bicyclists, pedestrians, and transit users). These activities usually include law enforcement participation, task forces, and partnerships with organizations dedicated to improving safety. Safety initiatives by the Governor's Highway Safety Program include "Click It or Ticket", "Booze It & Lose It", "R U Buckled", "BikeSafe NC", "Nuestra Seguridad" and "No Need 2 Speed". The GMPO can partner with state agencies and local governments to support enforcement programs in the planning area.

Education

Education programs can target all age groups and skill levels to effectively encourage the safe use of the transportation system. These programs can be incorporated into activities at schools, churches, task forces, local organizations, and government-sponsored events. Often, education campaigns work in concert with enforcement. For example, the various programs by the Governor's Highway Safety Program educate motorists and enforce traffic laws. Reaching children through education programs is an important way to support lifelong habits of safely using the transportation system. Safe Routes to School programs educate children on the proper use of sidewalks, bicycle facilities, and roadways. Finally, education programs can enhance the attitude toward safety.

Emergency Services

Ensuring safe access to homes and businesses by emergency personnel is a critical element of safety within the transportation system. When the public speaks about safety, they often mention the need for ambulances and fire trucks to quickly respond to incidents. For crashes, timely response is essential to reducing the severity injuries. The roadway recommendations presented earlier in this chapter will have a positive impact on emergency response times. These improvements will encourage an interconnected network of streets that provides route choices and reduced congestion. In addition, improving the signal system and ITS deployment will improve safety.

Security and Transportation Planning

The purpose of emphasizing security as part of the transportation planning process is to provide resources that identify and implement projects that directly improve security needs and mitigate imminent threats. The GMPO has the advantage of considering security at a regional level, and considering elements that address security at this scale is a logical first step to ensuring protection at the local level. While general strategies can be formulated at the regional level and the GMPO can create multimodal recommendation that enhance security, implementation for many strategies will be the responsibility of local organizations. In the Goldsboro Urban Area, key security considerations include evacuation routes for coastal communities, the defense of SJAFB, the protection of freight corridors, the maintenance of bridges, and the safeguard of transit operations. These consideration should continue to be a focus of the TAC and the TCC.

Security measures typically fall into one of four categories: prevention, protection, redundancy, and recovery.

- **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 identifiable 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.
- **Recovery** refers to both the initial response during an emergency and long-term activities that aid in the return of normal operations.

Project Evaluation Matrix

As a way to rank proposed roadway projects, a qualitative screening was performed that assessed potential impacts and benefits of all widening and new location projects. The locations and alignments of projects were overlaid on the existing conditions mapping shown in Chapter 2 that depict environmental resources, cultural/community sites, and demographic data. In addition, the screening considers elements for which GIS coverage was available. The results of this evaluation are summarized in matrix form and represent a qualitative assessment of potential project issues. As shown below, the matrix evaluation criteria are grouped into several categories each of which is assigned points. Each category was prioritized based on its importance to the Goldsboro Urban Area. Total points for each category are shown in parenthesis. The resulting score for each project yields a score of 0 to 100 with marks closer to 100 indicating the highest priority projects. The categories and points are identified in Table 4-3.

Table 4-3: Project Evaluation

Potential Impacts (42 Points Maximum)	
Environment/Natural Features (up to 14 points)	Wetlands/401 Certification Sites
	Hazardous Waste/Superfund Sites
Cultural/Economic Impacts (up to 16 points)	Schools/Hospitals
	Churches/Cemeteries
	Parks/Historic Resources/Protected Land
	Land Use/Economic Impact
Environmental Justice (up to 12 points)	Minority
	Low Income
Mobility and Implementation (58 Points Maximum)	
Constructability (up to 10 points)	Feasibility
Travel Demand Benefits (up to 48 points)	Safety
	Intermodal Use
	Relief of Congestion
	Total Volume
	Connectivity

Potential project impacts (if any) are classified as “Minor,” “Moderate,” or “Major” for each of the above categories. This determination is based on a combination of objective and subjective criteria. The purpose of the process is not to determine the explicit impact of a project, but rather simply to identify resources or communities in proximity to recommendations. A more detailed analysis, including a field survey, will be necessary to determine specific impacts on a project-by-project basis when individual project studies are begun.

The evaluation matrix is used within the context of the 2040 GMTP to help guide the formation of the financially constrained plan. This matrix was evaluated by the Steering Committee solely for the purpose of evaluating projects for this GMTP. Brief descriptions for each category follow.

Potential Impacts

Environment/Natural Features

This section primarily focuses on natural features related to water quality and threatened/endangered species as well as manmade hazards such as superfund sites. The characterization of impacts is primarily related to the presence of these features within a project corridor. As the frequency of these

issues is noted, the severity index increases from minor to major impacts. Specific features in this category include: wetlands, streams, hazardous waste sites, and superfund sites. Example guidelines used to rate project impacts in this category include:

Minor Impacts

- Road widening with single small creek crossing.
- Road widening near sensitive area.
- Minimal hazardous waste/superfund areas affected.

Moderate Impacts

- Road widening with multiple creek crossings.
- Road widening crosses sensitive area.
- New location with single small creek crossing or nears sensitive area.
- Multiple hazardous waste/superfund sites with minor impact areas.

Major Impacts

- New alignment along stream or with multiple stream crossings.
- New alignment through sensitive area.
- Numerous hazardous waste/superfund sites with significant areas affected.

Cultural/Economic Features

This category indicates the presence of community services, cultural resources, and institutions including schools, churches, parks, protected lands, and historic areas. The impacts to these types of community resources often are based on proximity or when right-of-way is required from these sites. In the most extreme cases, buildings may be directly impacted. Example guidelines used to rate project impacts in this category include:

Minor Impacts

- Road widening within proximity to a community resource or sensitive area where no right-of-way is required nor are community resource buildings/structures directly affected.
- New location within proximity to community resources where minor amounts of right-of-way are required in locations that do not impact the significance, operation, or relative safety of the community resource.

Moderate Impacts

- Road widening within proximity to a community resource or sensitive area where minimal amounts of right-of-way are required but no community resource buildings/structures are directly affected.
- New location that requires right-of-way from community resource properties where some impacts to the property are anticipated but do not include impacts to community resource buildings/structures.

Major Impacts

- Roadway widening and new location projects where significant right-of-way is required and possible direct impacts to buildings/structures are expected.

Environmental Justice Considerations

Environmental justice reviews conducted at the systems planning level typically involve the analysis of available demographic data from the US Census. When reviewing proposed projects, it is important not only to consider specific project impacts, but also the distribution of projects and transportation investments throughout the study area. The plan seeks to minimize disproportionate impacts to minority and low-income groups through proactive planning. Example guidelines used to rate project impacts in this category include:

Minor Impacts

- Road widening or new location within proximity or adjacent to minority and/or low-income communities areas where 50% or more of the population is either minority, Hispanic, or low-income.

Moderate Impacts

- Road widening or new location that passes directly through a minority and/or low-income community where 50% or more of the population is either minority, Hispanic, or low-income.

Major Impacts

- Roadway widening and new location where significant right-of-way and possible direct impacts to buildings/structures are expected within areas with 50% or more of the population is either minority, Hispanic, or low-income.

Mobility and Implementation

As projects are considered, it is important to understand the relative benefits as well as the difficulties that may be encountered during implementation. For this reason, the relative constructability difficulties and mobility benefits have been included in this evaluation. This process is one of the first steps in understanding the expected ratio between costs and benefits. While this evaluation is not intended as a quantitative assessment of specific benefits and project costs, providing this information empowers planners to select projects for inclusion in the plan that have a realistic chance of being implemented. This information also is used when grouping projects into respective horizon years.

Constructability

For the purposes of this evaluation, project constructability was considered to evaluate the difficulties associated with project permitting, physical construction, costs, and traffic control as well as to consider public support for specific projects. Projects with challenging constructability issues may be

more costly due to impacts on design and delays associated with maintaining traffic flow during construction. An example of a project with minor constructability issues would be a road widening project where sufficient right-of-way exists and few sensitive areas are affected. Conversely, an example of a major constructability challenge could be a bridge replacement project where sensitive environmental features are present and where limited crossing alternatives exist. In this example, an atypical bridge design may be necessary and creative solutions may be required to maintain traffic flow. Both conditions likely would extend the duration of construction and impact project cost. Example guidelines used to rate project impacts in this category include:

Minor Impacts

- Road widening where little or no right-of-way is required and few sensitive environmental features are present; traffic can be maintained during construction along the existing facility.
- New location located outside of sensitive areas where few impacts to the built environment are expected.

Moderate Impacts

- Road widening where some sensitive areas are impacted. Traffic can still be maintained, but there may be disruptions along links in the corridor; environmental permitting may impact project schedule.
- New location through a sensitive area, but where no changes in typical design area required; environmental permitting may impact project schedule.

Major Impacts

- Road widening through sensitive environmental areas for a significant length where atypical designs are required as well as significant environmental permitting process is expected; creative designs and traffic control may be necessary.
- New location with multiple environmental impacts and/or structures; creative design solutions and significant permitting will be required.

Travel Demand Benefits

While the previous evaluation criteria relate to a project's potential impact, this category seeks to qualify the relative travel benefits associated with implementing the project. These benefits include safety, congestion, and connectivity enhancements. When possible, the travel demand model was used to determine how each project impacts traffic mobility and congestion to adjacent corridors. Each project was analyzed within the following categories:

- Safety: Project provides improvements to safety which may lower crash rates and/or severity of crashes.
- Intermodal use: Project promotes use of alternative modes of transportation such as pedestrian, bicycle and transit.

- Relief of existing congestion: Project's ability to enhance the facility's operation under existing conditions with respect to certain measures of effectiveness such as level-of-service and capacity.
- Relief of future congestion: Project's ability to enhance the facility's future operation with respect to certain measures of effectiveness such as level-of-service and capacity.
- Total volume: The total volume that the facility will be expected to service while operating at capacity.
- Economic Connectivity: Project enhances mobility along freight routes and/or improves connectivity to ports and rail access.
- Connectivity: Project's ability to improve local and/or regional connectivity.

Evaluation

When considered with best practices, the data from the evaluation matrix helps select roadway projects and proposed alignments that minimize impacts and/or provide benefits. The screening process identifies likely impacts and areas of uncertainty that will need to be investigated more fully as a project receives more detailed planning and design. The Evaluation Matrix can be seen in Table 4-3.

Roadway Project Ranking Process

A ranking process was conducted for the purpose of identifying projects for consideration in the financially constrained plan; it was developed using categories of the evaluation matrix. The ranking was based on "weighted values" used in the following three-step process:

Step 1: Identify "weighted values" of evaluation criteria (Total 100 Points)

Project Impacts

- Environmental/Natural Features (14 points)
- Cultural/Economic Features (16 points)
- Environmental Justice (12 points)

Traffic Demand Benefits

- Constructability (10 points)
- Traffic Demand Benefits/Mobility (48 points)

Step 2: Convert project impacts to point values

The lower the potential impact of the project, the higher the score.

Step 3: Convert traffic demand benefits to point values

The lower the feasibility, the lower the score. The higher the potential travel demand benefits, the higher the score. Public feedback on particular projects can be found in Appendix A.

Evaluation Matrix Results

The highest ranking projects (Tier 1) should be considered first for implementation because they have the greatest benefits and the least impacts. Tier 2 projects also have substantial benefits in terms of congestion relief and connectivity, but also have more potential impacts. Some of these projects will appear on the financially constrained plan, while others will appear on the CTP, which will serve as a companion plan to the 2040 GMTP and shows future-year projects that are not financially constrained. The benefits of the Tier 3 typically will appear on the CTP. The Financial Plan (Chapter 6) provides more detail on the ranking of projects.

Projects highlighted in the evaluation matrix signify the projects that are carried forward as financially feasible through the Metropolitan Planning Process. They have been assigned point levels according to the Roadway Project Ranking Process and have also been vetted by the TAC for additional intrinsic value and community importance. Those high-ranking projects that have not been selected to move forward at this time were held back due to one or more factors including higher cost, phasing associated with other projects and tiers in the constrained list, perceived impact to the community, or local feedback.

Table 4-4: 2040 MTP Roadway Project Evaluation Matrix																		
Map Reference	Facility	Description		Project Impacts								Mobility and Implementation						Total Ranking (0-100 Points)
				Environmental/Natural Features (0-14 Points)		Cultural/Economic Impacts (0-16 Points)				Environmental Justice (0-12 Points)		Constructability (0-10 Points)	Travel Demand Benefits (0-48 Points)					
	Wetlands/ 401 Certification Sites	Hazardous Waste/ Superfund Sites	Schools/Hospitals	Churches/ Cemeteries	Parks/Historic Resources/ Protected Land	Land Use/ Economic Impact	Minority	Low Income	Feasibility	Safety	Intermodal Use	Relief of Congestion	Total Volume	Connectivity				
	Points			7	7	4	4	4	4	6	6	10	6	6	24	6	6	100
	Widen Existing																	
1	Ash Street	Berkeley Boulevard	US 70	○	○	●	○	○	○	○	○	○	○	○	○	○	○	99
2	Ash Street (Engineering Only)	Georgia Avenue	Virginia Street	○	●	○	○	○	○	●	●	○	○	○	○	○	○	90
3	Ash Street (Engineering Only)	US 117	Georgia Avenue	○	●	○	○	○	○	●	●	○	○	○	○	○	○	87
4	Berkeley Boulevard (B)	New Hope Road	Hood Swamp Road	○	○	○	○	○	●	○	○	○	○	●	○	●	○	95
5	Berkeley Boulevard	Hood Swamp Road	Saulston Road	○	○	○	○	○	○	○	●	○	○	●	○	●	○	94
6	New Hope Road	Wayne Memorial Drive	Miller's Chapel Road	○	○	○	●	○	●	●	○	○	○	●	○	●	○	91
7	Wayne Memorial Drive	New Hope Road	Proposed US 70 Bypass	○	○	●	○	○	●	●	○	○	○	●	○	○	●	89
8	Arrington Bridge Road	US 117	Westbrook Road	●	●	○	○	●	●	●	●	●	●	●	●	●	●	51
9	Ash Street (Construction Only)	Georgia Avenue	Virginia Street	○	●	○	○	○	○	●	●	○	○	○	○	○	○	90
10	Ash Street (Construction Only)	US 117	Georgia Avenue	○	●	○	○	○	○	●	●	○	○	○	○	○	○	87
11	Belfast Road	Salem Church Road	William Street	○	○	○	○	○	○	●	○	●	●	●	●	●	●	61
12	Buck Swamp Road	NC 581	Salem Church Road	●	○	○	○	●	●	○	○	●	●	●	●	●	●	59
13	Cuyler Best Road	US 70	Proposed Cuyler Best Realignment	○	○	○	○	○	●	○	○	●	●	●	●	●	●	67
14	Elm Street	John Street	Slocumb Street	○	●	●	●	●	●	●	●	●	●	○	●	●	●	53
15	Genoa Road	US 117	Pecan Road	●	●	○	○	○	●	●	○	●	●	●	●	●	●	56
16	George Street	Oak Street	US 70	○	●	○	○	○	○	●	●	●	●	●	●	●	●	68
17	George Street	US 117	Elm Street	○	●	●	●	○	●	●	●	●	●	●	●	●	●	65
18	Mark Edwards Road	New Hope Road	Proposed US 70 Bypass	●	○	●	○	○	○	●	●	●	●	●	●	●	●	54
19	Miller's Chapel Road	US 70	Thoroughfare Road	○	○	●	○	○	●	○	●	●	●	●	●	●	●	60
20	NC 111	St. John Church Road	Bill Lane Boulevard	●	○	○	○	○	●	○	●	●	●	●	●	●	●	59
21	NC 111	Bill Lane Boulevard	US 70	●	○	○	○	○	●	○	○	●	●	●	●	●	●	65
22	NC 111	Tommy's Road	Mount Carmel Church Road	●	○	○	○	○	●	○	○	●	●	●	●	●	●	65
23	NC 581	US 70	Buck Swamp Road	●	○	○	○	○	●	○	○	●	●	●	●	●	●	61
24	New Hope Road	Patetown Road	Wayne Memorial Drive	●	○	○	○	○	●	●	●	●	●	●	●	●	●	59
25	New Hope Road	Miller's Chapel Road	Beston Road	●	●	○	○	○	●	○	○	●	●	●	●	●	●	58
26	North Oak Forest Road	Ash Street	Proposed North Oak Forest Road	○	●	○	○	○	●	○	○	●	●	●	●	●	●	61
27	Patetown Road	William Street	Tommy's Road	○	●	●	○	○	●	●	○	●	●	●	●	●	●	55
28	Pecan Road	Genoa Road	Arrington Bridge Road	●	○	○	○	○	●	●	○	●	●	●	●	●	●	57
29	Piedmont Road	Airport	Ash Street	○	○	○	○	○	○	●	●	●	●	●	●	●	●	57
30	Royall Avenue	Wayne Memorial Drive	Berkeley Boulevard	○	○	●	●	●	●	●	●	●	○	●	●	●	●	72
31	Salem Church Road	US 70	Stoney Hill Road	○	●	○	○	○	●	●	●	●	●	●	●	●	●	54
32	Slocumb Street	Westbrook Road	Ash Street	○	○	●	○	○	●	●	●	●	●	●	●	●	●	55
33	Spence Avenue	Elm Street	Ash Street	○	○	●	○	○	○	○	○	●	●	●	○	●	●	79
34	Tommy's Road	US 117	US 13	●	○	●	○	○	○	●	●	●	●	●	●	●	●	56
35	US 13	Saulston Road	Green County Line	○	○	○	○	○	○	○	○	●	●	●	●	●	●	63
36	US 13	Herring Road	US 117	●	●	○	○	○	○	●	●	●	●	●	●	●	●	55
37	(Existing) US 70	US 70 Bypass	Wayne/Johnson County Line	●	●	○	○	○	●	●	○	○	●	●	●	○	●	64
38	Wayne Memorial Drive	Proposed US 70 Bypass	Saulston Road	○	○	○	○	○	○	○	○	●	●	●	●	●	●	61
39	Wayne Memorial Drive	Saulston Road	Quail Croft Lane	○	○	○	○	○	○	○	○	●	●	●	●	●	●	61
40	Westbrook Road	Arrington Bridge Road	Slocumb Street	●	○	○	○	●	●	●	●	●	●	●	●	●	●	53
41	William Street	US 70	US 117	○	●	○	○	○	○	●	●	●	●	●	○	●	●	73

Table 4.3 - 2040 MTP Roadway Project Evaluation Matrix																		
	New Location																	
43	Central Heights Road	Berkeley Boulevard	Royall Avenue	○	○	○	●	○	◐	○	○	◐	◐	◐	○	○	○	89
44	I-795 (US 117) (Engineering Only)	Ash Street	US 13	●	○	○	●	●	●	○	◐	○	●	●	◐	◐	○	67
45	Interchange at US 117 South	US 117 South	O'Berry Road	○	◐	○	○	○	●	◐	◐	○	◐	●	◐	◐	○	75
46	I-795 (US 117) (Construction Only)	Ash Street	US 13	●	○	○	●	●	●	○	◐	○	●	●	◐	◐	○	67
47	Buck Swamp Road Extension	Salem Church Road	US 117	○	○	○	○	○	○	○	○	●	●	●	●	●	◐	63
48	Hinnant Road	US 117	Airport Road	○	○	○	○	○	○	○	○	●	●	●	●	●	●	61
49	North Oak Forest Road	Existing North Oak Forest Road	Intersection of Berkeley Boulevard and Fallin Boulevar	○	○	◐	○	○	○	●	○	●	●	●	●	●	●	55
50	Tommy's Road Extension	NC 111	US 117	○	○	○	○	○	○	◐	◐	●	●	●	●	●	●	57

Notes:

Public comments throughout the Metropolitan Transportation Plan, Public Involvement reflect the rankings shown here. Prioritization of the projects were completed through the MPO Technical Advisory Committee process.

This ranking is a qualitative screening only. Observations were made by overlaying potential alignments on a map with environmental and community resource information. A very limited field review was conducted.

General "rules of thumb" were followed (see categorical examples below) to assess potential impacts to various issues.

This screening is not intended to determine impacts, only to identify those communities in proximity to various projects in the long range plan. A more detailed analysis including a field survey will need to be undertaken to determine specific community impacts on a project-by-project basis when individual project design is begun.

** = Impact on areas composed of greater than 50% of the population is of the selected demographic. If marked, these communities will need to be included in an environmental justice assessment when individaul project studies are undertaken.

Project Evaluation Matrix - Weighted Rankings	
(Weighted values identified by study team)	
Traffic Demand Benefits (Mobility)	48
Constructability	10
Environmental Justice	12
Cultural/Economic Features	16
Environmental/Natural Features	14

Environmental/Natural Features

○	Minor - Widening: single small creek crossing; near sensitive area.
◐	Moderate - Widening: multiple small creek crossings; cross or near edge of sensitive area. New Location: single small creek crossing or near sensitive area.
●	Major - New alignment: along stream; multiple impacts; through middle of sensitive area.

Constructability

○	Low impact, easy to implement; high public support.
◐	Moderate impact to utilities, relocations, bridges, traffic control, etc.; moderate public support.
●	High impact to utilities, relocations, bridges, traffic control; little or no public support.

Total 2040 Volume

○	Volume greater than 25,000
◐	Volume between 10,000 and 25,000
●	Volume less than 10,000

Cultural/Economic Features; Environmental Justice

○	Minor - Road widening within proximity to a community resource or sensitive area where no right-of-way is required nor are community resource buildings/structures directly affected
◐	Moderate - Road widening within proximity to a community resource or sensitive area where minimal amounts of right-of-way are required but no community resource buildings/structures are directly affected
●	High - Roadway widening and new location projects where significant right-of-way is required and possible direct impacts to buildings/structures are expected

Travel Demand Benefits

○	Provides a low level of congestion relief to roadway system.
◐	Provides a moderate level of congestion relief to roadway system.
●	Provides a high level of congestion relief to roadway system

Connectivity

○	Greatly promotes local or regional connectivity
◐	Promotes local or regional connectivity
●	Does not promote local or regional connectivity

Chapter 5. Land Use Element

Introduction

Land use provides a foundation for development activities and defines a community's growth patterns. The interconnectivity between the demand for land use, design of the urban form, and supply of the transportation network are important for the sustainable development of the Goldsboro Urban Area.

Leapfrog development from past decades has resulted in greater attention to new land use trends. Current movements place emphasis on the integration of land uses to fit a broader spectrum of interests and needs for an area. Addressed in the Wayne County Comprehensive Plan as well as in the Envision 2035 Plan, there is community support for addressing the lack of connectivity between existing land uses and the current transportation network. One way to address these concerns is by promoting more mixed-use development and compact growth around urban services, while preserving rural areas and farmlands.



Available land in Wayne County



Source: URS

Shifts in the Goldsboro Urban Area, and across the United States, aim to reduce urban sprawl through the support of the integration of social, economic, and environmental factors in development projects. This is supported by the MAP-21 stipulation of connecting land use with transportation policies. The requirement places particular focus on the direct or indirect impacts to the environment as a result of transportation development. The emphasis on preserving sensitive land also incorporates addressing issues of growing congestion in areas and cost factors associated with dispersed land uses. Factors such as increase in travel time and distance, energy usage and pollution, greater expenditures associated with more expansive transportation and public infrastructure, and impacts to sensitive social and environmental areas are a result of unintended consequences from haphazard land use development. The transportation planning process aims to sustainability address these diverse factors.

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For the Goldsboro Urban Area, Focus Areas were chosen through the identification of locations in need of greater connectivity between land use, urban form, and transportation. The Focus Areas chosen include Wayne Memorial Drive and areas along the US 70 Bypass (currently under construction). The Focus Areas are based on the Envision 2035 Plan to examine the existing conditions and recommendations for transportation improvement. They serve as prototypes for analysis and recommendations for other areas of focus in and throughout the Goldsboro Urban Area and regional transportation system. Best practices in land use are necessary to incorporate for transportation development and to plan for the growth of activity centers throughout the community.

Land Use and Urban Form

Land use and urban form are critical elements of development. Land use defines a jurisdiction's planning area and guides the mix, type, and structure of residential and commercial areas as well as the density or expansion of land for a community. The development of future land use needs is primarily defined in an area's comprehensive plan, which focuses on the vision of a community and how they want to grow, allowing for a more cohesive built environment. This vision of future land use directs the urban form of an area. The urban form is the physical shape and structure of the built environment, defined through block lengths, building heights, street grids, and urban, suburban, and rural densities. The urban form is important to provide consistency to the spaces and boundaries of a planning area.

Land use and urban form are regulated through zoning and subdivision ordinances, building codes and standards, and/or natural or historic preservation guidelines. The interaction of land use and urban form influence the everyday lives of a community. Interactions influence the social, economic, and environmental conditions of an area from its urban core to the rural edges. Urban form is typically defined by categories according to intensity and urban character (see diagram below).

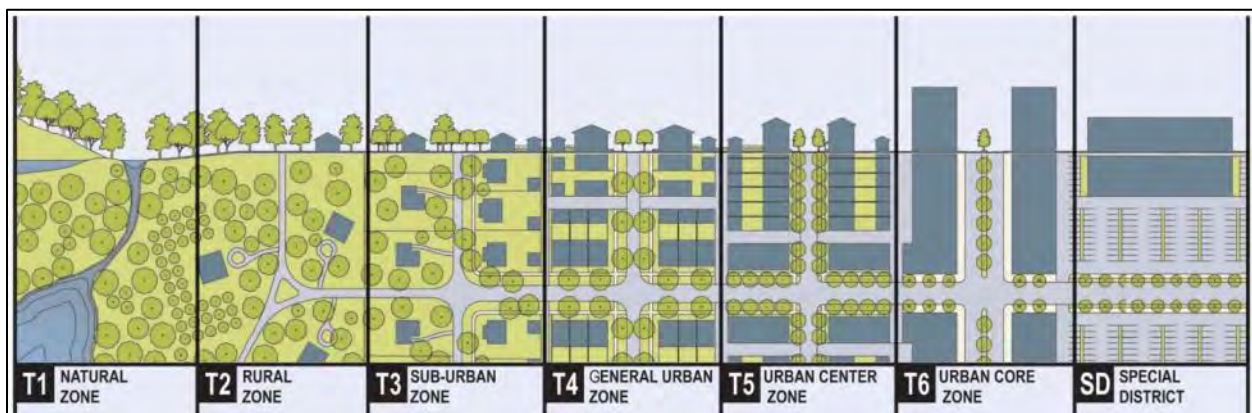


Exhibit 5-1: Diagram of rural to urban development patterns

Source: Duany Plater-Zyberk & Company via CATS

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Identifying appropriate land uses before making transportation investments can minimize negative impacts and support diverse and resilient growth opportunities:

- Sensitive lands such as wetlands or natural areas including the Neuse River can be preserved through appropriate land use planning and intensity.
- Integrating activity centers and transportation modes in the planning process can support growth while minimizing the over-capacity of roadway systems.
- Land use can be optimized through planning complementary activities next to existing or planned transportation infrastructure.
- Travel behavior can be influenced by land use decisions through the planning of travel distances, modes, or time.
- Multi-modal transportation can be encouraged through programs such as Complete Streets, which aims to create more diverse, safe, and vibrant streetscapes.

Urban Form and Travel Behavior

The urban form defines the built environment, developed on the foundation of the community's land use. The importance of this relationship influences travel behavior through and within a planning area, affecting the attractiveness, efficiency, environment, and safety of travel.

Diversity in transportation modes, including pedestrian, bicycle, transit, or roadway travel, complements land use diversity and intensity. Transportation planning plays a key role in determining where existing modes may be retrofitted, where new, or expanded transportation modes may be planned, and how they are designed. For example, areas with limited diversity in transportation modes and communities that rely predominantly on the automobile often have land use



Exhibit 5-2: Density in Wayne County

Source: URS

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that is low-density. Conversely, areas with a diversity of transportation modes including easy access to bicycle and pedestrian facilities and public transit, as well as automobile use generally experience higher density urban land uses. The transportation planning process helps to marry the interaction of land use and urban form with the diversity of transportation modes, working in coordination with a community's comprehensive planning vision. The relationship between land use, urban form, and availability in choice of travel mode directly impacts travel behavior and should be strongly considered during the decision-making and investment for future development patterns. In the Goldsboro Urban Area, the relationship between the land use, urban form, and transportation needs/behaviors are evaluated to directly inform proposed projects in the 2040 GMTP.

Reorganizing Urban Form

The planning process focuses on four factors that contribute largely to the development of communities and their travel behaviors. This is the relationship between urban form and transportation, or the density, diversity, design, and distance within and between our urban and rural environments. Placing emphasis on evaluating these factors allows decision makers and the community in the Goldsboro Urban Area to more efficiently plan their physical environment, commuting distances, travel times, or transportation modes.

Density

The density of an area is used to determine the number of housing units per area of land, reported in dwelling units per acre (DU/AC). This value can also be reported by persons per acre according to household size characteristics. Density in compact urban areas and non-residential density in suburban areas is often measured in floor-area-ratio (FAR). This is the ratio of gross floor area of a building compared to the gross total area of the parcel.

Understanding density serves to better understand the needs of a community and how that community functions in terms of its economics, housing stock, transportation, and safety. Factors including health, psychology, and the resiliency of a community can also be directed by density. Sustainability plays a role in density, where urban density is often considered more sustainable due to closer proximity of resources as opposed to regions that are low-density with dispersed resources. Despite the debate or preference between dense or dispersed residential density and non-residential intensities, good planning and design plays a role in connecting the variety of activities while also providing diversity in transportation options.



Exhibit 5-3: Example of horizontal mixed-use development

Source: URS

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For the Goldsboro Urban Area, understanding density and intensity of the area is important for planners to determine infrastructure and transportation needs, protection of the natural environment and socially sensitive communities, and potential cost factors for new projects.

Diversity

Mixed-use development creates places that combine diverse land uses including residential areas, commercial and office spaces, civic functions, recreational opportunities, and dedicated open space. Paradigms such as new urbanism, TOD, or smart growth have supported mixed-use development to promote areas where people can “live, work, and play.” Areas with strong mixed-use functions foster resiliency through density of resources, economic growth, increased safety measures, good spatial quality, and variety in transportation options.

Mixed-use developments can be created through vertical (vertical mixed-use buildings) or horizontal (horizontal mixed-use sites) measures. Both types of mixed use developments create places that stimulate urban districts while meeting the everyday needs of the community. Mixed use development offers advantages over single-use development by fostering a



Exhibit 5-4: Example of vertical mixed-use development

Source: URS

more efficient transportation system characterized by shorter trips, choice in type of travel, convenient access and internal trip capture. The Goldsboro Urban Area experiences both types of mixed-use diversity, where the urban core has more vertical mixed-use buildings and the edge areas have horizontal mixed-use sites. Comprehensive planning, Planned Unit Developments (PUD), and zoning contribute to identifying locations for mixed-use and for preserving and connecting existing mixed-use developments. Recommending transportation improvements for the Goldsboro Urban Area is important to connect single-use sites with mixed-use developments as a way to foster the community and strengthen the existing transportation system. Encouraging regional planning will also help to improve connectivity between municipalities and centers of activity throughout Wayne County.

Design

The density and diversity of an area is characterized by urban design, which focuses on the physical form of city-building. As a part of urban form, urban design is the discipline which shapes the block lengths, building heights, street grids, and scale of the built environment. Recommendations for urban design are stipulated in locally adopted building and zoning ordinances and in comprehensive plans.

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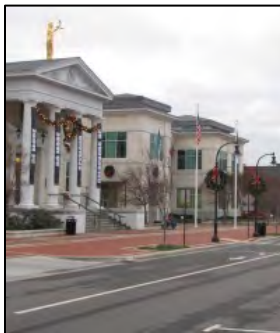
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Urban design directly influences travel choices through directing travel behaviors and providing context to the transportation system. The density and diversity of an area can define the access to diverse transportation options, distance between activities, or the speed of travel. Providing integrated urban design in an area could promote a conversion of transportation corridors from automobile-oriented to pedestrian-dominated. Complete Streets is a policy framework that incorporates this transformation in its practice. For a community, this can help promote diversity and safety of transportation options while encouraging quality mixed-use spaces. Developing these improvements is context specific, tailoring the urban design needs to urban, suburban, or rural environments. In the Goldsboro Urban Area, promoting urban design reinforces elements that can create a more balanced transportation system including walkability, bicycle infrastructure, transit options, and improved roadway design.

Distance


Travel distance between residential areas and centers of activity is one of the primary factors that contribute to travel behavior. The spatial distance between origin and destination is often

determined by the historical context and land uses of an area, transportation network (both existing and created), type of urban form elements, and zoning guidelines. Behaviors for travel mode are then developed to accommodate either dense or dispersed physical environments. Dense areas with high levels of mixed-use functions have decreased travel distances, resulting in more diverse transportation mode options. Dense, mixed use areas may also decrease the distance between complementary land uses and allow for a reduction in vehicle trips. In suburban or rural areas,



Urban design elements

Source: URS



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automobile travel is common as a result of more dispersed land uses and limited access to safe and available multi-modal transportation options. The use of travel modes such as bicycling or walking is also limited except for recreational use due to distance and accessibility.

The Goldsboro Urban Area is predominately suburban and rural with mixed-use areas near the downtown core. Planning to accommodate varying travel distances requires greater focus on the transportation and land use demands of the area, while considering population growth and needs of the community.

Existing Land Use Summary

The Goldsboro Urban Area has a diverse mix of land uses with the majority of intensive land uses along and east of the US 117 corridor. The 2035 LRTP details existing land use based on parcel-by-parcel analysis to classify each piece of property and its current land use. These classifications include:

- Commercial (retail, service, and shopping establishments)
- Office and Institutional
- Industry (includes waste water treatment and sanitary sewer facilities)
- Military
- Multi-Family Residential
- Medium Density Residential (single-family/less than 2 acres and mobile homes)
- Low Density Residential (single-family/2 to 20 acres and mobile homes)
- Rural Residential/Agriculture (single-family/20+ acres, mobile homes and agriculture)
- Transportation (right-of-way)
- Recreation/Open Space
- Vacant

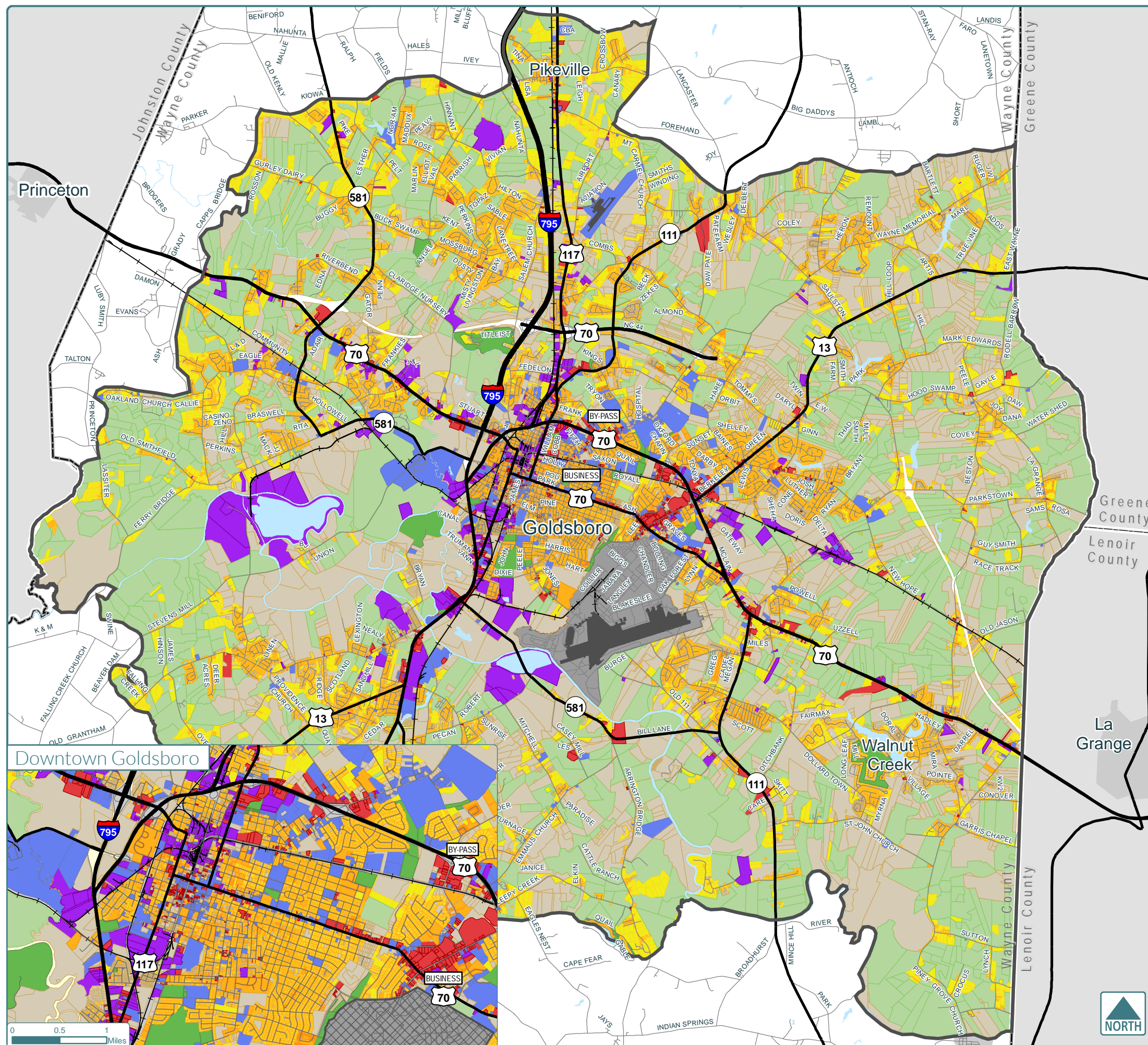
The 2040 GMTP uses the above categories as a basis for understanding existing land uses in the Goldsboro Urban Area as shown on Figure 5-1.

GOLDSBORO URBAN AREA

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Figure 5-1: Existing Land Use

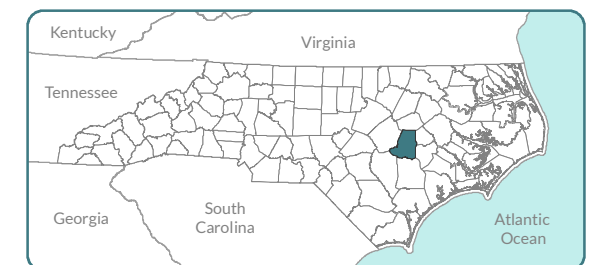


- | | |
|-----------------------------|-------------------------------|
| Interstate | Commercial |
| US Route | Institutional |
| NC Route | Low Density Residential |
| Secondary Road | Medium Density Residential |
| Railroad | High Density Residential |
| Airport | Rural Residential/Agriculture |
| Seymour Johnson AFB | Recreation |
| Body of Water | Military |
| Goldsboro Metropolitan Area | Industrial |
| Wayne County | Vacant |

Notes:

- Existing land use classifications are sourced from the City of Goldsboro Envision 2035: Goldsboro Urbanized Area Comprehensive Plan, adopted May 2013.
- Land uses are symbolized according to the Land Based Classification Standards (LBCS); standards created in joint between the American Planning Association (APA) and the Federal Highway Administration (FHWA).

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As described in the 2035 LRTP, the primary transportation corridors that have contributed to shaping land use patterns are Ash Street, Berkeley Boulevard, Wayne Memorial Drive, and the US 70 corridor. These trends still hold true for the 2040 GMTP. Residential development has occurred in a sporadic fashion in the north and northwest of the Goldsboro Urban Area and is the dominant land use after vacant parcels. Rural residential/agriculture is the most common of the residential land uses. Military land use is above average in the Goldsboro Urban Area due to SJAFB. The Goldsboro Urban Area has a low percentage of commercial and office/institutional land uses as compared to other regional activity centers. This emphasizes the dispersed nature of the area, which is dominated by suburban and rural development and vacant parcels as shown on Table 5-1.

Future land use shifts will occur predominantly around the five US 70 Bypass interchanges. These areas are projected to shift from agricultural land use to mixed-use areas with greater commercial and residential development. See Figure 5-2 for Corporate, ETJ, and Metropolitan Area boundaries.

Table 5-1: Existing Land Use

Land Use Category	Corporate Limits	Percent of Total	ETJ Limits	Percent of Total	Metropolitan Area Only	Percent of Total	Total
Commercial	979	5.4	159	0.8	608	0.5	1,746
Office and Institutional	2,023	11.2	270	1.4	1,375	1.0	3,667
Industry	1,321	7.3	826	4.2	3,614	2.7	5,761
Military	3,096	17.1	24	0.1	0	0.0	3,121
Multi-family Residential	736	4.1	69	0.4	128	0.1	933
Medium Density Residential	3,171	17.5	1,151	5.9	10,423	7.7	14,746
Low Density Residential	511	2.8	1,244	6.3	15,139	11.3	16,893
Rural Residential/ Agriculture	481	2.7	5,548	28.3	57,392	42.6	63,421
Recreation	599	3.3	234	1.2	298	0.2	1,131
Right-of-Way	2,321	12.8	1,350	6.9	5,965	4.4	9,635
Vacant	2,894	16.0	8,724	44.5	39,629	29.4	51,247
Total	18,132	100	19,599	100	134,571	100	172,301

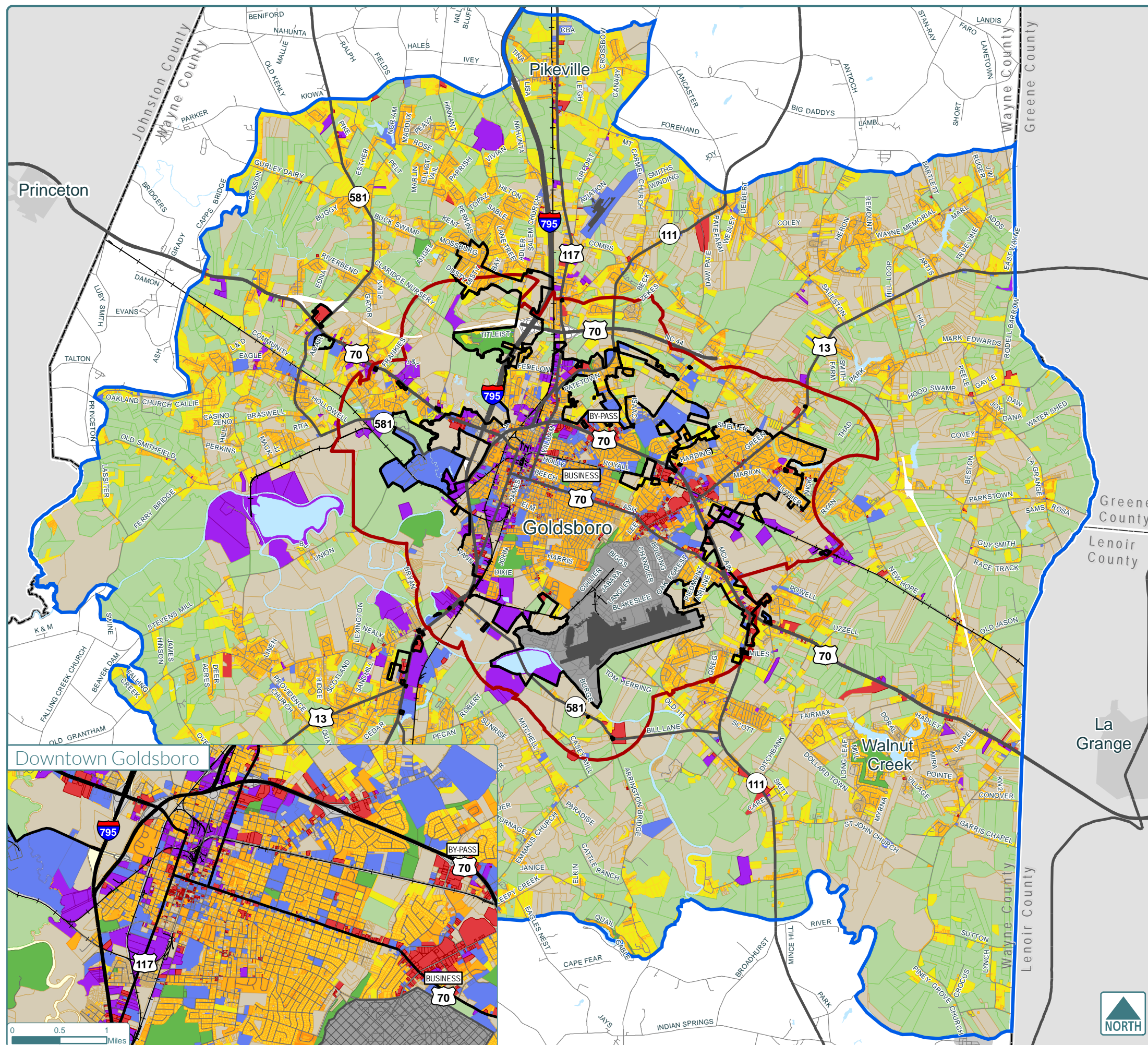
Source: Envision 2035 Plan

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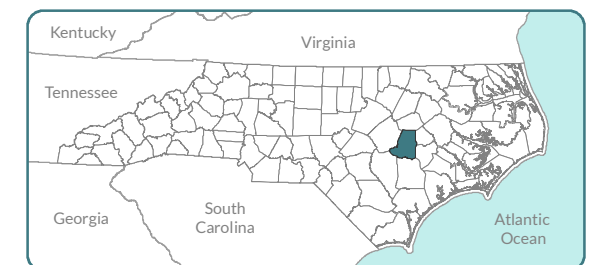
Figure 5-2: Existing Corporate, ETJ, and Metropolitan Area Boundaries



Notes:

- Existing land use classifications are sourced from the City of Goldsboro Envision 2035: Goldsboro Urbanized Area Comprehensive Plan, adopted May 2013.
- Land uses are symbolized according to the Land Based Classification Standards (LBCS); standards created in joint between the American Planning Association (APA) and the Federal Highway Administration (FHWA).

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Focus Area Studies

Focus Areas have been selected within the Goldsboro Urban Area to assess the relationship between land use, urban form, and travel behavior. The Focus Areas of Wayne Memorial Drive and areas along the US 70 Bypass are representative of the Goldsboro Urban Area as a whole due to the size and diversity of Goldsboro and Wayne County. Recommendations made for the Focus Areas should also be applied to new development, redevelopment, and retrofit projects throughout the Goldsboro Urban Area in order to utilize best development practices and better integrate land use, urban form, and travel behavior.

Focus Areas were selected based on the Envision 2035 Plan and recommendations by planning staff from Goldsboro and Wayne County.

Planning Process

The selected Focus Areas were analyzed in detail to explore the relationship between land use, urban form, and travel behavior. These areas were assessed in the Envision 2035 Plan based on the following six factors:

1. Existing land uses
2. LOS
3. Pedestrian and bicycle access
4. Existing traffic conditions
5. Crash analysis
6. Capacity recommendations

The Envision 2035 Plan used spatial analysis to inventory existing conditions for each Focus Area using aerial photography, field analysis, and geographic information system (GIS) data. Development conditions, land use patterns, and spatial conditions were documented to illustrate the Focus Areas. Information captured included distribution and diversity of land uses, street and roadway network, and travel mode accessibility. The Envision 2035 Plan utilizes this analysis in coordination with existing development policies to create a series of recommendations which include:

- Capacity recommendations
- Pedestrian and bicycle recommendations
- Transit recommendations
- Safety recommendations
- Access management recommendations

Wayne Memorial Drive Focus Area

Increase in development is expected along Wayne Memorial Drive due to the new interchange for the US 70 Bypass located on Wayne Memorial Drive between Tommys Road and Stoney Creek Church Road.

The area currently has a mix of land uses, including residential, office, and institutional uses with some commercial and unimproved areas. As an area with a number of activity centers and access points to the many residences and businesses, high rates of congestion and crashes pose safety concerns. Issues of safety along with minimal sidewalks or bikes lanes have an impact on pedestrian and bicycle usage. As an area that is already growing, the US 70 Bypass interchange will expedite the need to accommodate for this growth. Recommendations include:

- Additional through lanes along Wayne Memorial Drive in the vicinity of the interchanges.
- Exclusive turn lanes along Wayne Memorial Drive to improve safe and efficient travel.
- Increase in pedestrian and bicycle infrastructure, including better connectivity with Wayne Memorial Hospital and Wayne Community College.
- Extend existing bus routes to serve proposed and future development located north near the US 70 Bypass interchange.
- Address safety through improved access management strategies, including driveway spacing and quantity, driveway operation, on-site traffic circulation, and cross-access.

The Envision 2035 Plan explores in more detail the existing conditions of Wayne Memorial Drive as well as recommendations that aim to accommodate projected growth for the Focus Area. This additional information is available in the Envision 2035 Plan.

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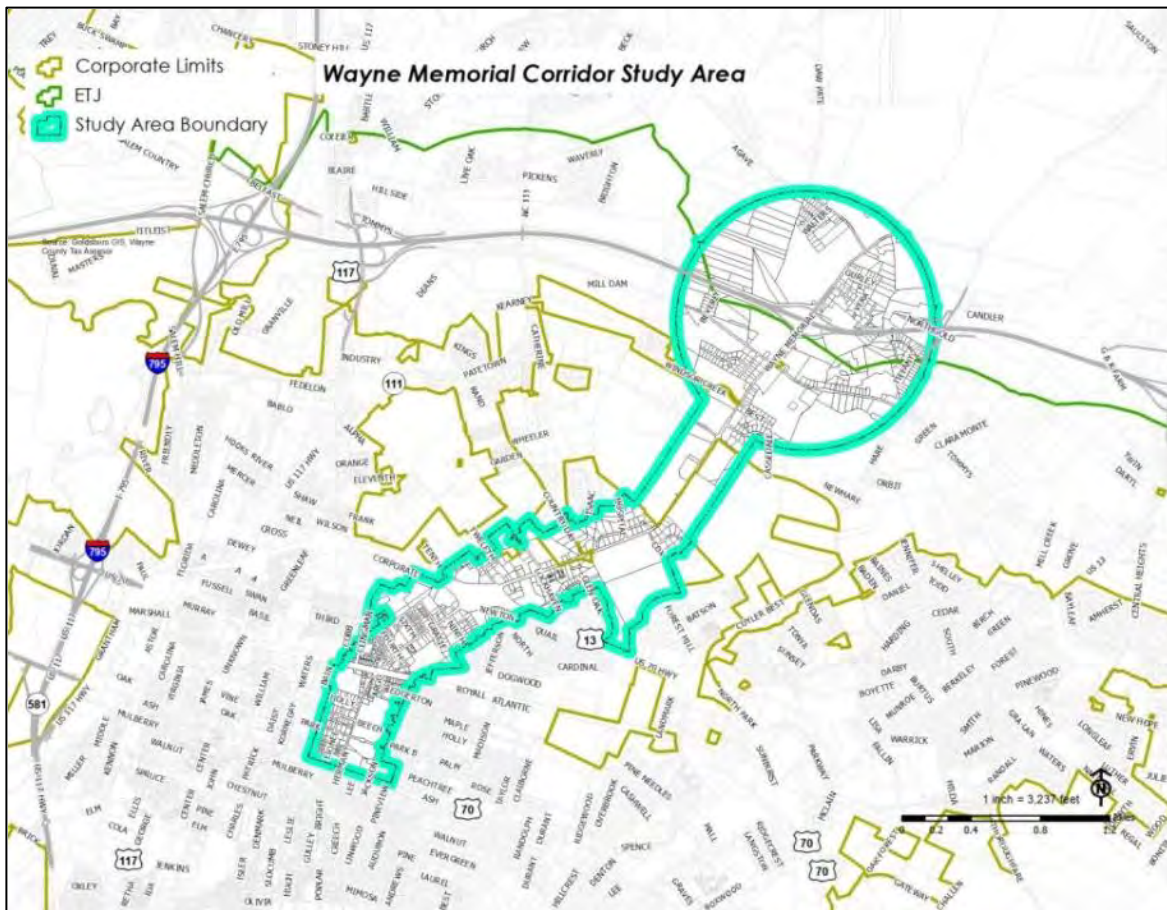


Exhibit 5-5: Wayne Memorial Drive Focus Area

Source: Envision 2035: Goldsboro Urbanized Area Comprehensive Plan

US 70 Bypass Interchange Focus Areas

Development along the US 70 Bypass will increase along with changes in the existing traffic network. Located north of the Goldsboro city center, the US 70 Bypass and its interchanges will place pressure on land use and access management, amongst other existing conditions. The five US 70 Bypass interchanges are listed below.

- Highway 581
- US 117
- Wayne Memorial Drive
- US 13/Berkeley Boulevard
- Parkstown Road

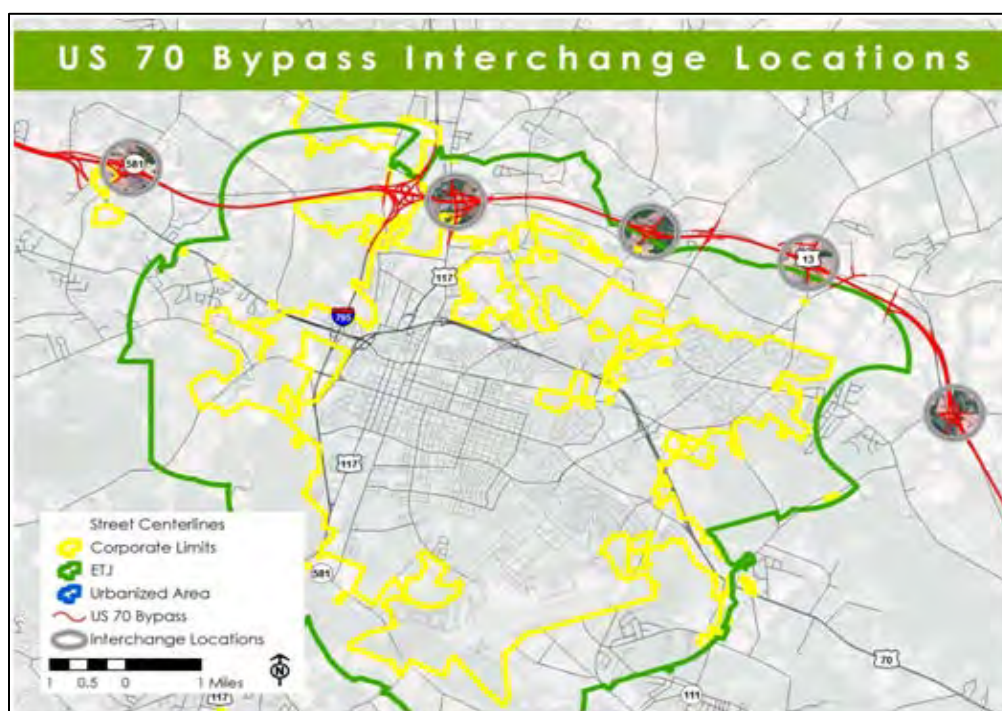



Exhibit 5-6: US 70 Bypass Interchange Focus Areas

Source: Envision 2035: Goldsboro Urbanized Area Comprehensive Plan

Land use around the US 70 Bypass is mixed. The majority of the area is agricultural and residential, with scattered institutional use. Once completed, the US 70 Bypass will encourage an increase in growth and a need to address land uses that will evolve at varying speeds. The Envision 2035 Plan focuses on the need to address the impact of the US 70 Bypass on the existing US 70 corridor, diversification of land uses around the five interchange locations, the need for connectivity such as gateways between the US 70 Bypass and downtown Goldsboro, and accommodation of shifting traffic patterns. Pedestrian, bicycle, and bus services are minimally or not available in the US 70 Bypass



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Focus Area. The existing roadways have traffic volumes significantly below the capacities of their respective roadway types. Future traffic forecasts determined the US 70 Bypass will accommodate long term increases in traffic. Access management becomes important to minimize crashes and other safety concerns as development expands. Upgrading Highway 581, US 117, and Parkstown Road will also help to mitigate issues of safety while meeting the needs of the future development expected around the US 70 Bypass interchanges. The US 70 Bypass Focus Area is expected to grow significantly, where the five interchanges will experience the bulk of this new development.

Recommendations to accommodate this growth include:

- Lane expansion of Highway 581, US 117, and Parkstown Road to accommodate future roadway volumes.
- As development in the area increases, pedestrian and bicycle infrastructure will follow.
- A potential, future expansion of bus service reflective of increased growth.
- Exclusive right turn lanes, cross-access, and appropriately placed driveways to improve safe and efficient travel.
- Access management will be addressed through appropriate spacing, design, and operation of driveways and intersections along the US 70 Bypass.

The Envision 2035 Plan explores in more detail the existing and expected conditions of the US 70 Bypass as well as recommendations that aim to accommodate projected growth for the Focus Areas. This additional information is available in the Envision 2035 Plan.

Guidelines and Strategies

Integrating land use, urban form, and travel behavior is integral in promoting sustainable planning initiatives. As a trend in North Carolina, smart growth focuses on the integration of these elements to help promote more resilient communities. A more efficient and diverse transportation system is a direct result of smart growth policies that place emphasis on the analysis of density, diversity, design, and distance. The Goldsboro Urban Area has demonstrated an interest, but must continue to work in coordination with its local official, planning staff, diverse stakeholder groups, and general public to advance these principles.

The GMPO can recommend smart growth and other planning initiatives to improve the transportation system while encouraging environmental protection, mixed-use development, and sensitivity to underrepresented populations. With limited control over direct land use decisions, these recommendations are vital in encouraging local programs and initiatives that integrate land use, urban form, and travel behavior. Wayne County, the city of Goldsboro, the Village of Walnut Creek, and Town of Pikeville are responsible for implementation in their respective jurisdictions.

Policy and Guidelines

Strategies that address the integration of land use, urban form, and travel behavior are identified as a part of the policy and guidelines for land use elements. These policies and guidelines reinforce the

connection between the density, diversity, design, and distance of the Goldsboro Urban Area. Scrutinizing local comprehensive plans, subdivision and building ordinances, and zoning ordinances will further aid in understanding the development parameters that exist for the Goldsboro Urban Area, serving to guide the development process. Potential barriers to implementing alternative development projects will need to be documented in order to make recommendations that work both within and against status-quo development scenarios.

Understanding the regulatory framework to develop strategies for sustainable growth will serve as tactics the GMPO and member agencies can adopt or support that promote a more balanced transportation system. As part of the 2040 GMTP, the following tools help to advance the transportation improvement recommendations:

- Promote integration of sustainable land use with transportation supply to reduce congestion levels along major corridors.
- Advance efficient, enjoyable, and safe transportation connectivity within and between centers of activity.
- Emphasize urban form as a way to impact travel behavior.

Local Strategies

Local plans and policies administered by the GMPO and member agencies have been used to progress planning strategies that support the policies and guidelines defined. If a balanced transportation network is part of the Goldsboro Urban Area's comprehensive vision, the demand for land use, design of the urban form, and supply of the transportation network must be integrated. The planning bodies are responsible in promoting and recognizing the following principles in order to incorporate them into local legislation:

- Promote planning paradigms that focus on the integration of land use, urban form, and transportation supply through implementation of mixed-use development, transit oriented development, and cluster development.
- Develop economic analysis for Focus Areas and other locations with specific interest for transportation improvement.
- Implement Complete Streets projects to promote strong urban form and connectivity to transportation supply.
- Implement street connectivity zoning and subdivision model ordinance to better connect intra- and inter- community connections as a way to better link developments and centers of activity.
- Coordinate with the NCDOT Aesthetics Guidance Manual (due for release in 2015) to incorporate design and aesthetic features in transportation projects, including bridges, gateways, landscaping, noise walls, public art, and roadways and roadside structures.
- Focus efforts to adopt the Model Access Management Overlay Ordinance of the US 70 Corridor Access Management Handbook (May 2007).

Chapter 6. Funding

Introduction

MAP-21 legislation was adopted in 2012 and requires a fiscally constrained financial plan be completed as part of an MPO's Long Range Transportation Plan. The fiscally constrained 2040 GMTP financial plan balances proposed transportation project investments against projected future revenues through the year 2040.

The proposed recommendations were developed in collaboration with the GMPO, City of Goldsboro, Wayne County, NCDOT, Downtown Goldsboro Development Corporation, and GATEWAY. These projects include roadway, bicycle, pedestrian, transit facilities, and necessary maintenance services for the life of this plan. The plan also reflects existing and committed projects, the TIP, and the future plans of the GMPO, NCDOT, City of Goldsboro, Wayne County, and GATEWAY. The projects recommended in this plan reflect travel demand and socioeconomic impacts studied using the evaluation matrix process detailed in Chapter 5.

Revenue forecasts were developed after a review of previous state and local expenditures, current funding trends, and estimated future funding levels. The revenue forecasts involved consultation with the GMPO, NCDOT, City of Goldsboro, Wayne County, and GATEWAY Transit. All dollar figures discussed in this section initially were analyzed in current year dollars (i.e. 2014) and then inflated to reflect projected year of funding or implementation. Based on current national standards and applicable local forecasts, an annual inflation rate of three percent was used to forecast costs and revenues.

As a part of NCDOT's transportation reform, NCDOT has established a new strategic planning process to aid in prioritizing projects (currently in version Prioritization 3.0). Since this financial plan has been completed during the prioritization process, current funding amounts for the years 2015-2020 are not known or guaranteed. The estimated revenues should be recalculated once the prioritization process is complete and NCDOT releases an updated State Transportation Improvement Program (STIP).

This chapter provides an overview of estimated forecasted revenues, probable cost estimates, and innovative financial strategies along with the assumptions 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.

System Costs and Revenues

The forecasted revenues and estimated total project costs for the 2040 GMTP are shown in Table 6-1 and Table 6-2. The total funding is broken out into Highway, Transit, Pedestrian and Bicycle, and Maintenance costs.

Table 6-1: 2040 Revenue Forecast

Period	Highways	Transit Capital	Transit Operations	Pedestrian/Bicycle	Maintenance	Aviation	Total
2015-2040	\$321,856,328	\$11,432,720	\$10,012,290	\$4,376,733	\$114,177,044	\$335,000	\$461,855,115

Table 6-2: 2040 Costs

Period	Highways	Transit Capital	Transit Operations	Pedestrian/Bicycle	Maintenance	Aviation	Total
2015-2040	\$320,660,407	\$11,432,720	\$10,012,290	\$4,024,159	\$114,177,044	\$335,000	\$460,306,620

Highway Funding

As part of NCDOT's STIP, projects across the state are currently being prioritized to determine what will be funded over the next five to ten years. Since this financial plan is being completed during the prioritization process, current funding amounts are not known or guaranteed. The average per year of highway revenues was calculated based on the years 2000-2008 yearly construction amounts provided by NCDOT for Wayne County. The construction funding provided to Wayne County in the years 2009-2012 was not included in the average in an effort to be conservative in the financial approach. Between 2009 and 2012, the area received increased funding due to the completion on the Goldsboro Bypass project. It was assumed that the GMPO makes up 50 percent of Wayne County and 20 percent of the total construction dollars are used for a combination of bicycle and pedestrian and other non-STIP funds. The average highway revenue was forecasted out to 2040 using an assumed one percent increase during the years 2021-2040.

Legislative changes will cause the estimated funding levels to be altered once the NCDOT STIP is completed; this financial plan should be updated to reflect future funding levels as information is made available. The potential for reduced funding amounts in some years make it important to implement smaller projects such as spot safety and access management strategies. It is strongly recommended that an annual allocation be established using local funding (from the GMPO, City of Goldsboro, or Wayne County sources) for both the spot safety and access management initiatives. If the spot safety funding is committed, it can be applied for projects such as fixing issues at high-crash intersections, creating bicycle/pedestrian intersection treatments to facilitate crossing, way finding

projects, or a local match for grant programs. Committed access management funding can be applied for projects such as addressing safety issues along a travel corridor, working with the development community to consolidate site driveways or fix site circulation, streetscaping, bicycle and pedestrian amenities, way finding, congestion relieving measures such as median installation or signal timing, or a local match for grant programs. The funding for these spot safety and access management funds is assumed to be put in place by 2021, staying at a constant funding level throughout the life of the plan.

The next step of the financial plan is to determine which projects can be completed within the limits of the assumed highway revenue. The total highway revenue goes towards funding highway projects, bridge projects, and hazard elimination projects. Table 6-3 shows the specific highway projects that are assumed to be funded in addition to the bridge and hazard elimination projects shown at the bottom. An assumed inflation rate of three percent was applied to 2014 opinion of probable project costs. The projects shown in the table were selected based on the evaluation matrix shown in Table 4-3, and the current incomplete rankings in the STIP. Preference was given to projects currently included in the latest TIP, and projects included on the GMPO's 2013-2018 needs list.

Table 6-3 shows only the fiscally constrained projects according to this plan. In order to more accurately represent the horizon year costs, a project completion year range (tier) was assumed. As shown in Table 6-3, projects were assigned a tier (one to three), which represent the following project completion year ranges:

- Tier 1: 2015-2020
- Tier 2: 2021-2030
- Tier 3: 2031-2040

Additional projects that are recommended in the GMPO's Needs List will be shown in the CTP to be released at a later date. Figure 6-1 shows the location of the fiscally constrained highway projects through the year 2040.

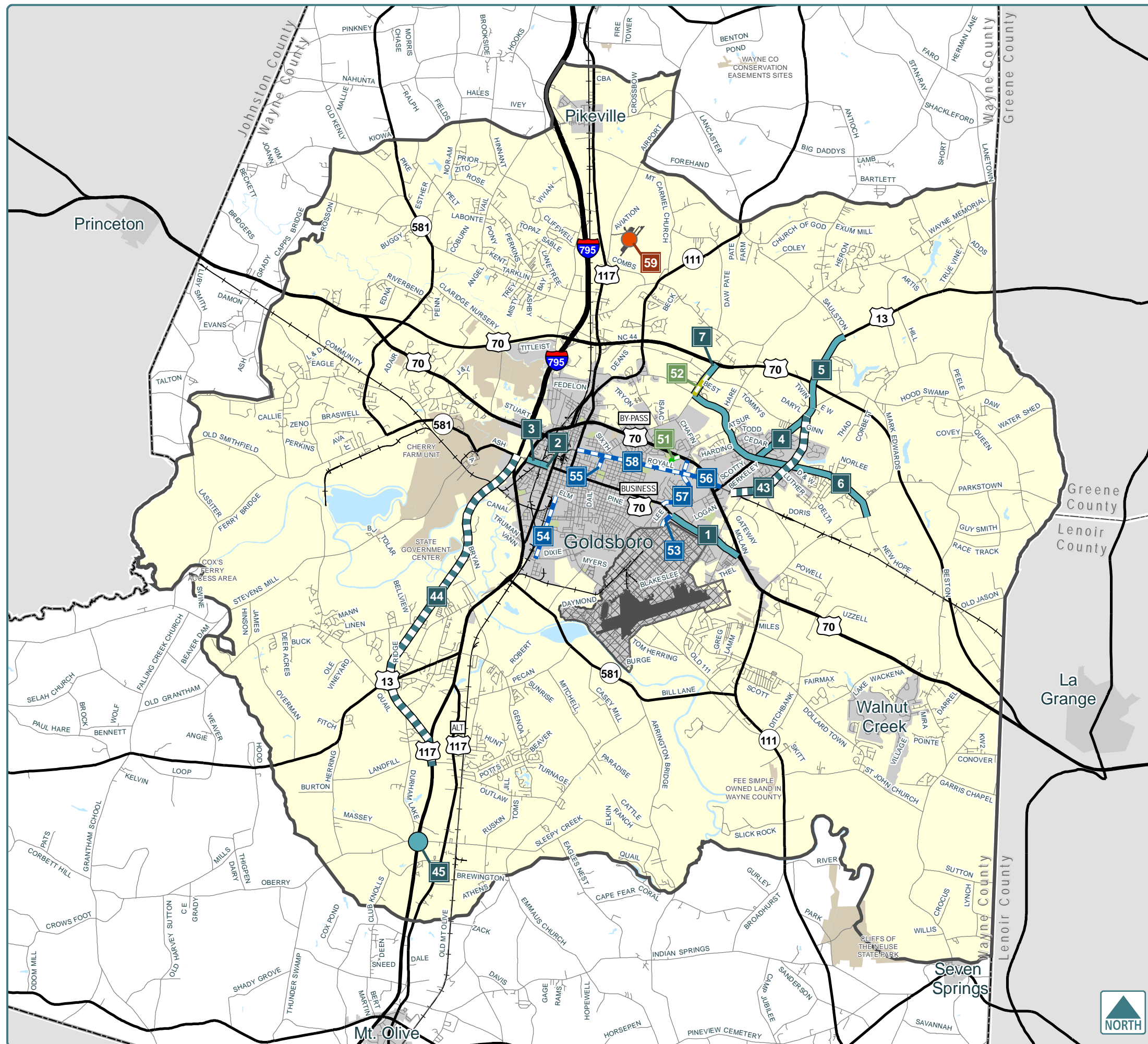
Table 6-3: Fiscally Constrained Roadway Project Cost Estimates												
ID	Facility	From	To	Length (mi.)	Existing Laneage	Existing Median	Future Laneage	Future Median	Comments	2014 Estimated Total Project Cost	Tier	Horizon Year Cost (Inflated)
Widen Existing												
1	Ash Street	Berkeley Boulevard	US 70	1.8	3	TWLT	4	Grass		\$20,091,000	2	\$32,240,157
2	Berkeley Boulevard (B)	New Hope Road	Hood Swamp Road	1.9	Varies	Varies	4	Grass	TIP Project U-3609	\$15,650,000	1	\$18,686,918
3	Berkeley Boulevard	Hood Swamp Road	Saulston Road	1.8	2	None	4	Grass		\$11,515,000	3	\$24,833,148
4	New Hope Road	Wayne Memorial Drive	Miller's Chapel Road	5.1	Varies	None	4	Grass	TIP Project U-3611	\$39,073,000	3	\$84,264,491
5	Wayne Memorial Drive	New Hope Road	Proposed US 70 Bypass	0.9	2	None	4	Grass	TIP Project U-4753	\$18,100,000	1	\$21,612,347
6	Ash Street	Georgia Avenue	Virginia Street	0.2	2	None	5	TWLT	ENGINEERING COST ONLY	\$226,950	3	\$489,438
7	Ash Street	US 117	Georgia Avenue	0.2	3	TWLT	5	TWLT	ENGINEERING COST ONLY	\$549,450	3	\$1,184,939
New Location												
8	Central Heights Road	Berkeley Boulevard	Royall Avenue	0.5	2	None	4	Grass		\$1,395,000	1	\$1,665,703
9	I-795 (US 117)	Ash Street	US 13	12.8	N/A	N/A	4	Grass	ENGINEERING COST ONLY	\$34,531,350	2	\$55,412,680
10	Interchange at US 117 S	US 117 S	O-Berry Road	0.5	2	None	2	None		\$8,676,000	3	\$18,710,586
										Subtotal (2040)		\$259,100,407
										Hazard Elimination Projects		\$4,650,000
										Bridge Projects		\$56,910,000
										HIGHWAY PROJECTS TOTAL		\$320,660,407

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Figure 6-1: 2040 Recommended Improvement Plan*



- | | |
|---|--|
| <ul style="list-style-type: none"> Interstate US Route NC Route Secondary Road Railroad Airport Seymour Johnson AFB Body of Water Urban Park State Owned Land Goldsboro ETJ Goldsboro Metropolitan Area Municipal Boundary Wayne County | <p>Recommended Projects</p> <p>Roadway Improvements</p> <ul style="list-style-type: none"> Widening/Improvement New Location Proposed Interchange <p>Bicycle Improvements</p> <ul style="list-style-type: none"> Multi-Use Path Paved Shoulder <p>Pedestrian Improvements</p> <ul style="list-style-type: none"> Sidewalk <p>Aviation Improvements</p> <ul style="list-style-type: none"> GWW Wayne Executive Jetport improvements** |
|---|--|

Notes:

* Projects displayed are fiscally constrained. Fiscally constrained projects are those with revenues that are reasonably expected to be available for implementation.

** Includes acquisition of +/- 35 acres of property in the RPZ (Runway Safe Zone) and transitional surface.

- Numbering corresponds with Table 7.1. Roadway Project Total Benefit and Impact Matrix.

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Innovative Funding Sources

The following are innovative funding techniques that have the potential to alleviate a portion of the transportation shortfalls for the GMPO. Some of these techniques have been presented in front of the public during polling outreach events.

- Advertising Revenue
- Driver's License Fee Increase
- Emissions Fees
- Higher Motor Vehicle Registration*
- Higher Property Tax*
- New Vehicle Tax
- Safety Violation Fee
- Temporary Visitor Access Fee
- Tolls On Roads*
- User Fees*
- Public Private Partnerships*
- Battery Tax
- Drive Thru Service Fee
- Fare Programs
- Higher Sales Tax*
- Impact Fees on New Development
- Rental Car Tax
- Special License Plate Fees
- Tire Tax
- Transportation Bonds*
- Vehicle Impact Fees
- Congestion Pricing
- Electricity Generated by Vehicle Tax
- Higher Gas Tax *
- Impact Fees on New Development*
- Mileage Fees*
- Road Utility Fees
- Studded Tire Fees
- Title Fee
- Transportation Impact Fees
- Weight Mile Truck Tax

* Funding sources that were presented at the public outreach polling event.

Maintenance Funding

Maintenance funding in the Goldsboro Urban Area is primarily used for roadway maintenance and paving dirt roads, though traffic signal replacement, streetscaping, and maintenance of pedestrian and bicycle facilities. Maintenance is currently funded by the state, the GMPO, and City of Goldsboro. The City of Goldsboro maintenance funds are increasing 2.05 percent annually. This amount is less than the standard inflation rate of three percent, thereby reducing the effective value of this amount each year. State maintenance funding is expected to increase with inflation. Additional maintenance funding for the City of Goldsboro is provided through the Powell Bill program. The Powell Bill distributes revenues from the gas tax to eligible municipalities for use in street, bikeway, and sidewalk maintenance. Based on historical funding levels, this funding source is anticipated to provide almost \$44 million over the life of the plan.

Included within the maintenance funds are local funds dedicated to the Downtown Goldsboro Development Corporation, the GMPO bicycle and pedestrian maintenance funds, and the City of Goldsboro's Building and Traffic Division. Funding for the Downtown Goldsboro Development Corporation will be used primarily for streetscape improvements to downtown streets. Since these funds are allocated for these specific improvements, this is considered maintenance rather than capital funding. Projecting these funding sources through to 2040, the total maintenance funding available for the region totals approximately \$240 million. The maintenance costs generated annually are assumed to equal the revenue available.

Bicycle and Pedestrian Funding

Table 6-1 and Table 6-2 reflect the proposed costs and revenues for bicycle and pedestrian projects. Bicycle and pedestrian facilities in the Goldsboro Urban Area are primarily funded using enhancement funds. Enhancement funds are available for eligible bicycle, pedestrian, streetscaping, and other projects. Typically in order for enhancement funds to be used, a 20 percent local match is required. Currently, the New Hope Road Multi Use Trail is the only project shown as funded in the draft June 2014 STIP. An annual average allocation of \$100,000 was assumed based on the current TIP showing \$500,000 enhancement for the New Hope Multi Use Trail. These funds are assumed to rise with inflation and also increase one percent annually after 2020. In the past, the City of Goldsboro has received grants for additional bicycle and pedestrian improvements.

The current funding for bicycle and pedestrian improvements totals \$4,376,733. The GMPO's 2013-2018 Needs List shown in Table 6-4 identified approximately \$45 million dollars' worth of bicycle and pedestrian improvements. As part of NCDOT's Prioritization process, the TAC has ranked the bicycle and pedestrian projects and awarded local input points to the Stoney Creek Greenway Project from US 70 Bypass to Royall Avenue and a Sidewalk project from William Street to Spence Avenue. Table 6-5 shows the fiscally constrained bicycle, multi-use, and pedestrian projects according to this plan. Additional projects shown in the GMPO's 2013-2018 Needs List will be incorporated into the CTP.

In addition to applying for grants, it is recommended that the GMPO promotes the completion of incidental bicycle and pedestrian facilities along adjacent roadway projects. Incidental projects allow for additional match money from the state or federal government.

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Table 6-4: Bicycle, Multi-Use and Pedestrian Facilities (Identified in 2013-2018 Needs List by TAC)

Facility	From	To	Length (mi.)	Improvement Type
Bicycle/Multi-Use Facility				
Berkeley Boulevard	New Hope Road	Tommy's Road	1.1	Widen Outside Lane
Central Heights Road	New Hope Road	Berkeley Boulevard	3.6	Paved Shoulder
NC 581	George Street	Rosewood Road	12.9	Paved Shoulder
New Hope Road	Patetown Road	Wayne Memorial Drive	1.4	Multi Use Path
Old Mt. Olive Hwy	US 117	Parker Road	14.5	Paved Shoulder
Tommy's Road	Patetown Road	Berkeley Boulevard	7.8	Paved Shoulder
Wayne Memorial Drive	New Hope Road	Tommy's Road	1.1	Paved Shoulder
Greenway Facilities				
Stoney Creek	Slocumb Street	Elm Street	1.6	Boardwalk
Stoney Creek	Royall Avenue	Hwy 70	0.4	Greenway
Stoney Creek	Hwy 70	Existing Greenway	0.1	Greenway
Elm St / Center St / Ash St / Stoney Creek / Slocumb St	Mountains	Sea Trail	4.8	Greenway
Sidewalks				
Royall Avenue	William Street	Spence Avenue	2.4	Sidewalk (North Side)
Harris Street	Slocumb Street	Stoney Creek	0.3	Sidewalk (South Side)
Berkeley Boulevard	Ash Street	Elm Street	0.4	Sidewalk (Both Sides)
Spence Avenue	Existing US 70 Bypass	Ash Street	1.5	Sidewalk (Both Sides)
Central Heights Road	Berkeley Boulevard	New Hope Road	1.8	Sidewalk (Both Sides)
Royall Avenue	Spence Avenue	Berkeley Boulevard	0.9	Sidewalk (North Side)
John Street	Elm Street	Dixie Trail	2.8	Sidewalk (East Side)
Elm Street	Slocumb Street	Berkeley Boulevard	2.0	Sidewalk (Both Sides)
Herman Street	Royall Avenue	Beech Street	0.7	Sidewalk (Both Sides)

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Table 6-5: Fiscally Constrained Pedestrian Project Cost Estimates

ID	Facility	From	To	Length (mi.)	Improvement Type	Comments	2014 Estimated Total Project Cost	Tier	Horizon Year Cost (Inflated)
Bicycle/Multi-Use Facility									
1	Wayne Memorial Drive	New Hope Road	Tommy's Road	1.1	Paved Shoulder		\$400,000	3	\$862,636.51
Greenway Facility									
2	Stoney Creek	Royall Avenue	US 70	0.4	Greenway		\$125,000	1	\$149,256.54
Sidewalk									
3	Royall Avenue	William Street	Spence Avenue	2.4	Sidewalk (North Side)		\$476,000	1	\$568,368.89
4	Berkeley Boulevard	Ash Street	Elm Street	0.4	Sidewalk (Both Sides)		\$136,000	2	\$218,240.08
5	Spence Avenue	Existing US 70 Bypass	Ash Street	1.5	Sidewalk (Both Sides)		\$600,000	2	\$962,823.86
6	Royall Avenue	Spence Avenue	Berkeley Boulevard	0.9	Sidewalk (North Side)		\$200,000	3	\$431,318.25
7	John Street	Elm Street	Dixie Trail	2.8	Sidewalk (East Side)		\$285,920	3	\$616,612.58
8	Herman Street	Royall Avenue	Beech Street	0.7	Sidewalk (Both Sides)		\$133,920	2	\$214,902.29
							TOTAL		\$4,024,159

Airport Funding

The TAC for Goldsboro identified one upcoming aviation project in the STIP ranking process. The Wayne Executive Jetport project plans to acquire approximately 35 acres of property in the Runway Safety Zone and transitional surface. This project is assumed to be funded by NCDOT in the fiscally constrained 2040 plan. Additional aviation needs may be met by pursuing grants and non-traditional sources of funding.

Transit Funding

The FTA is responsible for providing overall policy and program guidance for funding public transportation projects. Funds are apportioned annually to North Carolina through grant programs that involve the development of financial management procedures and initiating program support activities.

NCDOT is under the jurisdiction of the FTA Region IV office located in Atlanta, Georgia. The FTA Regional office provides oversight and review of the federal transportation grant programs, approving state grant applications, obligating funds, and providing technical assistance to the respective state DOT's and the direct recipients of federal grant funds that support public transit.

The Governor of North Carolina, pursuant to the provisions of 49 USC § 5303/5304, 5310, 5311, 5316, and 5317, has designated NCDOT as the administrator and recipient of these funds. The Governor has also designated NCDOT as the administrators of the Job Access and Reverse Commute (JARC) and New Freedom Initiatives programs for the rural and small urban areas. This became effective on April 28, 2008. NCDOT has the legal authority to enter into contractual agreements with private, nonprofit, and public entities for capital, administrative, operations, planning and technical assistance projects on behalf of the state. This authority was established through legislative action as set forth below:

"Article 2B of Chapter 136 of the North Carolina General Statutes designated the Department of Transportation as the agency of the State of North Carolina responsible for administering all federal and/or State programs relating to public transportation, and granted the department authority to do all things required under applicable federal and/or State Legislation to administer properly the public transportation programs within the State of North Carolina."

The Public Transportation Division (PTD) has the principal responsibility and authority for the administration of the state managed portions of the programs. The following are the Section Programs noted in the respective FTA Circular:

- 5310 Elderly Individuals & Individuals with Disabilities Program 9070.1F.
- 5311 Other Than Urbanized Area Formula Program 9040.1F.
- 5311(b)(3) Rural Transit Assistance Programs 9040.1F.
- 5311 (f) Intercity Bus Service 9040.1F.
- 5303/5304 Metropolitan and Statewide Transportation Planning 8100.1C.
- 5316 Job Access and Reverse Commute Program 9050.1.
- 5317 New Freedom Initiative 9045.1.

The proposed costs and revenues for transit capital and operations are indicated in Table 6-6 and were estimated based on the current funding sources. To accomplish this task, data was collected from the 2009-2015 GMPO TIP, from NCDOT PTD and from GATEWAY. Annual cost and revenue projections were completed for capital and operations projects. It is important to note that these estimated projections include information for both the rolling stock and the programmed transit facilities. The GUS in the downtown area is being rehabilitated to serve as a multimodal transit transfer center. A TIGER V Grant was received to help offset the renovation costs, and the TIGER Grant received totaled \$10 million. Additionally, GATEWAY has conducted the facility feasibility assessments that are needed to justify a new stand-alone transit facility for their administrative, operational, and maintenance functions. The projected costs for this are based on the 2010 facility feasibility study. The costs and revenue information shown in this plan represent reasonable estimates based on current and previous funding and an analysis of operational expenses.

Table 6-6: 2040 Revenue Forecast			
Period	Capital Assistance	Operating Assistance	Total
2015-2040	\$11,432,720	\$10,012,290	\$21,445,010

Transit Capital Costs and Revenues

Transit capital costs and revenues are based on the 2009-2015 TIP, consultation with NCDOT, GATEWAY, and the City of Goldsboro Planning staff. These costs include fleet expansion and replacement as well as general system improvements. The capital improvements include the rehabilitation of the GUS. This project is anticipated to break ground in the 2014 calendar year, and is scheduled for completion in 2016. The anticipated completion date for the GATEWAY Transit Facility is anticipated to be completed in 2020.

Unit capital costs for buses and vans used in the system were obtained from the current TIP and the vehicle inventory that was provided by GATEWAY. Planned service enhancements and historic vehicle replacement levels were projected and the bus/van fleet is anticipated to grow by six to eight vehicles over the life of the plan. Replacement buses are accounted for in the TIP. It is anticipated that smaller transit vehicles will be procured as part of the effort to meet future operational needs. A replacement schedule reflects this initiative. Specifically, seven transit vehicles (raised roof vans) will be utilized in the future in place of the larger buses. It is not anticipated that capacity levels will necessitate that larger buses will be needed in the future. However, there will be on-going planning to determine the capital bus/van needs through the Plan's horizon year. It is anticipated that the capital costs will increase at a market escalation rate beginning in 2016. Therefore, it is important to seek alternative and innovative funding sources to supplement the funding for growing transit system demands.

Transit Operations and Maintenance

Transit operations and maintenance funding comes from TIP funding, local funding, and fare box revenues. To keep pace with the expanded fleet size and additional transit facilities, operations and maintenance funding is assumed to increase annually beginning in 2014. It is assumed that all revenue generated for operations and maintenance will be spent, as the fare box recovery (operations costs minus fares) will likely account for 13 percent of the full-allocated operational costs. A fare increase will need to be addressed to meet local fare box recovery objectives. The most current GATEWAY vehicle list is shown in Table 6-7.

Table 6-7: Goldsboro-Wayne Transportation Authority Vehicle List (As of June 30, 2014)												
Passenger Licensed – Vehicles	Make	Model	Year	Rural Urban	Unit #	VIN	Lift	Type	Van	Bus	Purchase Price	Purchase Year
1	Ford	E450	2006	Urban	1249	1FDXE45S56HB01249	Yes	Side		LTV-25	\$52,190	05/06
2	Ford	E450	2006	Urban	1250	1FDXE45S16HB01250	Yes	Side		LTV-25	\$52,878	05/06
3	Goshen	C5500	2007	Urban	22303	1GBE5V1947F422303	Yes	Side		LTV-28	\$73,469	07-08
4	Goshen	C5500	2007	Urban	22307	1GBE5V1917F422307	Yes	Side		LTV-28	\$73,469	07-08
5	Goshen	C5500	2007	Urban	22327	1GBE5V1977F422327	Yes	Side		LTV-28	\$73,469	07-08
6	Gillig	G27B102N4	2009	Urban	76954	15GGB271091176954	Yes	Side		35' TB	\$320,836	10/09
7	Gillig	G27B102N4	2010	Urban	77074	15GGB2712A1177074	Yes	Side		35' TB	\$361,701	10/11
8	Gillig	G27B102N4	2010	Urban	77075	15GGB2714A1177075	Yes	Side		35' TB	\$361,701	10/11
9	Ford	E350	2009	Rural	47171	1FDEE35L09DA47171	Yes	Side		LTV-20	\$47,264	06/09
10	Ford	E450	2009	Rural	64391	1FDFE45S99DA64391	Yes	Side		LTV-22	\$55,375	05/09
11	Ford	E450	2011	Rural	39643	1FDFE4FP8ADA39643	Yes	Side		LTV-22	\$68,614	10/11
12	Ford	E450	2011	Rural	39644	1FDFE4FPXADA39644	Yes	Side		LTV-22	\$68,614	10/11
13	Ford	E450	2011	Rural	39646	1FDFE4FP3ADA39646	Yes	Side		LTV-22	\$68,614	10/11
14	Ford	E450	2011	Rural	41136	1FDFE4FP1ADA41136	Yes	Side		LTV-22	\$68,614	10/11
15	Dodge	Caravan	2012	Rural	18365	2C4RDGCGOCR218365	No	N/A	Mini	Mini		01/12
16	Ford	E350	2013	Rural	3270	1FDEE3FLXDDB03270	Yes	Side		LTV-20	\$47,429	08/13
17	Ford	E350	2013	Rural	4779	1FDEE3FSXDDB04779	Yes	Side		LTV-22	\$51,797	08/13
18	Ford	E350	2013	Rural	22927	1FDEE3FS5DDA22927	Yes	Side		LTV-22	\$54,929	02/11
19	Ford	E350	2013	Rural	22928	1FDEE3FS7DDA22928	Yes	Side		LTV-22	\$54,929	02/11
20	Ford	E350	2013	Rural	22929	1FDEE3FS9DDA22929	Yes	Side		LTV-22	\$54,929	02/11
21	Ford	E350	2013	Rural	22930	1FDEE3FS5DDA22930	Yes	Side		LTV-33	\$54,929	02/12
22	Ford	E350	2013	Rural	22931	1FDEE3FS7DDA22931	Yes	Side		LTV-22	\$54,929	02/12
23	Ford	E350	2013	Rural	22932	1FDEE3FS7DDA22932	Yes	Side		LTV-22	\$54,929	02/12
24	Ford	E350	2013	Rural	29849	1FTDS3EL5DDB29849	Yes	Rear	Van	HTV	\$46,868	11/13
25	Ford	E350	2014	Rural	52278	1FDEE3FSXEDA52278	Yes	Side		LTV-22	\$50,485	03/14
26	Ford	E350	2014	Rural	52279	1FDEE3FS1EDA52279	Yes	Side		LTV-22	\$50,485	03/14
27	Ford	E350	2014	Rural	52280	1FDEE3FS8EDA52280	Yes	Side		LTV-22	\$50,485	03/14
28	Ford	E350	2014	Rural	52282	1FDEE3FS1EDA52282	Yes	Side		LTV-22	\$50,485	03/14
29	Ford	E350	2014	Rural	38694	1FTDS3EL5EDA38694	Yes	Side	Van	HTV	\$46,693	5/14
30	Ford	E350	2014	Rural	38695	1FTDS3EL7EDA38695	Yes	Side	Van	HTV	\$46,693	5/14
31	Ford	E350	2014	Rural	38696	1FTDS3EL9EDA38696	Yes	Side	Van	HTV	\$46,693	5/14
Non-Passenger Licensed Vehicles												
32	Ford	Crown Vic.	1999	R/U	75486	2FAFP71WXXX175486	No	N/A	Sedan	Auto	\$0	02/12
33	Dodge	Ram3500	2002	R/U	26732	2B7LB31Z12K126732	No		X	HTV		2002
34	Dodge	Caravan	2006	R/U	91348	2D4GP44L46R791348	No	N/A	Mini	Mini	\$22,957	06/06
35	CAON	Trailer	2010	R/U	55895	4YMUL1015AG055895	N/A	N/A	N/A	N/A	\$1,202	02/10

		Given to Goldsboro-Wayne Transportation Authority by Wayne County to use
Total	Vehicles	
Rural	23	
Urban	8	
Maint.	1	2002 Dodge Ram 3500 Van - Maintenance
Office	1	1999 Ford Crown Victoria - Road Supervisor
Office	1	2006 Dodge Caravan - Office
Maint.	1	CAON Utility Trailer
Total	35	

TB = Transit Bus
HTV = High Top Van
LTV = Light Transit Vehicle

Conclusion

Consistent with many areas across the nation, the Goldsboro Urban Area is experiencing reduced funding sources from the state and federal level. The Goldsboro Urban Area will need to continue to plan and explore innovative funding sources beyond the traditional federal, state, and local contributions. Applying for grants and implementing local funding measures will aid in maintaining and growing the Goldsboro Urban Area.

The City of Goldsboro and Wayne County will need to continue to plan for public transit service needs as the local demand will increase. There are opportunities to partner with SJAFB in service planning and target improved transit services to human service locations and other local traffic generators. Future funding levels from the state and federal governments will probably be reduced for small urban and rural transit providers. However, it will be incumbent on the GATEWAY staff to seek out grant opportunities that can offset the local burdens of increased costs for services. The GATEWAY service should look to re-brand their service and increase the local participation of advocates who can help generate the positive impacts needed to enhance future public transit services. Securing federal grants (such as the TIGER VI funding) or state grants will help ensure a vibrant service that is responsive to the community needs. An alternative to consider would be a dedicated local funding source that will help stabilize the ability to service plan and continue to make sure that the transportation network in the Goldsboro Urban Area will remain both vital and efficient.

Chapter 7. Implementation Plan

Action Plan

Successful implementation of the 2040 GMTP will depend on the ability of local, private, and governmental entities to collaborate. The Action Plan provides a summary of the implementation strategy, including a list of specific projects (some of which are already committed), a phasing plan, available funding sources, and agencies responsible for implementing the vision. The intent of this section is two-fold. First, it will provide decision-makers an implementation blueprint that enables them to track progress and schedule future improvements. Second, defined action items will enable the GMPO to identify public and private investment opportunities that are healthy, sustainable, and achievable through well-guided transportation and land use policies that encourage quality design and environmental stewardship.

The quality of private investment in both design and community amenities will have a profound impact on the attractiveness of the area. Successful and sustainable development will come through a cooperative effort between public and private ventures.

The 2040 GMTP represents an important step to implement a long-term vision of cost-effective, safety-oriented, and congestion-relieving improvements in the Goldsboro Urban Area. The structure of the recommendations does not require all improvements to be completed at one time, which allows flexibility to partner with the development community and NCDOT to implement the vision of the plan as development occurs and funding sources become available.

Local, state, and private partnerships offer strategic advantages to implementing improvements on a timely basis. The purpose of the Action Plan is to recognize these challenges and suggest strategies and resources to address each challenge. With this in mind, the following Action Plan identifies next step items for each mode of transportation as outlined in Chapter 4. Specific categories include recommendations for General Procedures and Guidelines, Land Use and Policy, Roadway Improvement Action Items (Committed Transportation Projects, Short-Term Transportation Projects, Mid- to Long-Term Transportation Projects), Non-motorized and Transit, Aviation/Freight/Rail, and Funding Opportunities. Within the context of the land use considerations, specific action items are discussed in Chapter 4. These recommendations can be administered concurrently or as priorities and regional initiatives present the opportunity to do so.

Adoption Process

Several steps are necessary to adopt the 2040 GMTP. Following the completion of the document, the 2040 GMTP will undergo a 30-day public review. This public review is consistent with the GMPO's Public Participation Plan as well as FHWA standards. In addition, comments from the municipal, county, state, and federal levels will be addressed and incorporated into the plan. A joint session of

the GMPO's TAC and TCC will be held to discuss the draft document. Following input from public officials, participating agencies, and the general public, the 2040 GMTP will be finalized and presented to the TAC and TCC for adoption.

Project/Program by Period Overview

The recommended roadway improvement plan has been divided into three categories; Tier 1 (Committed Projects), Tier 2 (Short-Term), and Tier 3 (Long-Term) Projects. All projects listed are fiscally constrained (Table 7-1) and are shown on Figure 6-1.

Tier 1 - Committed Projects

Committed projects are included within an approved city capital improvement plan or the NCDOT state implementation program. These projects have been discussed publicly through previous long range planning efforts and/or annual budgeting discussions at the city or state levels.

Tier 2 - Short-Term Projects

These are defined as transportation system improvements that address an immediate or relatively near term need such as traffic volumes in excess of the current capacity, crash hazards, and improvement needs due to land use changes.

Tier 3 - Mid- to Long-Term Projects

The list of these projects includes transportation system improvements that address:

- Current needs along lower volume corridors or subareas of the region that require additional through lanes.
- Needs identified based on the level and location of development assumed within the 25-year planning period.

This portion of the improvement list is differentiated from the short-term list based on the timing of the need for action and, to a certain extent, level of funding assumed to be available annually in the region. It has been assumed that the level of funding available to the GMPO in any one year could be highly variable. On average, approximately \$12.8 million per year would be available to fund transportation improvements.

Goldsboro Urban Area

2040 Metropolitan Plan Update

Map Reference*	Table 7-1: Projects for Implementation		
	Facility	Description	
Roadway Projects		From	To
1	Ash Street	Berkeley Boulevard	US 70
2	Ash Street (Engineering Only)	Georgia Avenue	Virginia Street
3	Ash Street (Engineering Only)	US 117	Georgia Avenue
4	Berkeley Boulevard (B)	New Hope Road	Hood Swamp Road
5	Berkeley Boulevard	Hood Swamp Road	Saulston Road
6	New Hope Road	Wayne Memorial Drive	Miller's Chapel Road
7	Wayne Memorial Drive	New Hope Road	Proposed US 70 Bypass
43	Central Heights Road	Berkeley Boulevard	Royall Avenue
44	I-795 (US 117) (Engineering Only)	Ash Street	US 13
45	Interchange at US 117 South	US 117 South	O'Berry Road
Bicycle Projects		From	To
51	Stoney Creek (Greenway)	Royall Avenue	US 70
52	Wayne Memorial Drive (Paved Shoulder)	New Hope Road	Tommy's Road
Pedestrian Projects		From	To
53	Berkeley Boulevard (Sidewalk, Both Sides)	Ash Street	Elm Street
54	John Street (Sidewalk, East Side)	Elm Street	Dixie Trail
55	Herman Street (Sidewalk, Both Sides)	Royall Avenue	Beech Street
56	Royall Avenue (Sidewalk, North Side)	Spence Avenue	Berkeley Boulevard
57	Spence Avenue (Sidewalk, Both Sides)	US 70 Bypass	Ash Street
58	Royall Avenue (Sidewalk, North Side)	William Street	Spence Avenue
Aviation Projects			
59	GWW Wayne Executive Jetport	Acquire +/- 35 acres of property in the RPZ (Runway Safe Zone) and transitional surface.	

* Projects displayed are fiscally constrained (funds are reasonably expected to be available for implementation).

Action Items

The action items in the following section range from policy actions and guidance improvements to physical implementation of recommended construction projects. Projects identified in the fiscally constrained plan are divided between different timeframes according to the Tier they have been assigned. This split allows funding to be programmed to design and construction as it becomes available.

General Action Items

There are a number of Action Items (Table 7-2) for the GMPO and local government agencies to consider for the life of the planning period. Some are immediate steps and others are long-term support, but all action items in this section are critical to maintaining a successful planning process.

Table 7-2: General Action Items		
Action	Timeframe	Responsible Party
Adopt the 2040 GMTP	2014	GMPO/NCDOT
Use this plan as a tool to review proposed development projects and plans as they locate and are implemented within the Goldsboro Urban Area and apply the recommendations herein.	2014-2040	City/County Planning Staff/ NCDOT
Integrate the findings and recommendation of this plan into the Goldsboro and Wayne County Comprehensive Plans.	2015	City /County Planning Staff
Continue to support the efforts of the US 70 Corridor Commission and their efforts to protect the safety, mobility, and economic vitality of the US 70 corridor from I-40 to Morehead City.	2014-2040	City/County/ GMPO
Work collaboratively with NCDOT to secure funding and implement the vision and recommendations of the 2040 GMTP.	2014-2040	City/County/ GMPO/NCDOT
Use the future collector street network as a tool to review proposed development projects and plans as future collector streets are located.	2014-2040	GMPO/City and County Planning Staff
Work with the development and real estate community to increase public awareness of major proposed highways (i.e., US 117) and future collector street connections through enhanced signage – i.e., “Future Street Extension”.	2014-2040	City and County Planning Staff
Require new developments to reserve right-of-way for, and in some cases construct, future collector streets.	2014-2040	NCDOT/City/County and GMPO Planning Staff
Consider adopting policies and dedicating funding to help construct traffic calming measures on existing collector streets.	2016	City/County and GMPO Planning Staff
Adopt collector street spacing standards and median opening, driveway, and signal spacing standards as a part of the city and county development code.	2015	City/ County Planning Staff

Roadway

Table 7-3 documents the recommended implementation (tiered approach) for roadway improvement projects in the Goldsboro Urban Area.

Table 7-3: Fiscally Constrained MTP Roadway Projects			
Project	Tier	Timeframe	Responsible Party
U-3609B – Berkley Boulevard; widen existing roadway to multi-lanes from New Hope Road to north of Hood Swamp Road	1	2015-2020	GMPO/NCDOT
U-3611 – New Hope Road; widen existing roadway to multi-lanes from Wayne Memorial Drive to Miller’s Chapel Road.	3	2031-2040	GMPO/NCDOT
U-4753 – Wayne Memorial Drive; widen to multi-lanes from New Hope Road to the Proposed US 70 Bypass	1	2015-2020	GMPO/NCDOT
Central Heights Road – Realignment at Berkeley Boulevard and Royall Avenue.	1	2015-2020	GMPO/NCDOT
U-4407 – Ash Street; widen existing roadway to multi-lanes from Berkley Boulevard to US 70.	2	2021-2030	GMPO/NCDOT
I-795 (US 117): ENGINEERING COST ONLY for new multi-lane roadway from Ash Street to US 13.	2	2021-2030	GMPO/NCDOT
Berkley Boulevard/US 13N: widen existing roadway to multi-lanes from Hood Swamp Road to Saulston Road.	3	2031-2040	GMPO/NCDOT
Ash Street: ENGINEERING COST ONLY; widen existing roadway to multi-lanes from Georgia Avenue to Virginia Street.	3	2031-2040	GMPO/NCDOT
Ash Street: ENGINEERING COST ONLY; widen existing roadway to multi-lanes from US 117 to Georgia Avenue.	3	2031-2040	GMPO/NCDOT
Interchange at US 117 S: upgrade at-grade intersection to interchange or grade separation at O-Berry Road.	3	2031-2040	GMPO/NCDOT

Table 7-4 documents the recommended Action Items (policy and programming) for non-motorized and transit improvement projects in the Goldsboro Urban Area.

Table 7-4: MTP Roadway Action Items		
Action	Timeframe	Responsible Party
A streetscape plan for Ash St from George St to Berkeley Blvd should be developed as a community initiative for protecting the long-term sustainability and gateway to the community.	2015-	DGDC/City GMPO
Immediate improvements are needed to the following locations based on three-year crash statistics (frequency) that show crash rates higher than the statewide average for similar roadway and intersection types: <ul style="list-style-type: none"> US 13/US 70 at Cuyler Best Road (55 Total Crashes) US 13/US 117 at NC 581/Arrington Bridge (53 Total Crashes) 	2015-	City/County/ GMPO/ NCDOT
Vigorously pursue innovative public and private sources of funding for the following access management projects. New funding sources under consideration include Sales Tax, Transportation Bonds, Vehicle Registration Fees or Development Impact Fees: <ul style="list-style-type: none"> Ash Street Berkeley Boulevard 	2015-	City/GMPO/ NCDOT
Improve the following locations based on three-year crash statistics (frequency) that show crash rates higher than the statewide average for similar roadway and intersection types: <ul style="list-style-type: none"> East 11th Street at Wayne Memorial Road (49 Total Crashes) Us 70 Business at Audubon Avenue (42 Total Crashes) 	2022	City/County/ GMPO/ NCDOT

Project prioritization based on the Benefit and Impact Matrix (Chapter 4) and reflects compliance with congestion mitigation.

Non-motorized and Transit

Implementation for the non- motorized network and the transit system will require updating state funding allocation practices to address the importance that programs that focus on reducing motor vehicle use provide in the region and throughout the state. Funds recommended to implement non-motorized and transit system improvements would require reallocation of federal dollars that come to the state in STIP and Congestion Mitigation and Air Quality (CMAQ) programs. While these funds can, by law be allocated to non-motorized system improvements and to selected transit capital and operating programs, within the state they have traditionally been allocated to roadway projects because a greater need could be demonstrated.

On a statewide basis, prioritization of limited funds to roadway maintenance and expansion is likely the logical choice as the vast majority of travel is by automobile or truck. In metropolitan areas, however, the emphasis on reducing the level of growth in vehicle miles travelled (VMT) needs to be raised and re-allocation, or flexing, dollars to the non- motorized and transit system begins to address the desired emphasis.

Locally, the commitment to transit and non- motorized travel relative to the state as a whole has been demonstrated through higher-than-statewide average use of these modes for travel to work. If it can be assumed that non-work trips follow a similar pattern, it could be concluded that residents, workers and visitors to the Goldsboro Urban Area are greater supporters of transit and non-motorized travel. There is significant potential to reduce the growth in vehicle travel through increasing the funding allocation to transit system improvements/expansion and to maintenance/expansion of the non-motorized system.

Table 7-5 documents the recommended implementation phasing for non-motorized and transit improvement projects in the Goldsboro Urban Area.

Table 7-5: Fiscally Constrained MTP Non-Motorized and Transit Projects

Project	Tier	Timeframe	Responsible Party
Royall Avenue – 2.4 Mile Sidewalk from William Street to Spence Avenue	1	2015-2020	GMTP/NCDOT
Stoney Creek – 0.4 Mile Greenway facility from Royall Avenue to US70	1	2015-2020	GMTP/NCDOT
Goldsboro Union Station (GUS) GATEWAY Transfer project – Complete the GUS project and provide a hub for transit rider transfers.	1	2014-2015	GMTP/NCDOT
Herman Street – 0.7 Mile Sidewalk from Royall Avenue to Beech Street	2	2021-2030	GMTP/NCDOT
Berkeley Boulevard – 0.4 Mile Sidewalk from Ash Street to Elm Street	2	2021-2030	GMTP/NCDOT
Spence Avenue – 1.5 Mile Sidewalk from Existing US 70 Bypass to Ash Street	2	2021-2030	GMTP/NCDOT
Royall Avenue – 0.9 Mile Sidewalk from Spence Avenue to Berkeley Boulevard	3	2031-2040	GMTP/NCDOT
John Street – 2.8 Mile Sidewalk from Elm Street to Dixie Trail	3	2031-2040	GMTP/NCDOT
Wayne Memorial Drive – 1.1 Mile Bicycle/Multi-use Facility from New Hope Road to Tommy's Road	3	2031-2040	GMTP/NCDOT

Table 7-6 documents the recommended Action Items (policy and programming) for non-motorized and transit improvement projects in the Goldsboro Urban Area.

Table 7-6: Non-Motorized and Transit Recommended General Action Items		
Action	Timeframe	Responsible Party
Adopt the GMPO Comprehensive Bicycle, Pedestrian and Greenway Plan	2014	City/County Planning Staff/ GMPO
Adopt a policy that states all new collector streets and arterials must accommodate provisions for bicycles and pedestrians. The first catalyst project is Central Heights Rd relocation (wide outside travel lanes and sidewalks).	2015	City/County Planning Staff/ GMPO
Work cooperatively with the Seymour Cyclists and other advocacy groups to better integrate bicycle and pedestrian facilities into the community:	2014	City/County/ Seymour Johnson AFB/ GMPO/ NCDOT
Utilize Capital Improvement Program funding to “close the gap” in sidewalks identified during the GMPO Comprehensive Bicycle, Pedestrian and Greenway Plan effort.	2017	City/GMPO
Complete the renovation of the Goldsboro Union Station site to accommodate the pedestrian mobility at this transit hub.	2017	City/County Planning Staff/GMPO
GATEWAY Transit Facility – Construct a new transit facility to provide admin/operations/maintenance for the GATEWAY bus service. Explore the use of a City-owned site near Clingman Street for this facility. The proximity to the Public Works Dept. (where GATEWAY vehicles are maintained and fueled) and the connectivity and access from this location made it a good choice for a facility and the value of the land could account towards the local match for the project.	2017-18	GMPO/NCDOT
The City of Goldsboro, the Village of Walnut Creek, the Town of Pikeville and Wayne County should work together to identify 1-2 pilot school(s) in each member jurisdiction that could benefit from the Safe Routes to School program and submit applications in an upcoming grant period.	2015-17	City/County Planning Staff/GMPO

Aviation/Freight/Rail

Table 7-7 documents the recommended implementation phasing for aviation/freight and rail projects in the Goldsboro Urban Area.

Table 7-7: Fiscally Constrained MTP Aviation/Freight/Rail Projects			
Project	Tier	Timeframe	Responsible Party
Wayne Executive Jetport – acquisition of approximately 35 acres of property in the Runway Safety Zone and transitional surface.	1	2017	Wayne County

Table 7-8 documents the Recommended Implementation Action Items (policy and programming) for aviation/freight and rail projects in the Goldsboro Urban Area.

Table 7-8: Aviation/Freight/Rail Recommended General Action Items

Action	Timeframe	Responsible Party
Support the Wayne Executive Jetport (GWW) efforts to extend current runway to 8,900 feet and work with airport to build a 2-lane connector (to improve access) between Airport Rd and US 117.	Ongoing	City Council/ County Commissioners
Support the Mount Olive Municipal Airport efforts to implement a full parallel taxi-way.	Ongoing	City Council/ County Commissioners
Continue to support the implementation of a multimodal transit center at Union Station through securing local grant matching funds.	2015	City/ GMPO
Undertake additional local efforts (such as the formation of the railroad task force) to establish passenger rail service through Goldsboro	2015	City/ GMPO/ NCDOT
Enhance and designate truck routes and sign appropriately. Truck route signage should be posted at the city limits, highway exits, and other appropriate locations directing truck drivers to those streets on which their movements are permitted. Consolidated truck routes should be clearly designated for US 117/I-795, US 70, and Oak Forest Rd.	2015	City/County/ NCDOT
Work with NCDOT District 4 office to make improvements at critical intersections on truck routes to more easily facilitate large vehicle movements and encourage their use by truckers. Improved turning radii, wider lane, and dedicated turn lanes will greatly improve the efficiency and safety of these corridors including Oak Forest Rd, US 117/Genoa Rd intersection and the US 117/Arrington Bridge Rd intersection.	2017	City/County Planning Staff/ NCDOT
Adjust signal timing along high priority routes to allow uninterrupted through movements based on posted speed limits. The result will be improved travel times and reduced noise and air pollution.	2015	City/NCDOT
Implement recommendations consistent with the Southeastern North Carolina Passenger Rail Study (July 2005).	2020	City/ GMPO/ NCDOT
Implement the next steps as set forth in the NCRR Company Shared Corridor Commuter Rail Capacity Study (October 2008).	2020	City/ GMPO/ NCDOT
Actively pursue funding to develop passenger rail service and commuter rail service through Goldsboro.	Ongoing	City/ County Commissioners

Land Use

The following Action Items are very important for the GMPO and local government agencies to coordinate in the short-term period. Continued coordination between land use and transportation improvements is essential to creating safe, efficient growth opportunities that improve the quality of life for all residents and visitors.

Table 7-9: Land Use General Action Items

Land Use Action Item	Timeframe	Responsible Party
Implement the best planning principles outlined in the land use element chapter of this report with regard to the land use considerations represented in two focus areas. Considerations include Mixed-Use and Lifestyle Center Developments; Traditional Neighborhood Development; and Cluster Development.	2015	City/County and GMPO Planning Staff
Consider adopting the Model Access Management Overlay Ordinance of the <i>US 70 Corridor Access Management Handbook</i> , date May 2007.	2015	City Council
Work with an Economic Development specialist to initiate the redevelopment/ development activities.	2015	City Council/ GMPO
Limit cul-de-sacs to areas where topography, environment, or existing development make other street connections prohibitive.	2014	City Council / County Commissioners
Create aesthetic gateways (at key locations along major radial routes) that invite and welcome citizens and visitors to the Goldsboro region.	2015	City/County/ GMPO
Revise the right-of-way profiles and street width requirements of existing ordinances to mimic recommended typical sections included in Appendix B.	2015	City Council / County Commissioners

Funding Opportunities

The construction of a comprehensive transportation network can occur through incremental adoption of local policies and programs supplemented by state programs and assistance from the private sector. It will be important for the GMPO to identify and seek alternative funding resources to implement the recommendations of this plan. Refer to Table 7-10 for Action Items associated with funding. Participants at the public outreach events were asked to indicate their support for one or more funding strategies if additional funding for transportation improvements is needed. These funding strategies included higher gas tax, higher sales tax, tolls on roads, higher property tax, user

fees, impact fees on new development, higher motor vehicle registration, and mileage fees. See Appendix A for additional information.

State revenues alone will not sufficiently fund a systematic program of transportation projects within the Goldsboro Urban Area. Therefore, the GMPO and Wayne County must consider alternative funding measures that could allow for the implementation of this plan. The following provides a brief overview of the top performing alternative funding measures as expressed by the public.

Impact Fees

Developer impact fees and system development charges provide a funding option for communities looking for ways to pay for transportation infrastructure. Impact fees most commonly are used for water and wastewater system connections or police and fire protection services, but recently have been used in North Carolina to pay for the impacts of increased traffic on existing roads. Impact fees place the costs of new development directly on developers and indirectly on those who buy property in the new developments. Impact fees relieve other taxpayers from the burden of funding costly new public services that do not directly benefit them. Cities and counties in North Carolina may enact development impact fees by securing special legislative authorization. Twenty-four percent of the respondents in the Funding Source Poll indicated support for impact fees.

Transportation Bonds

Transportation bonds have been instrumental in the strategic implementation of local roadways, transit, and non-motorized travel throughout North Carolina. Voters in communities both large and small regularly approve the use of bonds in order to improve their transportation system. Nearly every improvement identified in this plan could be financially supported using a transportation bond program. When the improvement occurs on a state-owned street, approvals and encroachment permits from NCDOT will be required. Fifteen percent of the respondents in the Funding Source Poll indicated support for transportation bonds.

User Fees

User fees refer to fees collected directly from the users of a specific mode of transportation rather than from an indirect funding source. Examples of user fees may include transit fares, bicycle registration fees, public park and recreation facility passes, road-pricing systems where drivers pay a fee to access a specific road (much like a toll), sliding scale parking rates based upon proximity to congestion zones such as central business districts and office parks, or a vehicle-miles-traveled fee based upon a driver's annual mileage. User fees are not intended to fully off-set operations and maintenance costs, nor are they intended to fully repay bonds or other borrowing mechanisms. However, recent discussions on federal legislation have identified user fees as an increasingly important element in meeting transportation funding shortfalls. Thirteen percent of the respondents in the Funding Source Poll indicated support for user fees.

Tolls on Roads

Toll roads are direct “user fees” collected at the point where the vehicle enters the toll facility. The North Carolina Turnpike Authority (NCTA), as part of NCDOT, is the oversight agency responsible for determining toll facility feasibility. According to state statutes, a toll road must be a new roadway and must have an alternate route that is free to the public. Also, the project must be requested by local residents and requires legislative approval. By law, the NCTA is prohibited from tolling existing highways. In addition, funds generated from tolls on highways can only be applied to improvements on those particular highways. Eleven percent of the respondents in the Funding Source Poll indicated support for tolls on roads.

Public Private Partnerships

Public-Private Partnerships (P3) refer to projects where funding is provided by both government and private-sector organizations. Depending upon the agreement, the private-sector partner may also assume technical, financial, and operational responsibilities for the operation and maintenance of the project, with the government entity providing joint-funding and oversight. For some P3 projects, the cost of utilizing the facility is borne strictly by its users with no financial support coming from taxpayers. Transit projects, toll roads, and municipal facilities are often products of the P3 relationship. Eleven percent of the respondents in the Funding Source Poll indicated support for P3.

Table 7-10: Funding Action Items

Funding — Action Items	Timeframe	Responsible Party
Pursue a NCDOT Bicycle and Pedestrian Planning Grant . The NCDOT Division of Bicycle and Pedestrian Transportation and the Transportation Planning Branch created an annual matching grant program – the Bicycle and Pedestrian Planning Grant Initiative – to encourage municipalities to develop comprehensive bicycle plans and pedestrian plans. Website: https://connect.ncdot.gov/municipalities/PlanningGrant/Pages/default.aspx	2015	City/County/ GMPO
Solicit NCDOT Division <i>Spot Safety, Hazard Elimination, Governor's Highway Safety Program (GHSP), Economic Development, and Contingency Funds</i> to implement access management corridor improvements and intersection safety improvements identified in this Plan. Website: http://www.ncdot.org/programs/ghsp/	2015	City/GMPO/ NCDOT
Pursue NCDOT STIP-Enhancement Grant funding to install 10-foot multi-use path along Stoney Creek from Ash Street to Royall Ave. These funds are administered through a grant program with a 20% local match requirement.	2015	City/GMPO
Active Living by Design (ALbD) is a program sponsored by the Robert Wood Johnson Foundation. ALbD seeks to bring together the health care and transportation communities to create an environment that encourages residents to pursue active forms of transportation such as walking and bicycling. These grants (local match required) can be used to create plans, change land use policies, institute education policies, and develop pilot projects. Website: www.activelivingbydesign.org	2015	City/County Planning Staff/ GMPO
Consider a Local Option Sales Tax . Based on current tax-base, a one-half cent sales tax for Wayne County would generate an estimated \$8 – 11 million annually. A county-wide sales tax could be used to pay for major investment projects within the Wayne County region. However, a sales tax would require the identification of specific projects and special legislative authority.	2017	County Board of Commissioners
Set aside \$150,000 annually (if funds are available) of city General Funds to be used for spot-safety improvements or local match funds for federal or state grant programs.	2016	City/GMPO

Needs Beyond the 2040 Funding Capacity (Future Needs Plan)

Federal guidelines require that the project list included in the GMPO regional transportation plan be limited to those projects that could be funded using the a reasonable level of public and/or private sector funding available to the Goldsboro Urban Area over the lifetime of the plan. Over the planning

period, approximately \$320 million is projected to be available for improvement projects within the region.

Transportation improvement needs in the Goldsboro Urban Area far exceed the projected budget. In the planning process, there are two general methods of addressing identified improvements that do not fit within the funding constraints in the planning period. They are:

- Document the concept(s) in the Alternatives Analysis, but not in the Recommended Multimodal Plan section.
- Establish a Beyond 25-Years category (Future Needs Plan) of improvements for documentation purposes. These projects are those that have been identified as needs, but for which funding sources have not been identified.

For the GMTP, the alternative of documenting a Future Needs Plan (the CTP) was selected. The purpose of selecting this alternative was to ensure that the needs of the region are given proper emphasis and that the recommended plan would include additional projects if additional funding were secured. The CTP effort will continue after the adoption of the 2040 GMTP, and the CTP will be presented in a separate document.

Conclusion

Through effective public outreach and the inclusion of a citizen-based advisory committee, the development of the 2040 GMTP reinforces the vision and needs of the region. It is through the collaborative process that we have learned community leaders, business owners, and citizens of the Goldsboro Urban Area continue to have high expectations for the regional transportation system.

The Goldsboro Urban Area has become an attractive transportation hub spurred by major transportation infrastructure improvements including I-795 and US 70 Bypass, healthy commercial growth and the potential for expanded rail service. As federal and state dollars are becoming more difficult to secure, the GMPO should proactively move forward and address the regions needs through innovative measures and self-financing mechanisms in order to support the growth and continued prosperity of the region.

Transportation decision-makers must find new ways of funding transportation infrastructure needs. Whether through a new sales tax referendum, addition vehicle tax, or other innovative funding strategies, the region no longer can rely on federal gas tax dollars alone. The most critical steps toward funding and implementing the plan will be carried by “champions” or leaders within the community. Continued collaboration between state, local agencies, the development community, and the general public will provide more opportunities to foster a safe, aesthetically-pleasing, and well-balanced multimodal transportation system that makes the Goldsboro Urban Area an attractive place to live.

Appendix A: Public Involvement

Public Participation Policy

The GMPO Public Participation Policy (PPP) intends to ensure public participation remains an integral component of GMPO activities and that the decision-making process considers the various public perspectives. The purpose of the PPP is to create a system for gathering diverse viewpoints as part of the decision-making process. The FHWA emphasizes public involvement be an early and continuing part of the project development process. A well-designed process enables the GMPO to make more informed decisions, build consensus, improve quality, and develop trust with the community. The PPP outlines various tools and time limits for public involvement. The policy is as follows:

The City of Goldsboro, Village of Walnut Creek, Wayne County, Town of Pikeville, and the NCDOT in cooperation with the various administrations within the USDOT, participate in a continuing transportation planning process in the Goldsboro Urban Area as required by Section 134 (a), Title 23, United States Code. The USDOT, through the FHWA requires:

"... each urbanized area, as a condition to the receipt of Federal capital or operating assistance, has a continuing, cooperative and comprehensive transportation planning process that results in plans and programs consistent with the comprehensive planned development of the urbanized area"

These federal regulations require that a single agency be responsible for the implementation of the urban transportation planning process in each urban area. This agency is designated as the MPO for the urban area. In the Goldsboro Urban Area this function is filled by the TAC and is advised by the TCC. The TAC members are elected officials appointed by their board or council to serve as the city's representative. The TCC are members of the individual cities' staffs that review the technical aspects of planning -particularly highway planning.

The TCC is made up of representatives from the following:

- Wayne County Chamber of Commerce
- Wayne County Economic Development
- GATEWAY Transportation System
- Goldsboro-Wayne Airport Authority
- Seymour Johnson Air Force Base
- NCDOT Division 4 Office
- *Project Manager*
- *Division Engineer*
- Village of Walnut Creek
- Town of Pikeville

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- City of Goldsboro
MPO Coordinator
- Wayne County
County Manager
Planning Director
- NCDOT District 3 Office
District Engineer
Assistant District Engineer
- NCDOT Public Transportation Division
- Eastern Carolina Rural Planning Organization
- Federal Highway Administration
- NCDOT Transportation Planning Branch

The TCC makes recommendations to the TAC.

The TAC is made up of the following voting members:

- Goldsboro City Council (2 Representatives and 1 Alternate)
- Wayne County Board of Commissioners (1 Representative and 1 Alternate)
- Village of Walnut Creek (1 Representative and 1 Alternate)
- Town of Pikeville Board of Commissioners (1 Representative and 1 Alternate)
- Board of Transportation Representative
- Goldsboro/Wayne County Public Transportation Authority
- Federal Highway Administration
- NCDOT Regional Traffic Support Engineer
- NCDOT Division 4 Engineer
- NCDOT District 3 Engineer
- NCDOT Transportation Planning Branch Engineer
- City of Goldsboro MPO Coordinator

Among its various functions, the TAC ensures that a continuing, cooperative, and comprehensive (3C) planning process exists in the urban area. They are to provide policy direction for the planning process, and to improve communications and coordination between the Policy Boards. Executive Orders 12898 Environmental Justice (EJ) and 13166 Limited English Proficiency (LEP) requires federal agencies to ensure their programs/services benefit and do not unjustly burden certain populations, and that public involvement (meaningful access, full and fair participation, etc.) is a requirement. These federal orders exist to create the requirement and to direct recipients of financial assistance to conduct some form of public involvement. Since the TAC is a Board of Elected Officials making public policy, it follows that public input is appropriate and there appears to be great latitude for the local area to develop a meaningful method for involving the citizenry which includes those viewpoints of minority, low income, and LEP populations.

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Transportation Agency & Citizen Involvement

Citizen participation is an important element of the transportation planning process and is achieved by making study documents and information available to the public and by actively seeking citizen participation during the planning process. Involvement is sought through such techniques as goals and objective surveys, neighborhood forums, drop-in centers, workshops, seminars, and public hearings. The TAC plays an important role in ensuring the involvement of the citizens in the planning process. They are the community leaders most involved with transportation planning. They must also be the guiding force in the involvement of the citizens.

The task of educating the public is ongoing. It is the responsibility of the MPO and the local planning staff to educate the community. General information concerning road projects, demographic changes, and new or proposed thoroughfares must be given to the community on a routine basis so that it is not a surprise later.

Public Notification of Meetings

The GMPO TCC and TAC Committee meet on a quarterly basis and as the need arises. Notices for such meetings are submitted to the City Clerk for the City of Goldsboro in order to allow for dissemination to various entities including the Goldsboro News-Argus, WGBR Radio WPMC Radio, WTVD Television (Wilson and Durham), WRAL Television, WITN Television, and News Channel 14. Notices of all meetings are given and disseminated at least 24 hours in advance.

All such meetings are open to the public and, upon request; comments from the public may be made at the discretion of the Chairman. Any such comments will be recorded and included as part of the official meeting minutes. If a response to comments is requested or required, such response shall be issued in writing to the appropriate party within ten working days of the meeting.

Other Public Notification

In the case of surveys or workshops to be held, in addition to the above notifications, the City of Goldsboro will publish a non-legal advertisement in the local newspaper (Goldsboro News-Argus) at least ten days in advance of the survey or workshop date.

Press Releases

When appropriate, the GMPO may periodically issue press releases detailing significant actions. All press releases will be approved by the Chairman of the TAC prior to issuance.

Assurance of Environmental Justice through Participation by Low-Income and Minority Households

The staff will work closely with the City of Goldsboro Community Development Department and GATEWAY to ensure that those traditionally underserved by existing transportation systems are included within the public participation process through distribution of notices and general information regarding the transportation planning process. The GMPO will use the data resource of the US Census Bureau's ACS to track the well-being of children, families, and the elderly; determine

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where to site new transportation systems and other facilities; and evaluate transportation investments for the ability to meet local needs. ACS will also be used to assess potential impacts.

Adoption of New Documents or Major Amendments to Documents

When new transportation-related documents or major amendments to transportation documents are proposed, such amendments will be made available for public review and comment for a period of at least 30 days prior to adoption. An advertisement will be placed in the local newspaper (Goldsboro News-Argus) indicating that such documents are available for review and indicating the location of such documents for examination. In addition, notice of the meeting date, location, and time for consideration of the documents will be given.

In the specific case of proposed amendments to the TIP as they relate to the Goldsboro-Wayne Transportation Authority and the GMPO, a legal advertisement will be placed in the local newspaper and advertised at least once, 30 days prior to the meeting. The legal advertisement will indicate that this notification will satisfy the Program of Projects notification for the Goldsboro-Wayne Transportation Authority and the GMPO.

If comments are submitted, they will be incorporated into the document for consideration prior to adoption. If the document considered for adoption differs significantly from the original document due to comments or revisions, another 30 day comment period will be scheduled through advertisement in the local newspaper (Goldsboro News-Argus).

Title VI Notice to Public

US Department of Justice regulations, 28 CFR, Section 42-405, Public Dissemination of Title VI Information, requires recipients of federal financial assistance to publish or broadcast program information in the news media. Advertisements must state that the program is an equal opportunity program and/or indicate that federal law prohibits discrimination. Additionally, reasonable steps shall be taken to publish information in languages understood by the population eligible to be served or likely to be directly affected by transportation projects. The City of Goldsboro acting as Lead Planning Agency for the Goldsboro Urban Area hereby gives public notice of its policy to uphold and assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Executive Order 13166 Improving Access to Services for Persons with Limited English Proficiency, and related nondiscrimination statutes and regulations in all programs and services. It is the city's policy that no person in the United States of America shall, on the grounds of race, color, national origin, sex, age, or disabilities be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program, activities, or services for which the GPO receives federal financial assistance.

Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with the GMPO. Any such complaint must be in writing or in person with the GMPO Title VI Officer within 180 days following the date of the alleged discrimination

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occurrence. Title VI Discrimination Complaint forms may be obtained from the Title VI Compliance Officer at no cost by calling 919-580-4327. For more information regarding civil rights complaints, please contact:

Title VI Compliance Officer
Goldsboro Urban Area MPO
Post Office Drawer A
Goldsboro, NC 27533
919-580-4327

The PIP document was adopted by the TAC upon recommendation of the TCC) on the 9th day of February, 2012.

Stakeholder Survey

Through the use of the online survey mechanism, surveymonkey.com, a stakeholder survey was created and distributed to project stakeholders as a way to provide valuable feedback to the project team. The survey included:

- Request for contact information to assist with communications.
- Request for best method of outreach to their organization membership.
- Specific questions regarding existing current and future transportation issues.

While the survey was not intended to be statistically valid, the responses proved helpful in the assessment of the transportation system and compilation of multimodal recommendations. A total of 23 responses were received from the Goldsboro Urban Area. The Stakeholder survey is illustrated below.



GOLDSBORO 2040 MTP

STAKEHOLDER SURVEY

We would appreciate your involvement in the planning efforts associated with the Goldsboro Area Metropolitan Transportation Plan Update. This short survey will ask you a few questions about you, your organization, your community and the most important transportation issues you think face the MTP Update address.

1. Please enter your name and the name of your organization (name, organization):

2. Please enter your contact information:

Telephone Number: _____

E-mail Address: _____

Mailing Address (city, zip code): _____

3. If there is a contact within your organization who you feel will be important to include in the communications and public outreach efforts (Public Information Officer, Marketing, Communications, etc.), please add their contact information below:

Name: _____

Telephone Number: _____

E-mail Address: _____

4. One important component of the public outreach effort for the MTP Update will be the existing communications tools and networks you currently use to reach your community. Which of the following methods would be the most effective in reaching your community?

☐ Facebook Page

☐ Twitter Account

☐ Blog

☐ Website

☐ Newsletter (electronic or printed)

☐ Listserve

☐ Other (Please Specify) _____

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GOLDSBORO 2040 MTP

5. What do you feel are the most important transportation issues your community faces currently? Please select five issues from the list below that you feel are the most important and rank in order with one being the most important and five being the least important:

☐ Access to Employment Centers

☐ Access to Medical Services

☐ Access to Shopping

☐ Access to Work/School

☐ Air Quality

☐ Bike Lanes/Trails

☐ Crime/Security

☐ Entertainment

☐ Intermodal Access

☐ Notification of Delays

☐ Protect the Environment

☐ Roadway Maintenance / Repairs

☐ Sidewalks

☐ Traffic Congestion

☐ Traffic Signal Timing

☐ Other (Please Specify) _____

6. What do you feel are the most important transportation issues your community will face in the future, prior to the year 2040? Please select five issues from the list below that you feel are the most important and rank in order with one being the most important and five being the least important:

☐ Access to Employment Centers

☐ Access to Medical Services

☐ Access to Shopping

☐ Access to Work/School

☐ Air Quality

☐ Bike Lanes/Trails

☐ Crime/Security

☐ Entertainment

☐ Intermodal Access

☐ Notification of Delays

☐ Protect the Environment

☐ Roadway Maintenance / Repairs

☐ Sidewalks

☐ Traffic Congestion

☐ Traffic Signal Timing

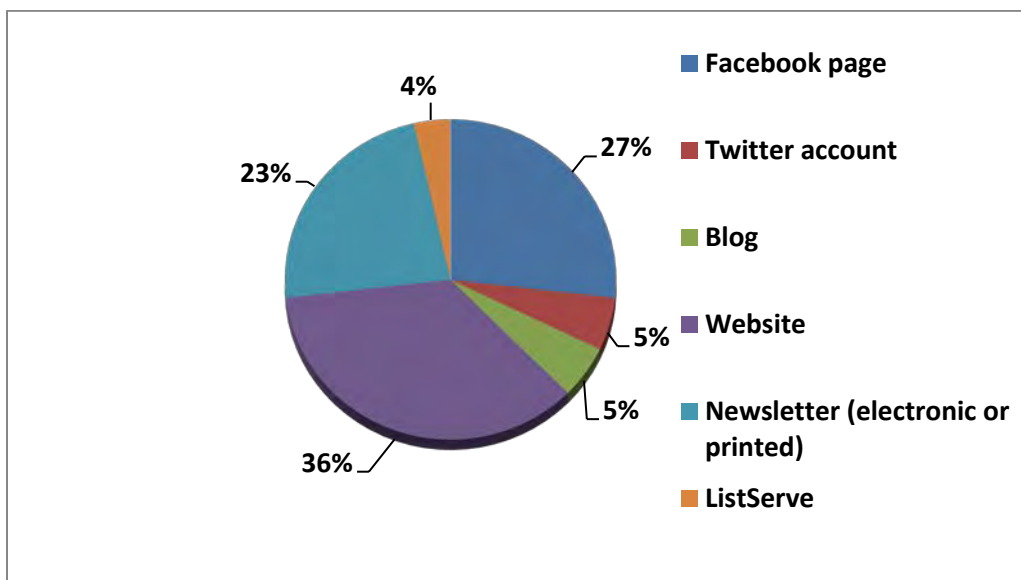
☐ Other (Please Specify) _____

Page 2 of 2

Results

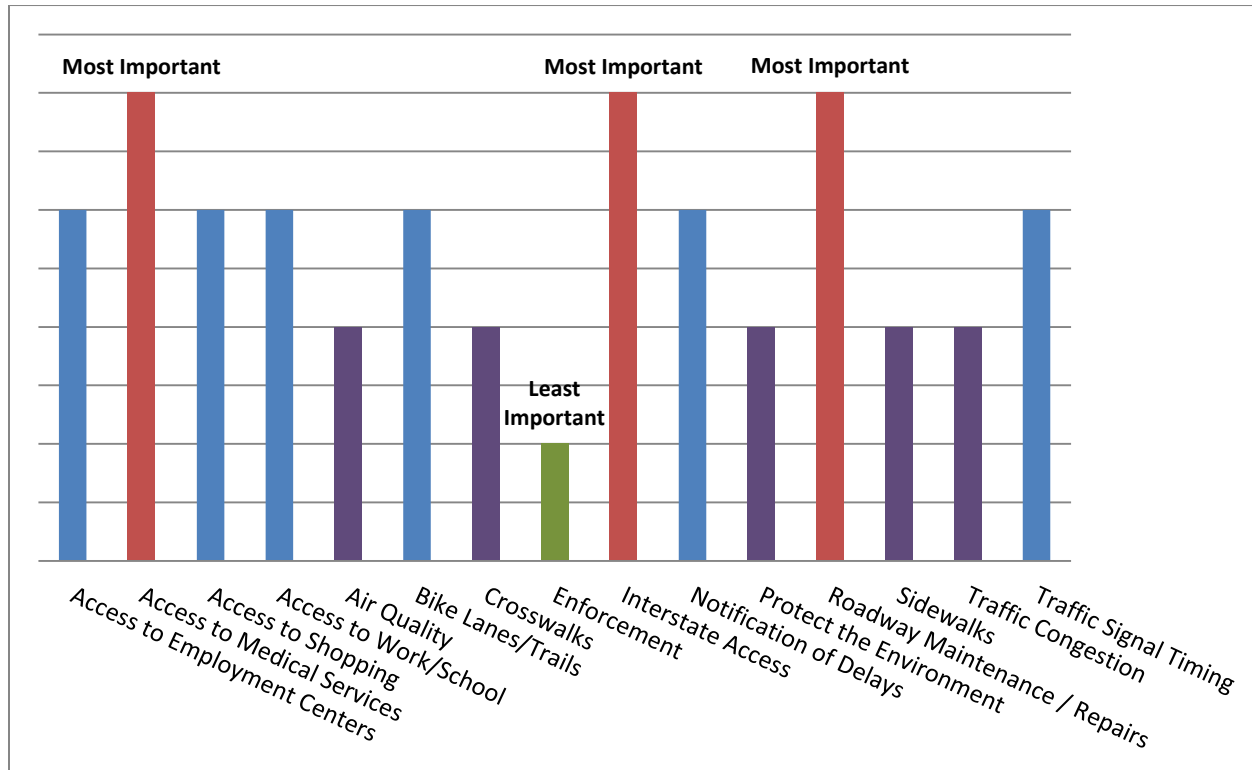
Over the course of the survey period, which ran from April 14, 2014 through June 24, 2014, 23 stakeholders responded to the survey. The following is a summary of the Stakeholder Survey responses (Questions 1-3 collected stakeholder contact information and are not being included in these results in consideration of respondent's privacy): For survey questions which ask respondents to prioritize a set of options (questions 5-9), survey response charts reflect weighted average results. By using this method the summary charts illustrate the options most commonly identified as top priorities by respondents rather than the number of responses each option received. Data charts reflect rating average and response count.

4. One important component of the public outreach effort for the 2040 GMTP will be the existing communications tools and networks you currently use to reach your community. Which of the following methods would be the most effective in reaching your community?



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5. What do you feel are the most important transportation issues your community faces currently? Please select five issues from the list below that you feel are the most important and rank in order with one being the most important and five being the least important:

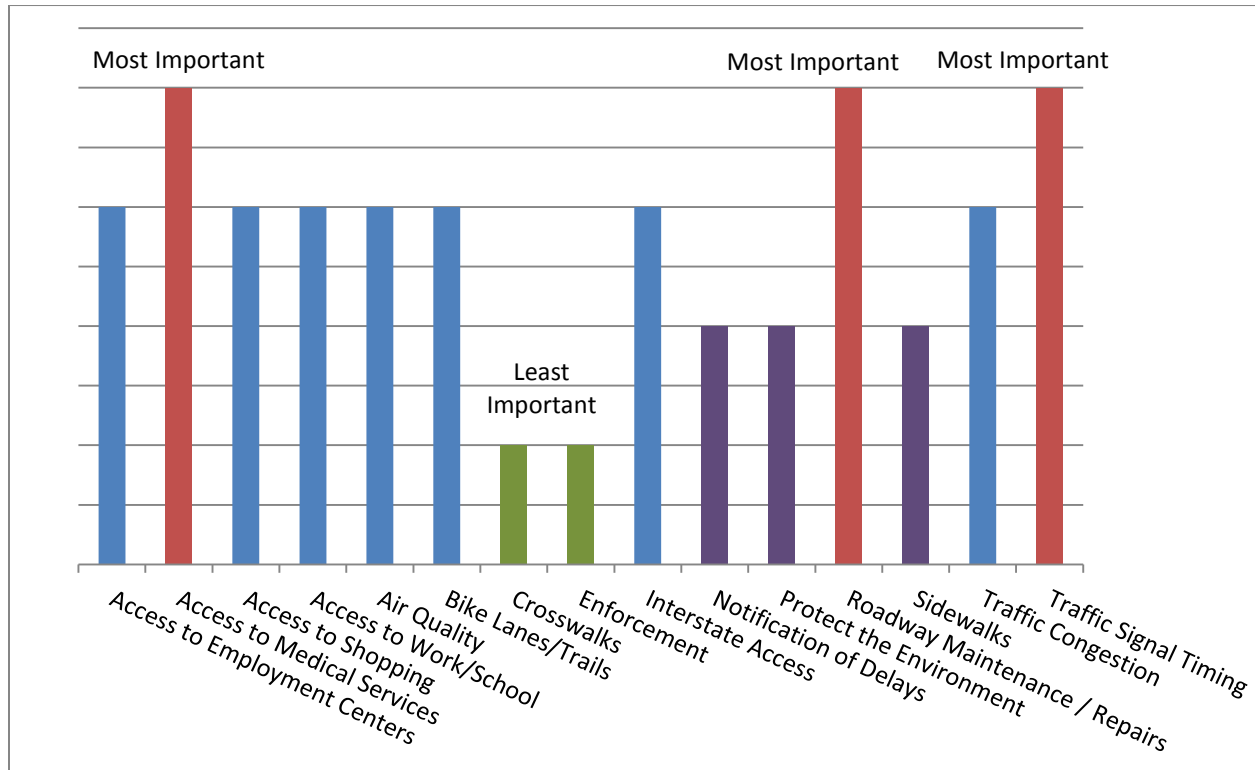


Answer Options	1*	2	3	4	5*	Rating Average	Response Count
Access to Employment Centers	3	2	1	2	1	2.56	9
Access to Medical Services	4	7	0	0	1	1.92	12
Access to Shopping	0	1	3	0	0	2.75	4
Access to Work/School	3	1	6	2	1	2.77	13
Air Quality		0	0	1	0	4.00	1
Bike Lanes/Trails	0	0	2	2	0	3.00	5
Crosswalks	0	0	1	1	1	4.00	3
Enforcement	0	0	0	3	3	4.50	6
Interstate Access	3	2	0	0	2	2.43	7
Notification of Delays	0	1	0	1	0	3.00	2
Protect the Environment	0	1	0	1	1	3.67	3
Roadway Maintenance / Repairs	4	2	2	1	1	2.30	10
Sidewalks	1	1	0	1	4	3.86	7
Traffic Congestion	0	1	2	2	4	4.00	9
Traffic Signal Timing	1	1	0	2	0	2.75	4

*1 = most important, 5 = least important.

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6. What do you feel are the most important transportation issues your community will face in the future, prior to the year 2040? Please select five issues from the list below that you feel are the most important and rank in order with one being the most important and five being the least important:

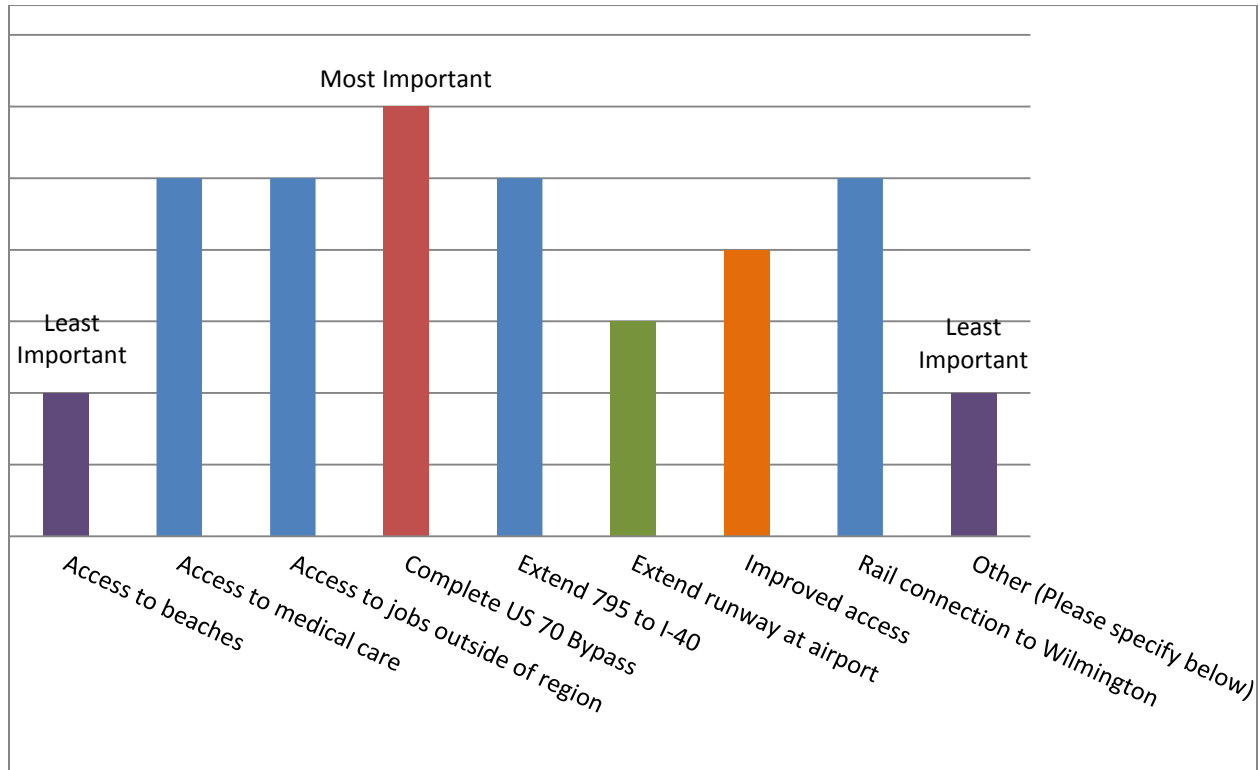


Answer Options	1*	2	3	4	5*	Rating Average	Response Count
Access to Employment Centers	3	3	1	2	1	2.50	10
Access to Medical Services	4	4	1	2	1	2.33	12
Access to Shopping	0	1	1	0	1	3.33	3
Access to Work/School	2	1	6	2	0	2.73	11
Air Quality	1	0	1	2	0	3.00	4
Bike Lanes/Trails	1	1	1	0	2	3.20	5
Crosswalks	0	0	0	0	1	5.00	1
Enforcement	0	0	0	1	3	4.75	4
Interstate Access	3	1	1	1	2	2.75	8
Notification of Delays	0	0	0	1	0	4.00	1
Protect the Environment	0	1	1	1	2	3.80	5
Roadway Maintenance / Repairs	5	2	3	0	1	2.09	11
Sidewalks	0	1	0	1	1	3.67	3
Traffic Congestion	0	4	3	4	2	3.31	13
Traffic Signal Timing	1	1	0	1	0	2.33	3

*1 = most important, 5 = least important.

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7. Regional priorities are those that take into account the entire geographic area of the GMPO. Please prioritize the following regional issues, with one being the most important and nine being the least important:



Answer Options	1*	2	3	4	5*	6	7	8	9	Rating Average	Response Count
Access to beaches	0	0	1	1	2	2	4	5	3	6.89	18
Access to medical care	5	2	1	4	2	2	2	0	0	3.56	18
Access to jobs outside of region	3	3	1	1	4	4	1	1	0	4.17	18
Complete US 70 Bypass	4	6	3	1	0	2	2	0	0	3.06	18
Extend 795 to I-40	3	4	3	2	2	1	1	2	0	3.72	18
Extend runway at Goldsboro Wayne Airport	0	1	3	2	2	1	4	4	1	5.78	18
Improved access to adjacent metropolitan areas	0	1	4	3	3	3	1	3	0	5.00	18
Passenger and freight rail connection to Wilmington	3	1	1	4	3	2	1	1	0	4.13	16
Other (Please specify below)	0	0	1	1	0	0	0	0	5	7.43	7

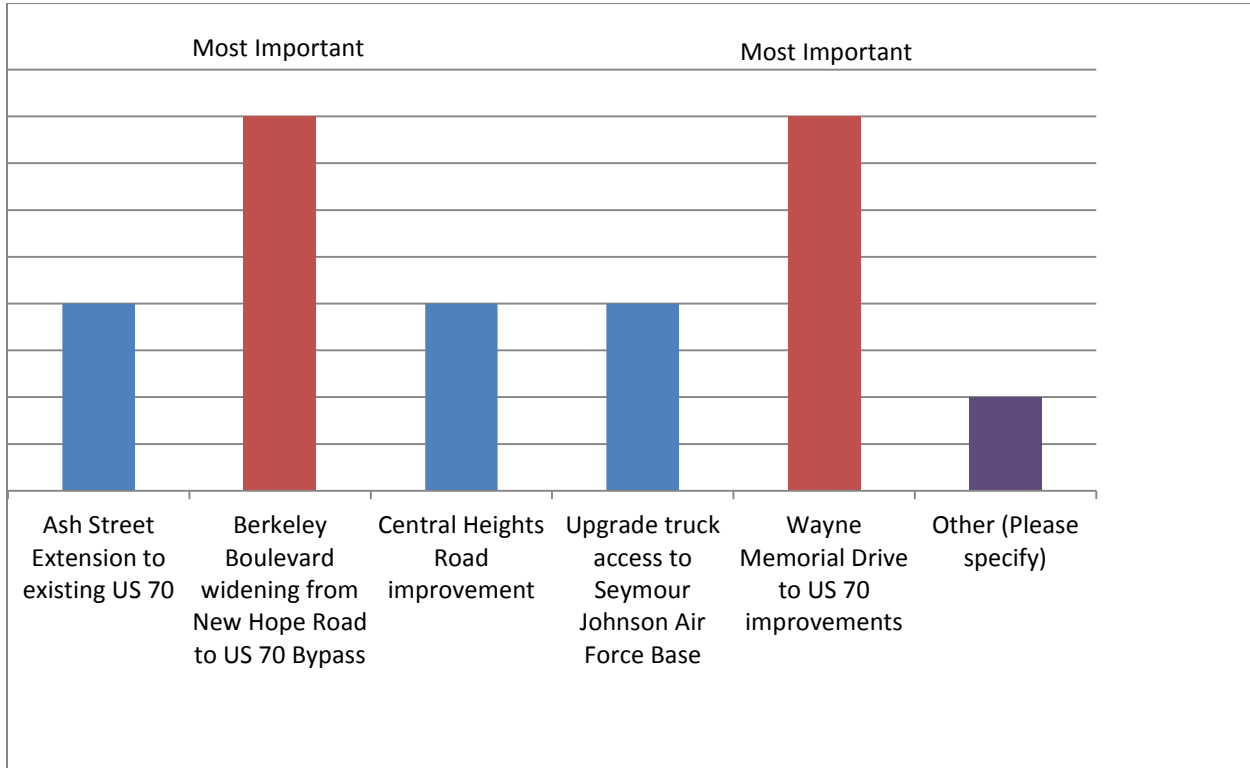
*1 = most important, 9 = least important.

Other:

- Rail to both ports.
- Renovation of Terminal building and parking.

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8. Corridor priorities are for those major roadway corridors within the geographic area of the GMPO. Please prioritize the following corridor issues, with one being the most important and six being the least important:



Answer Options	1*	2	3	4	5*	6	Rating Average	Response Count
Ash Street Extension to existing US 70	1	2	2	9	2	1	3.71	17
Berkeley Boulevard widening from New Hope Road to US 70 Bypass	7	6	4	1	0	0	1.94	18
Central Heights Road improvement	1	1	4	2	6	3	4.18	17
Upgrade truck access to Seymour Johnson Air Force Base	0	5	4	3	6	0	3.56	18
Wayne Memorial Drive to US 70 improvements	9	5	3	1	1	0	1.95	19
Other (Please specify)	1	0	0	0	1	5	5.14	7

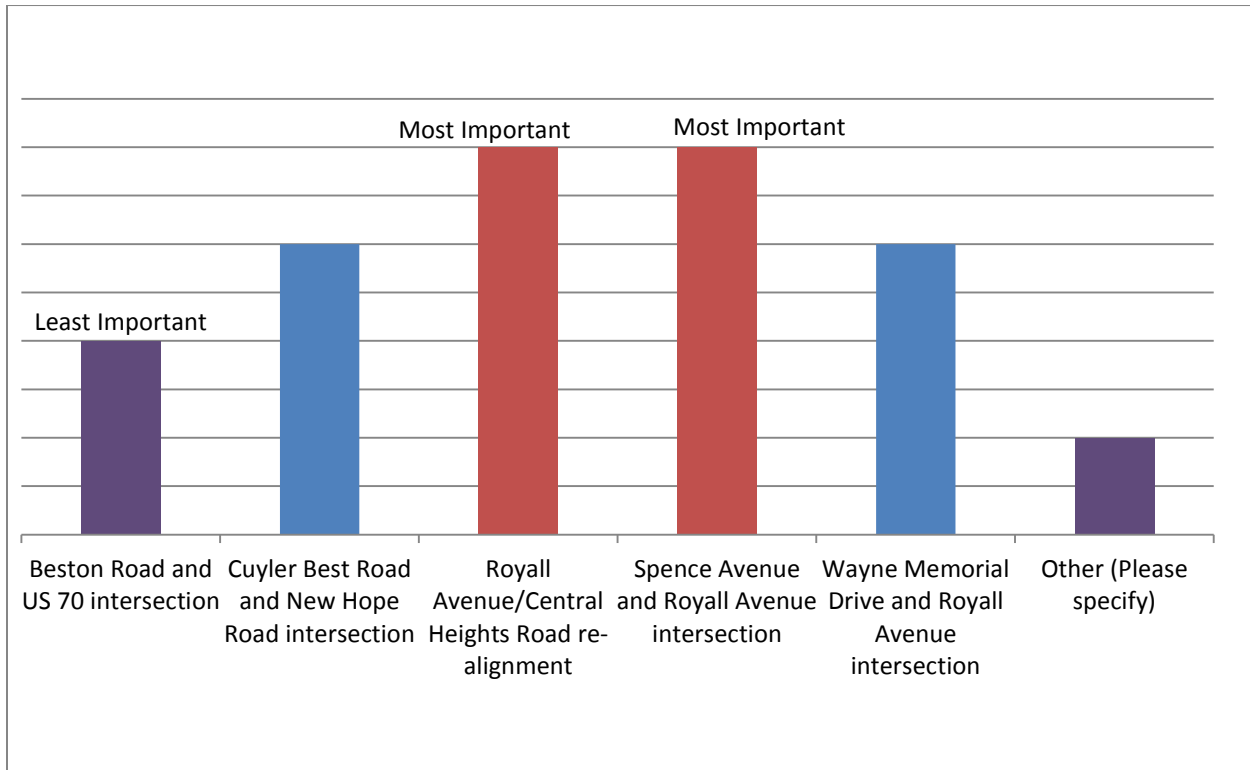
*1 = most important, 6 = least important.

Other:

- Eliminate the center barriers on Berkeley and Wayne Memorial Drive. There's no reason to block left turns into businesses when you have created congestion like that found in front of Chick- Fil-A (four lanes coming out, one lane going in with a traffic light to boot).
- Purchase additional land for expansion and growth.

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9. Intersection Improvement priorities are for those major intersections that need improvement. Please prioritize the following intersections that need improvement, with one having the highest priority and six having the lowest priority:



Answer Options	1*	2	3	4	5*	6	Rating Average	Response Count
Beston Road and US 70 intersection	1	1	7	2	6	0	3.65	17
Cuyler Best Road and New Hope Road intersection	1	4	4	5	2	0	3.19	16
Royall Avenue/Central Heights Road re-alignment	7	5	1	3	2	0	2.33	18
Spence Avenue and Royall Avenue intersection	6	4	3	4	1	0	2.44	18
Wayne Memorial Drive and Royall Avenue intersection	3	5	3	2	5	0	3.06	18
Other (Please specify)	0	0	0	0	0	3	6.00	3

*1 = most important, 6 = least important.

Other:

- No specific responses provided.

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10. Other Information - Please list any other issues or opportunities that should be considered in developing the metropolitan transportation plan update.

- Street improvements for improved corridors to and from new US 70 Bypass;
- A plan to organize gateway, rail, air, schedules for connections from one to the other.

The results of the Stakeholder Survey are consistent with feedback received from the public, attendees at public outreach events, and public meetings. While the summary data does allow for a more in-depth analysis of the respondents, a brief overview of responses shows the following key data points:

- Respondent identified Access to Medical Services, Interstate Access, and Roadway Maintenance/Repairs as the most important issues currently facing the community. Of least importance was Enforcement.
- For those issues the community will face prior to 2040, respondents identified Access to Medical Services, Roadway Maintenance/Repairs, and Traffic Signal Timing as the most important. Notification of Delays, Protection of the Environment, and Sidewalks were identified as least important.
- The most important Regional priority was identified as Completing the US 70 Bypass. Least important was Access to Beaches.
- Berkeley Boulevard widening from New Hope Road to US 70 Bypass and Wayne Memorial Drive to US 70 Improvements were identified as the most important corridor priorities.
- Royall Avenue/Central Heights Road re-alignment and Spence Avenue and Royall Avenue intersection were identified as top priorities for intersection improvements. Least important was the Beston Road and US 70 intersection.

Public Survey

As with the stakeholder survey, surveymonkey.com was used to craft and distribute a public survey to provide the general public with the opportunity to give valuable feedback to the project team. The survey included:

- Demographic questions.
- General questions gauging the public's perception of transportation in Goldsboro.
- Specific questions regarding the modal elements of the 2040 GMTP.

The survey was distributed in hard copy and digital formats, in both English and Spanish. While the survey was not intended to be statistically valid, the responses proved helpful in the assessment of the transportation system and compilation of multimodal recommendations. A total of 345 responses were received from the Goldsboro Urban Area. The Public Survey is illustrated below:

2040 Metropolitan Plan Update and Comprehensive Transportation Plan

Thank you for taking the survey for the Goldstone Memorabilia Planning Organization (GMPPO) Memorabilia Transportation Plan (MTP) Update!

The GMPPO is a regional organization that manages transportation plans for the City of Goldstone, Village of Weiss County, Town of Plymouth and areas within Weiss County. The MTP is a federally-required document that helps community leaders make decisions about the timing, routing and routing of future transportation improvements, including transit, highway, public transit, bicyclist/pedestrian, and aviation.

Please take a moment to complete this survey and let us hear about your thoughts in what you believe are important transportation issues that should be considered in the MTP Update. Your thoughts and ideas will help shape the future of transportation in VOA's community!

Please use your completed survey by:

Jessica K. Cuthbert, Senior Planner, City of Goldstone, 200 North Cornish Street, Goldstone, NC 27532

1. Where do you live? Please enter your 5-digit ZIP Code. 2. How often does your average/typical commute take you? Please enter the 5-digit ZIP Code.

3. How often do you use the following to get to work, school, recreation or shopping?

	Daily	1-2 Times a week	1-3 Times a Month	Less than a Month	Rarely
Bus					
Bicycle					
Walk					
Automobile					
Motorcycle/Scooter					
Carpool/Vanpool					
Other (please specify below)					

4. Would you rather use another type of transportation than you currently use? If so, what type and why?

5. How do you get to your commute to work/school? _____ reason. If you have more than 1000 miles per year, _____ reason.

6. If you drive a car to work/school, how many passengers are in the vehicle? _____ people.

7. If you take school-aged children, how do they currently get to/school/after?

8. If you take school-aged children, how do they currently get to/school/after?

9. If you take school-aged children, how do they currently get to/school/after?

10. What are some specific assistance and traffic problems that you encounter in a frequent basis?

11. What are you able to do about your satisfaction with the following aspects of transportation in your community?	1 (Very Dissatisfied)	2	3 (Neutral/Discontented)	4	5 (Very Satisfied)	No Opinion
Adequacy of roads						
Adequacy of alternate modes						
Adequacy of transportation services						
Adequacy of sidewalks						
Adequacy of bicycle lanes and paths						
Traffic congestion						
Quality of transit						
Adequacy of commercial facilities						
Adequacy of public transportation						
Convenience of transfer to other modes						
Appearance, City and County						

12. What are the top priorities you would see the community to meet in the coming year? Please rank the top five priorities with "1" as the highest priority and "5" as the lowest priority.

	1	2	3	4	5
1. Road & traffic congestion					
2. Airway expansion					
3. Transportation improvements					
4. Traffic signal synchronization					
5. Mass transit					
6. Pedestrian safety improvements					
7. Transit safety improvements					
8. Public transportation (buses)					
9. Express lanes and paths					
10. Bicycle safety improvements					
11. Airport/terminal/other N. side facilities					
12. Airport development					
13. Public parking					

Thank you for participating in the GCMO MTP 2040 Survey. The following questions are voluntary and requested. The responses are gathered to help determine the future of transportation we have reached with our future.

14. What is your age? 15. What is your household size?

Under 18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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16. What is your annual household income?

Under \$12,000	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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17. How many vehicles do you have? 18. How many households do you live in?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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19. How many households do you live in?

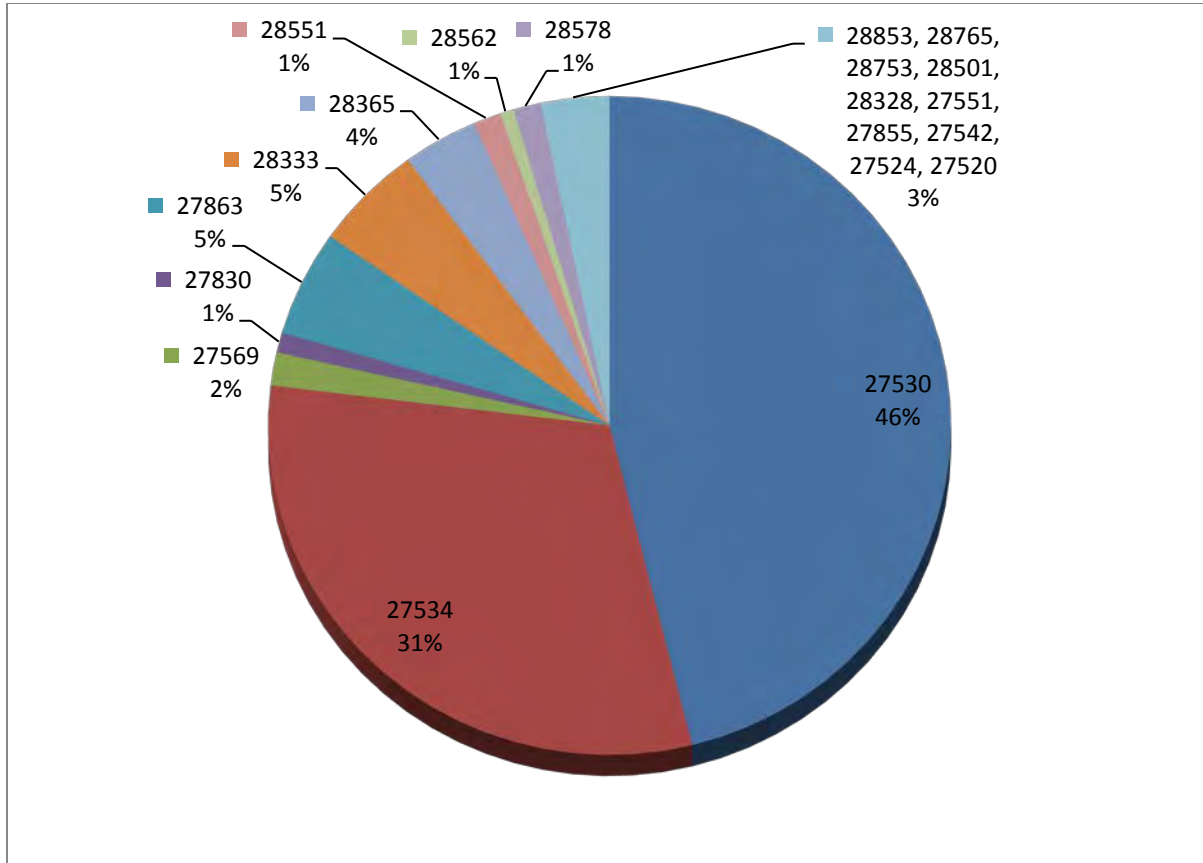
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1
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Results

Over the course of the survey period, which ran from April 17, 2014 through June 24, 2014, 345 surveys were received. A summary of the Public Survey responses is provided below.

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1. Where do you live? Please enter your 5-Digit ZIP Code.

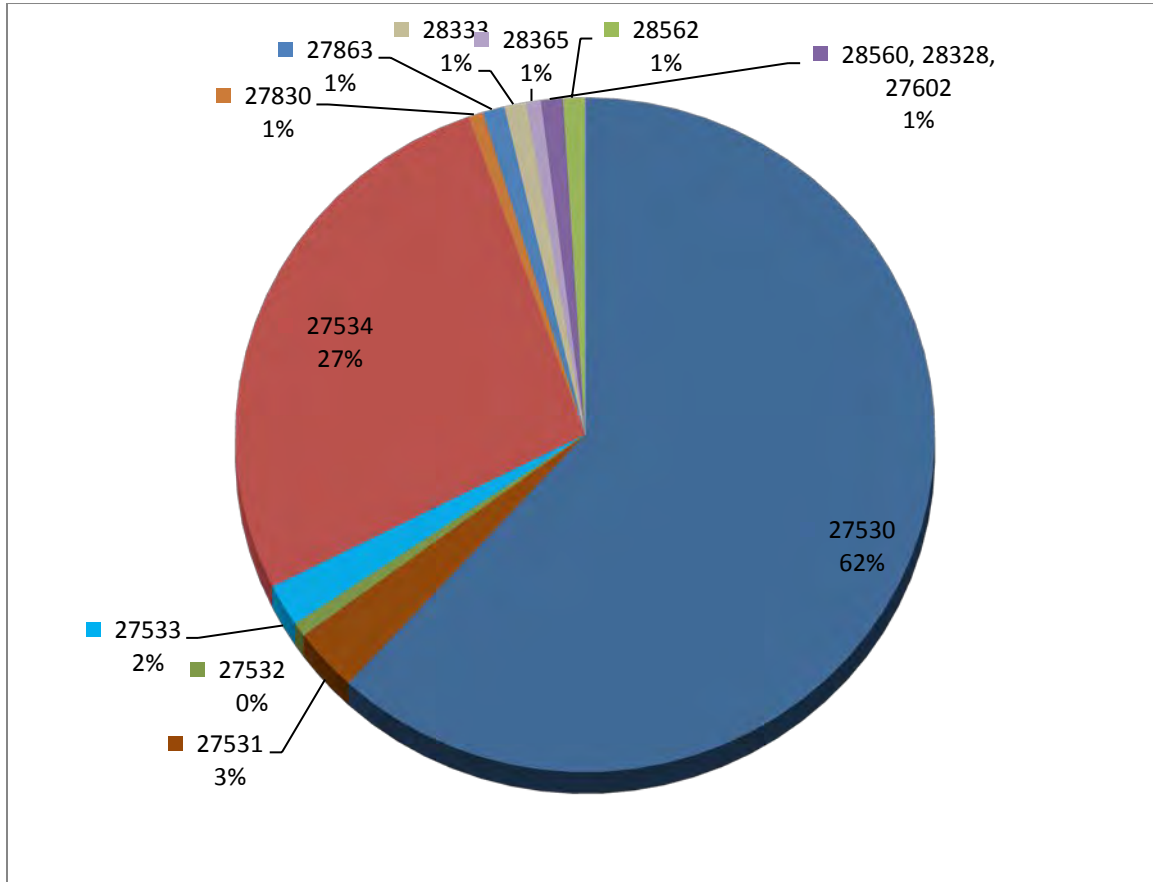


Response Count	Response
142	27530
95	27534
5	27569
3	27830
16	27863
16	28333
11	28365
4	28551
2	28562
4	28578
10*	28853, 28765, 28753, 28501, 28328, 27551, 27855, 27542, 27524, 27520

* One response from each zip code listed in column on right

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2. Where does your average daily commute take you? Please enter the 5-Digit ZIP Code.

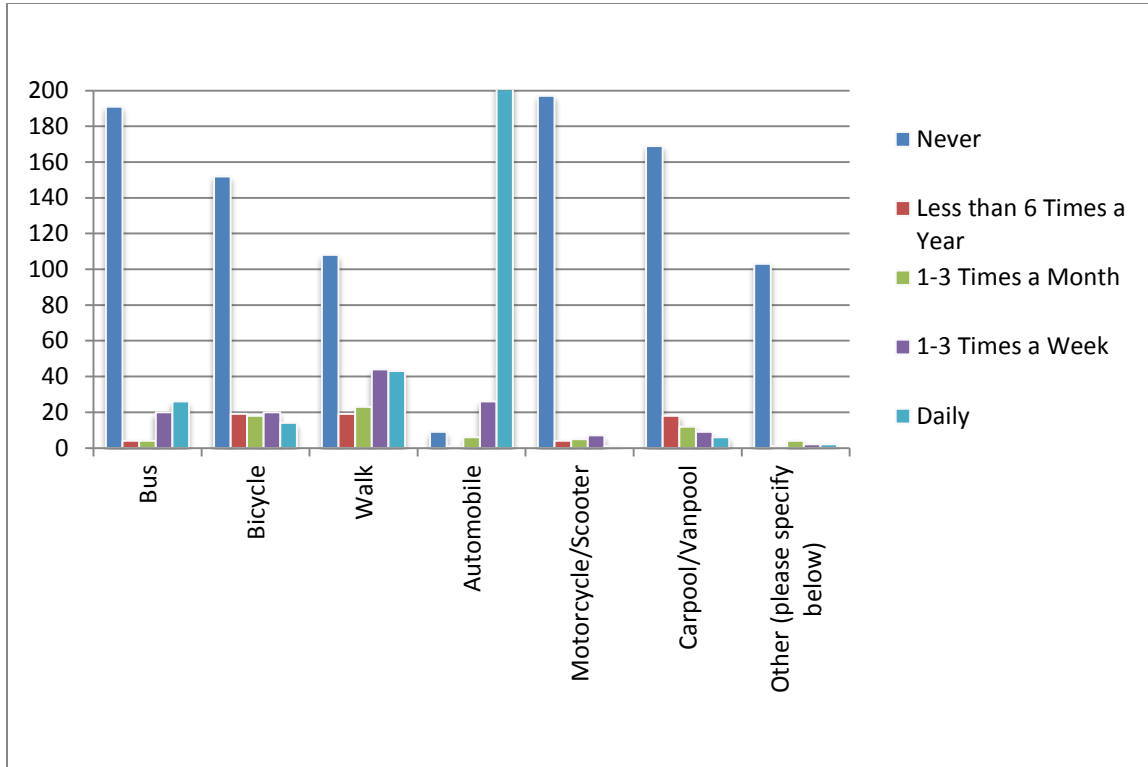


Response Count	Response
183	27530
9	27531
2	27532
6	27533
80	27534
2	27830
3	27863
3	28333
2	28365
3*	28560, 28328, 27602
3	28562

* One response from each zip code listed in column on right

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3. How often do you use the following to get to work, school, recreation or shopping?



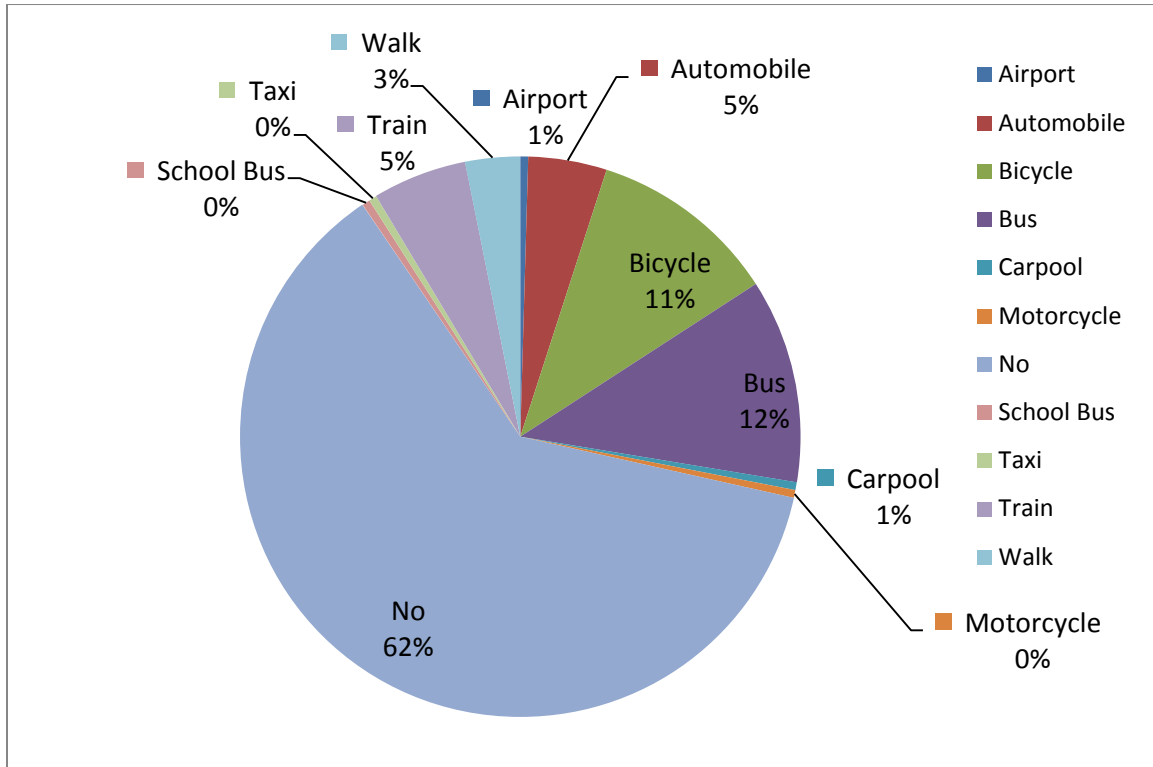
Answer Options	Daily	1-3 Times a Week	1-3 Times a Month	Less than 6 Times a Year	Never	Response Count
Bus	26	20	4	4	191	245
Bicycle	14	20	18	19	152	223
Walk	43	44	23	19	108	237
Automobile	252	26	6	1	9	294
Motorcycle/Scooter	1	7	5	4	197	214
Carpool/Vanpool	6	9	12	18	169	214
Other (please specify below)	2	2	4	1	103	112
Other (please specify)	14					

Other:

- Gateway van service
- Running for recreation
- I am retired and never take public transportation
- I walk and run daily for recreation and ride my bicycle
- Car
- Airplane (6)
- I would use a taxi at least once a week if there was one

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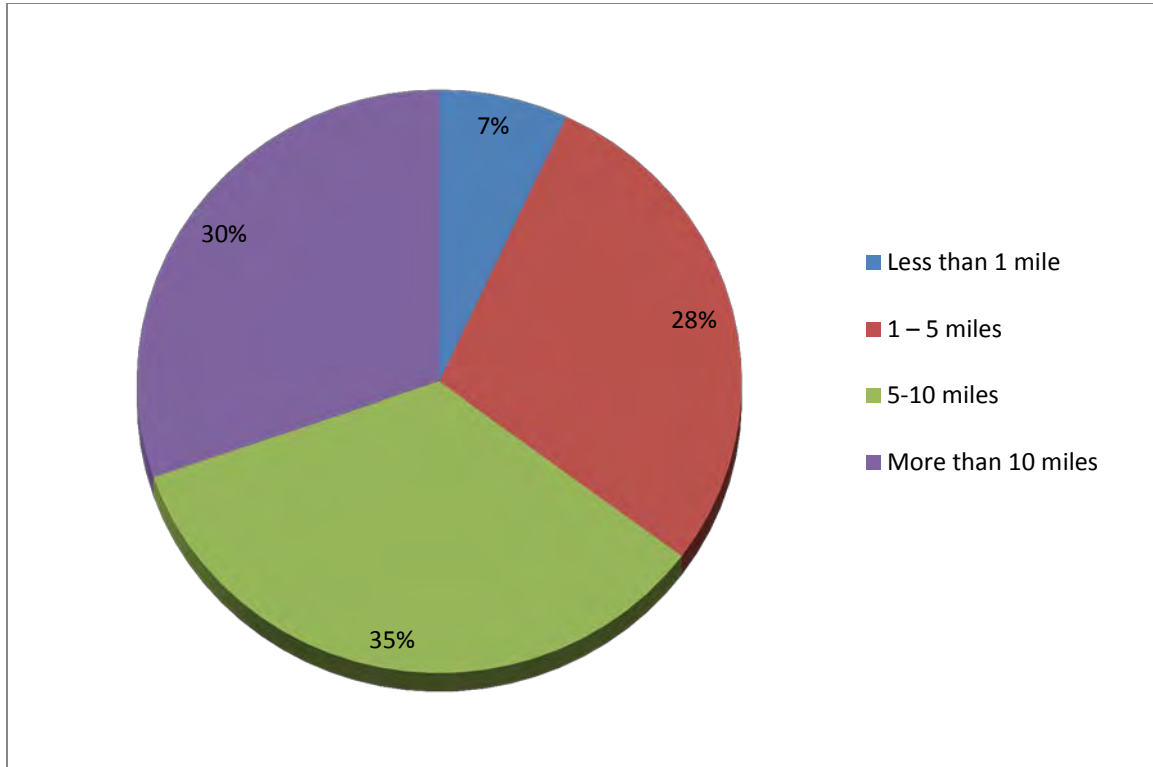
4. Would you rather use another type of transportation than you currently use? If so, what type and why?



Response Count	Response
1	Airport
10	Automobile
24	Bicycle
26	Bus
1	Carpool
1	Motorcycle
137	No
1	School Bus
1	Taxi
12	Train
7	Walk

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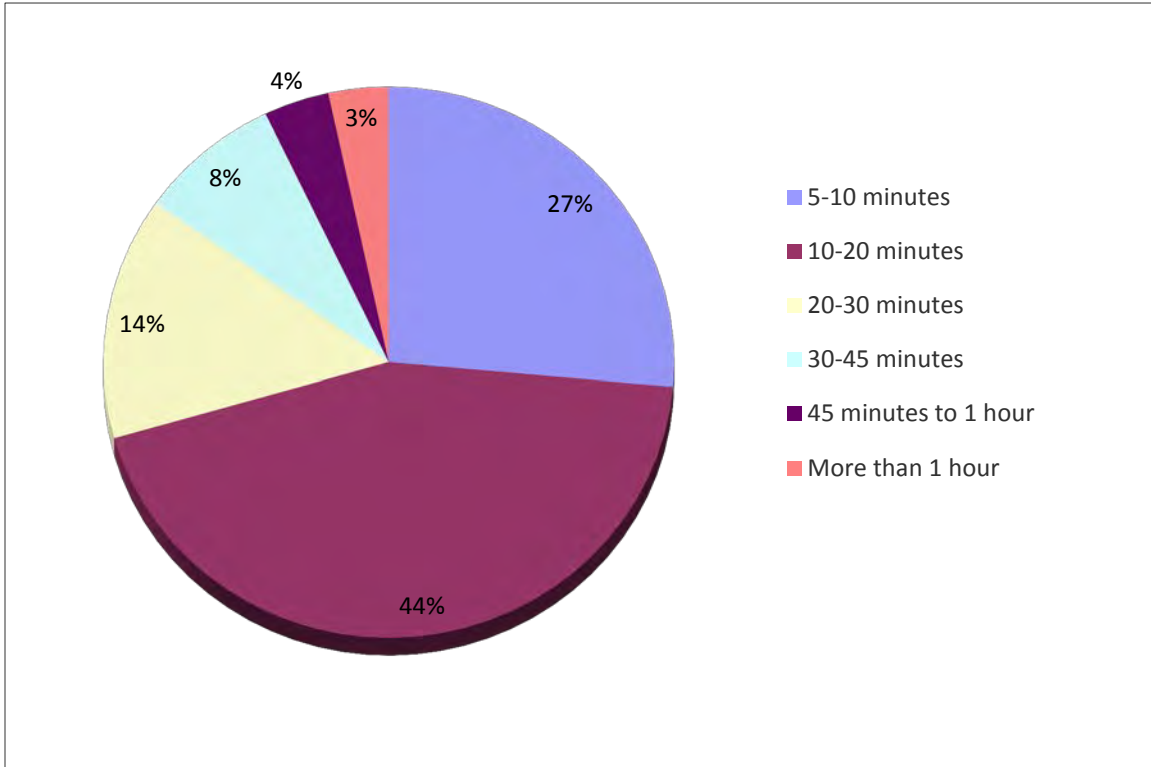
5. How far is your commute to work/school?



Answer Options	Response (%)	Response Count
Less than 1 mile	6.9	20
1 – 5 miles	28.3	82
5-10 miles	34.5	100
More than 10 miles	30.3	88

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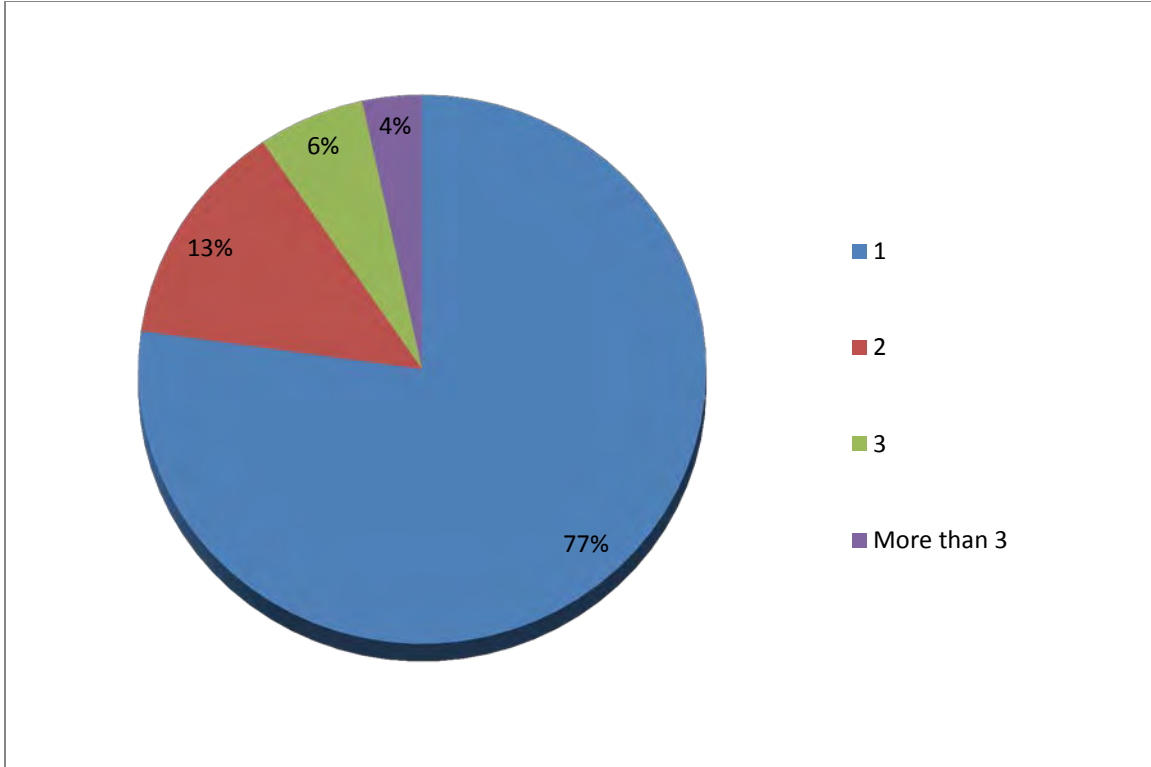
6. How long does this trip take you?



Answer Options	Response (%)	Response Count
5-10 minutes	26.4	78
10-20 minutes	44.1	130
20-30 minutes	14.2	42
30-45 minutes	8.1	24
45 minutes to 1 hour	3.7	11
More than 1 hour	3.4	10

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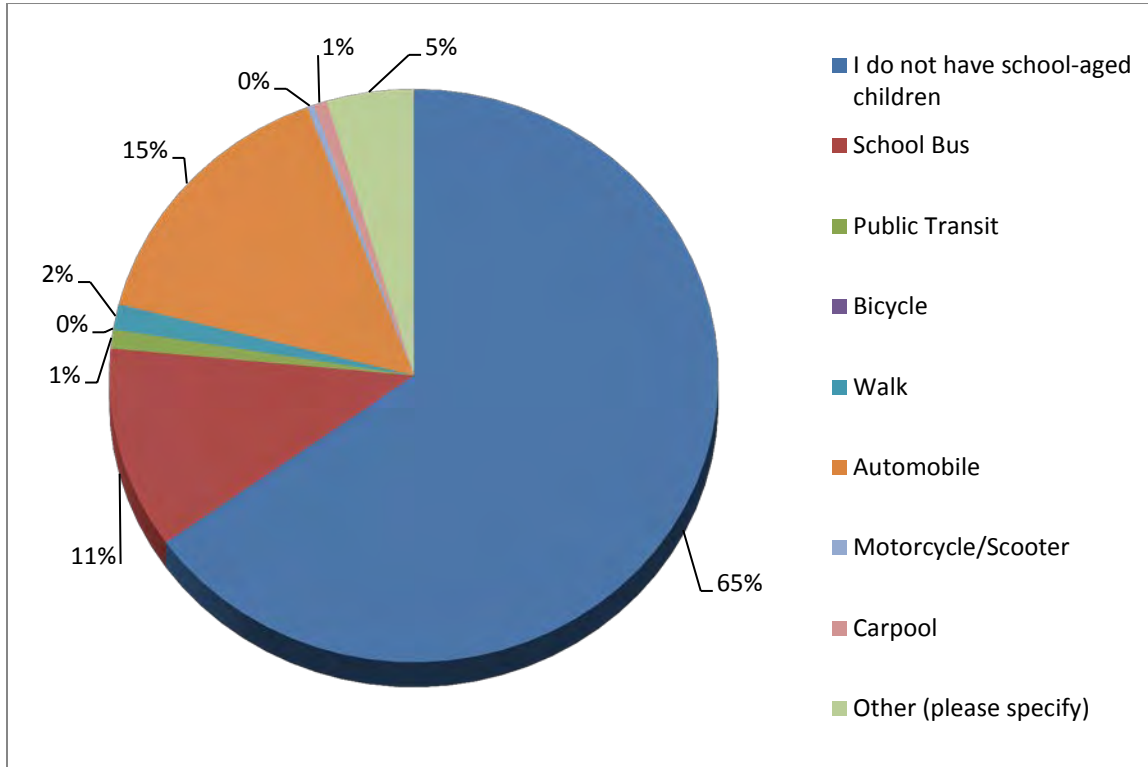
7. If you drive a car to work or school, how many people are in the vehicle?



Answer Options	Response (%)	Response Count
1	77.3	204
2	13.3	35
3	6.1	16
More than 3	3.4	9

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8. If you have school-aged children, how do they currently get to/from school?



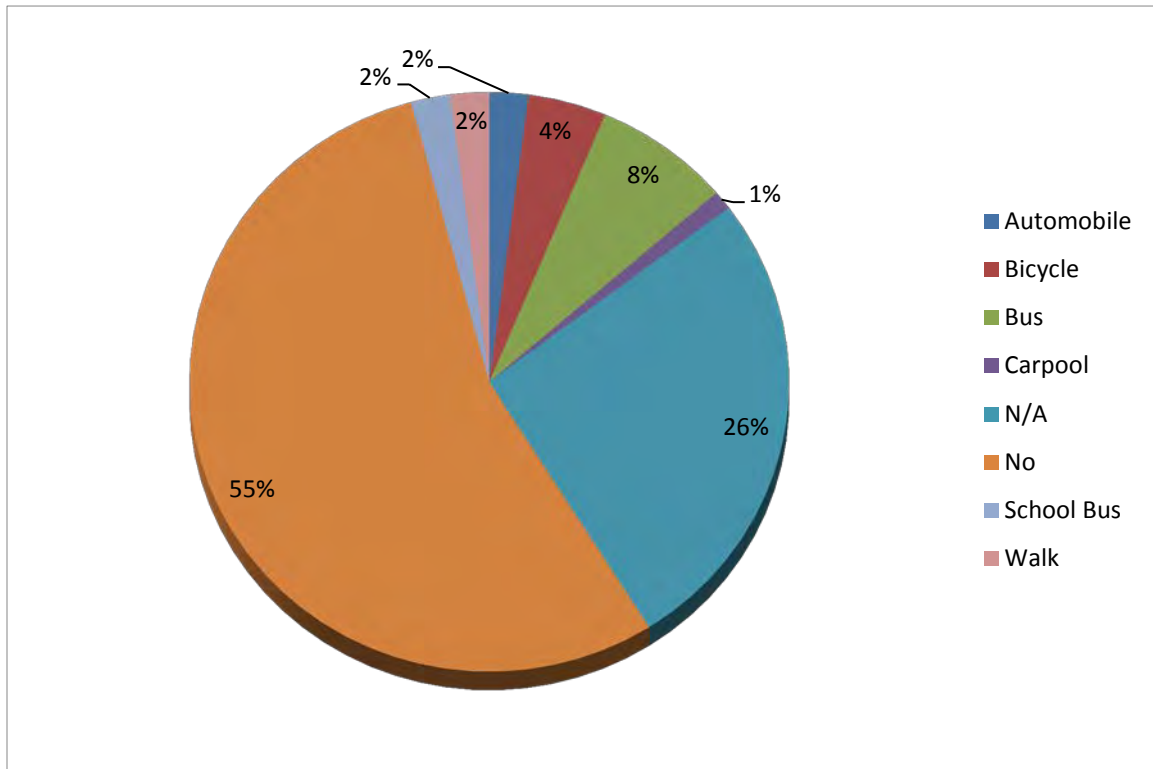
Answer Options	Response (%)	Response Count
I do not have school-aged children	68.3	183
School Bus	11.9	32
Public Transit	1.1	3
Bicycle	0.0	0
Walk	1.5	4
Automobile	16.0	43
Motorcycle/Scooter	0.4	1
Carpool	0.7	2
Other	5.0	13

Other:

- My older son will begin college this year therefore we will have to buy a car for him to commute back and forth from college; therefore, I believe that it is essential to look for possible solutions
- Homeschool
- My daughter is a year old and she attends a child care program
- I drop my two children off at daycare, daycare then takes my oldest to school
- College Student - WCC
- Automobile to school/bus from school (2)

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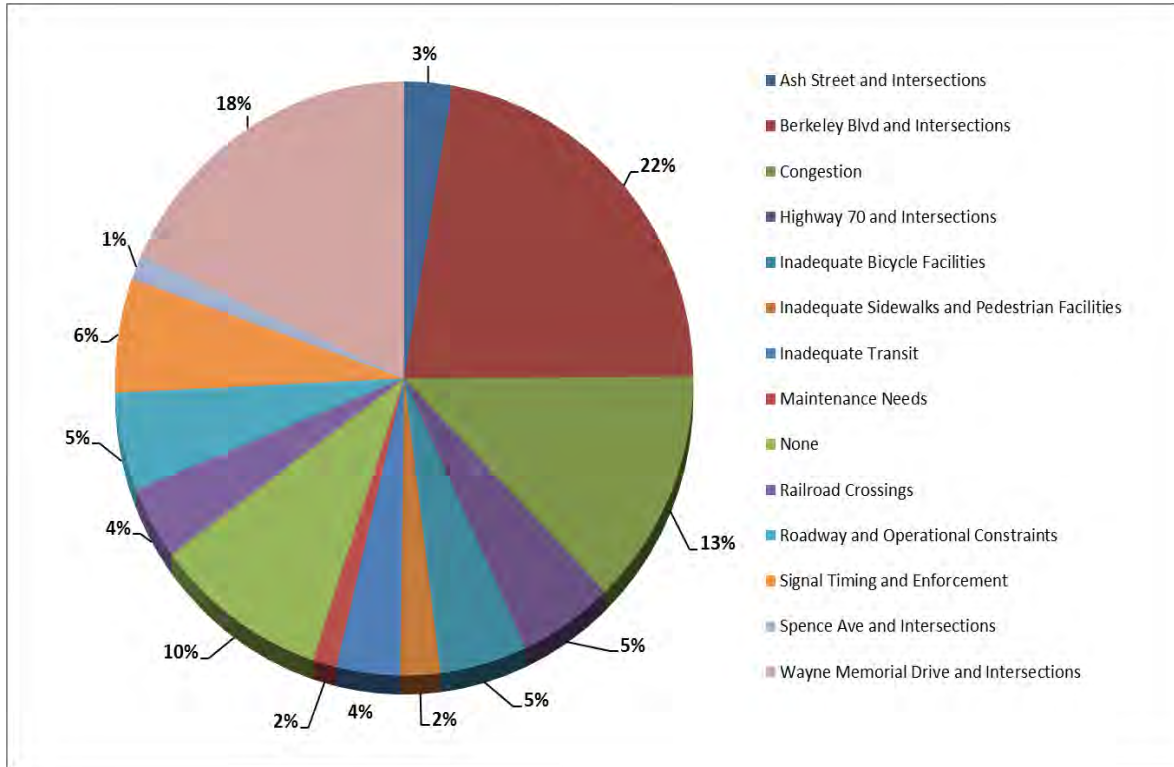
9. Would you rather your school-aged children use another type of transportation to get to/from school? If so, what type and why?



Response Count	Response
2	Automobile
4	Bicycle
7	Bus
1	Carpool
25	N/A
52	No
2	School Bus
2	Walk

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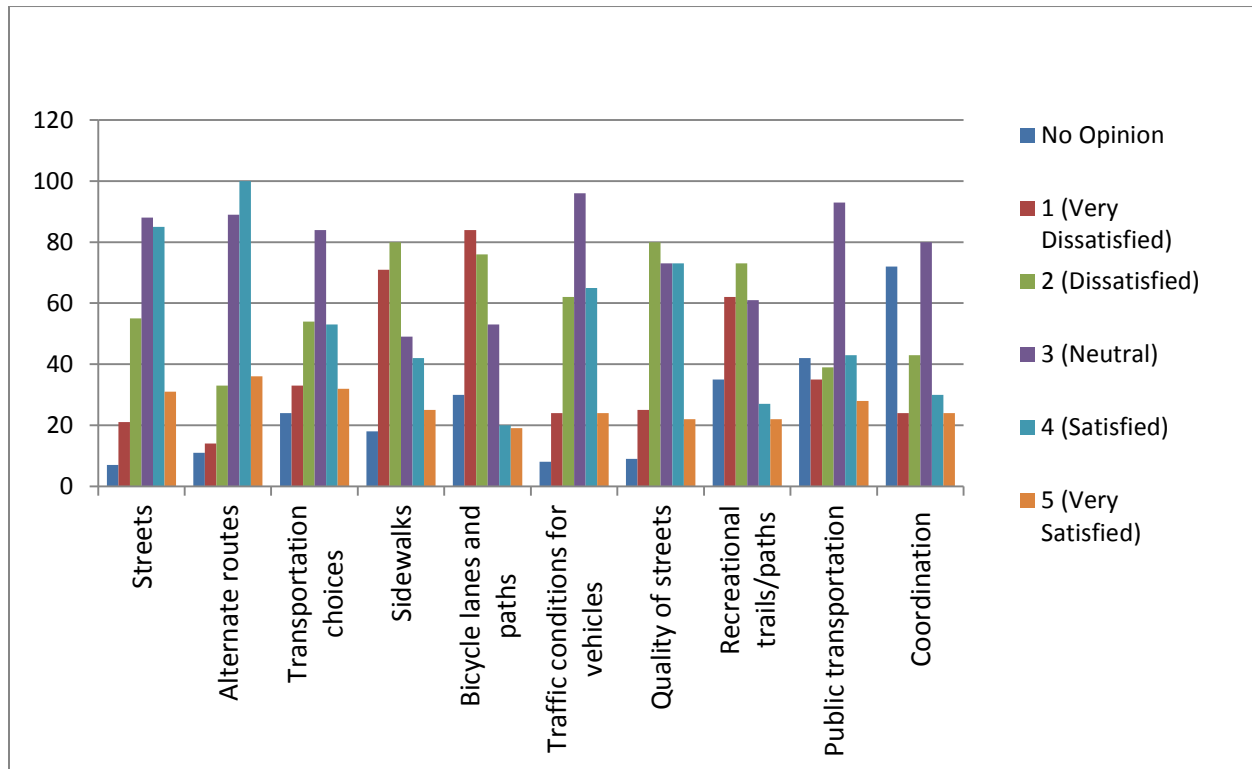
10. What are some specific locations and traffic problems that you encounter on a frequent basis?



Response Count	Response
6	Ash Street and Intersections
50	Berkeley Blvd and Intersections
29	Congestion
12	Highway 70 and Intersections
11	Inadequate Bicycle Facilities
5	Inadequate Sidewalks and Pedestrian Facilities
8	Inadequate Transit
3	Maintenance Needs
22	None
9	Railroad Crossings
12	Roadway and Operational Constraints
14	Signal Timing and Enforcement
3	Spence Ave and Intersections
41	Wayne Memorial Drive and Intersections

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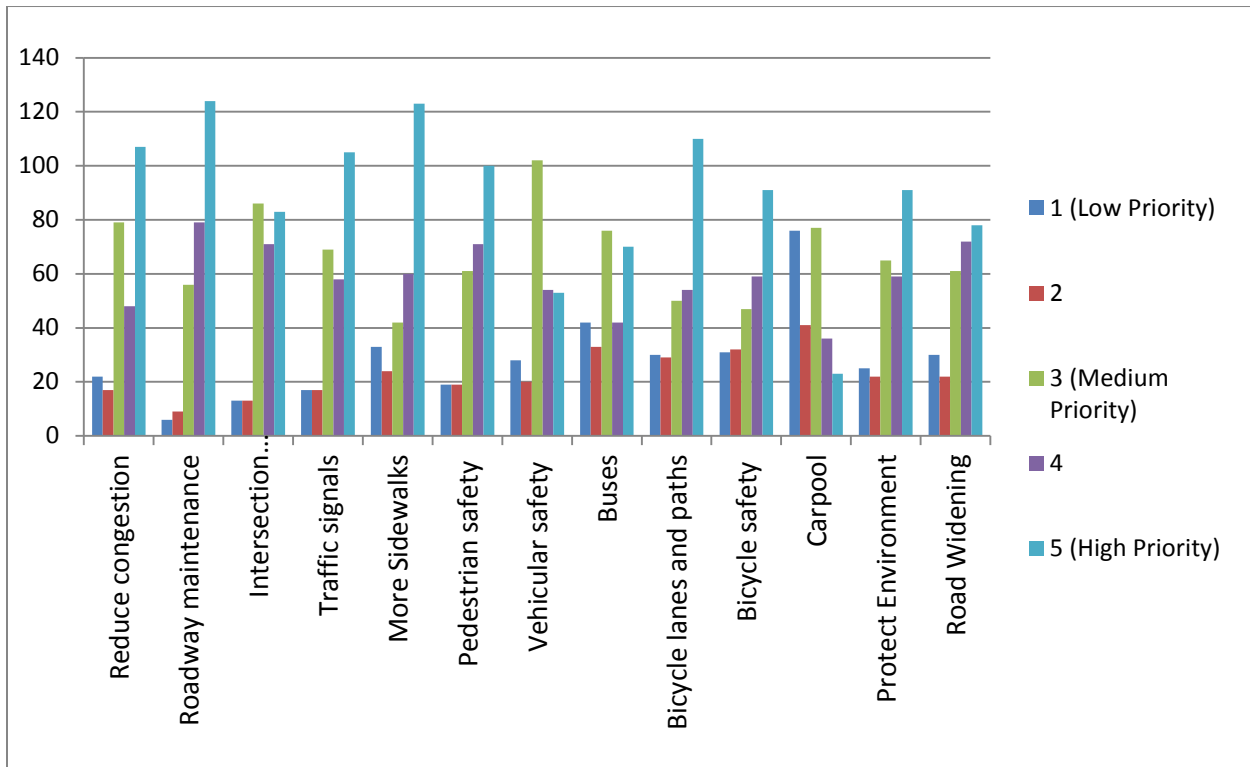
11. How would you rate your satisfaction with the following aspects of transportation in your community?



Answer Options	5 (Very Satisfied)	4 (Satisfied)	3 (Neutral)	2 (Dissatisfied)	1 (Very Dissatisfied)	No Opinion
Appearance of streets	31	85	88	55	21	7
Availability of alternate routes	36	100	89	33	14	11
Availability of transportation choices	32	53	84	54	33	24
Availability of sidewalks	25	42	49	80	71	18
Availability of bicycle lanes and paths	19	20	53	76	84	30
Traffic conditions for vehicles	24	65	96	62	24	8
Quality of streets	22	73	73	80	25	9
Availability of recreational trails/paths	22	27	61	73	62	35
Accessibility of public transportation	28	43	93	39	35	42
Coordination between transportation agencies, City and County	24	30	80	43	24	72

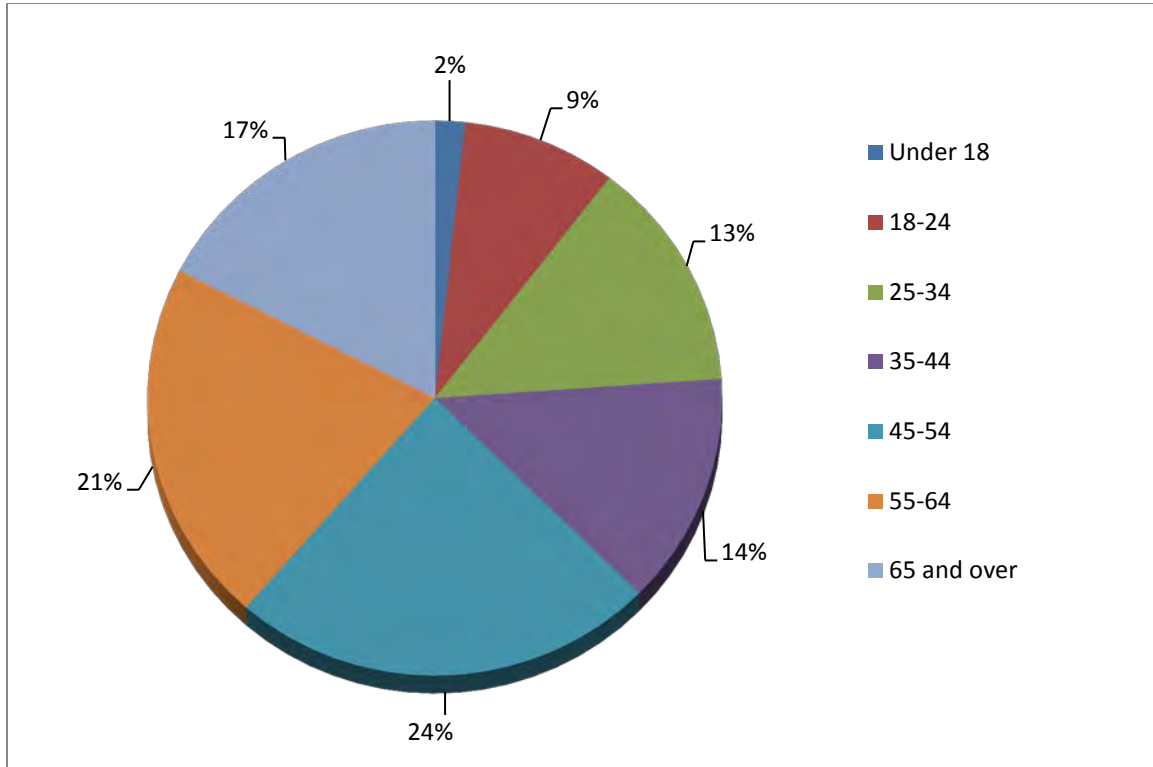
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12. What are the top priorities you would like the community to invest in? Please rank the topics below with "5" as the highest priority and "1" as the lowest priority.



Answer Options	5 (Very Satisfied)	4 (Satisfied)	3 (Neutral)	2 (Dissatisfied)	1 (Very Dissatisfied)	No Opinion
Reduce traffic congestion	107	48	79	17	22	273
Roadway maintenance	124	79	56	9	6	274
Intersection improvements	83	71	86	13	13	266
Traffic signal timing/coordination	105	58	69	17	17	266
More Sidewalks	123	60	42	24	33	282
Pedestrian safety improvements	100	71	61	19	19	270
Vehicular safety improvements	53	54	102	20	28	257
Public transportation (buses)	70	42	76	33	42	263
Bicycle lanes and paths	110	54	50	29	30	273
Bicycle safety improvements	91	59	47	32	31	260
Carpool/Vanpool/Park N Ride facilities	23	36	77	41	76	253
Protect Environment	91	59	65	22	25	262
Road Widening	78	72	61	22	30	263

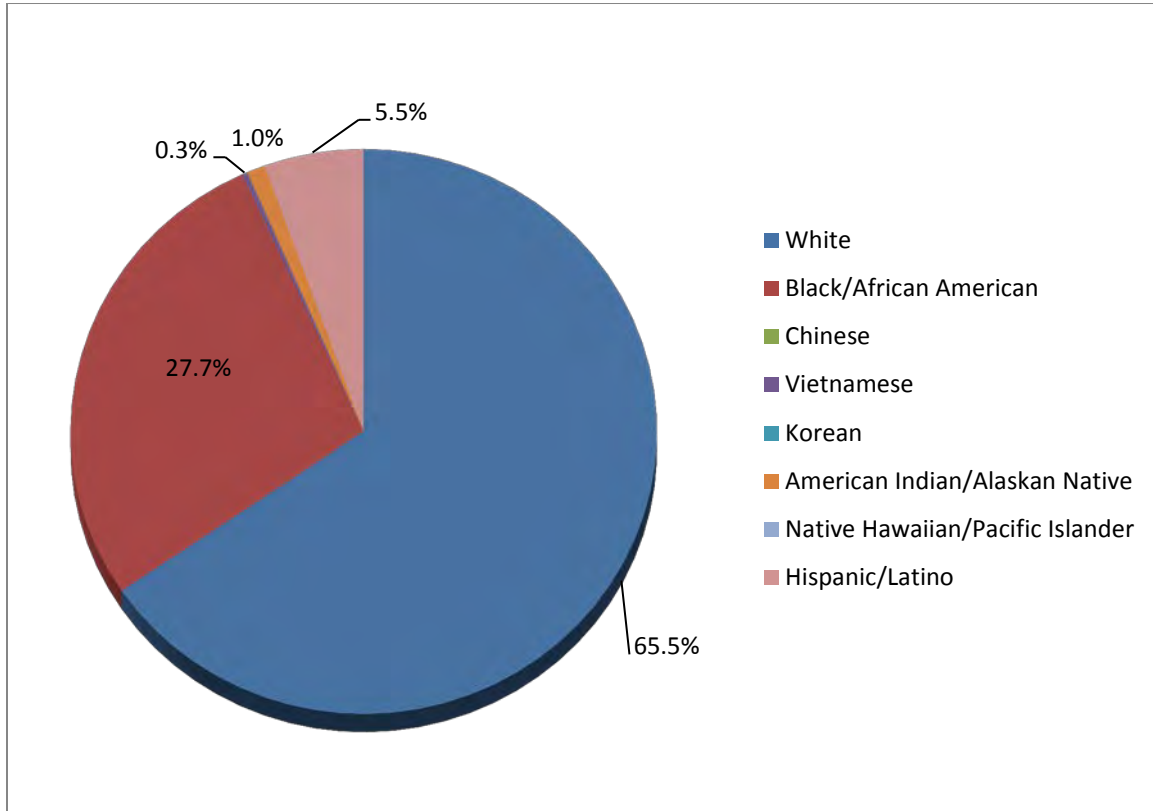
13. What is your age?



Answer Options	Response (%)	Response Count
Under 18	1.7	5
18-24	8.7	25
25-34	13.5	39
35-44	13.5	39
45-54	24.0	69
55-64	21.2	61
65 and over	17.4	50

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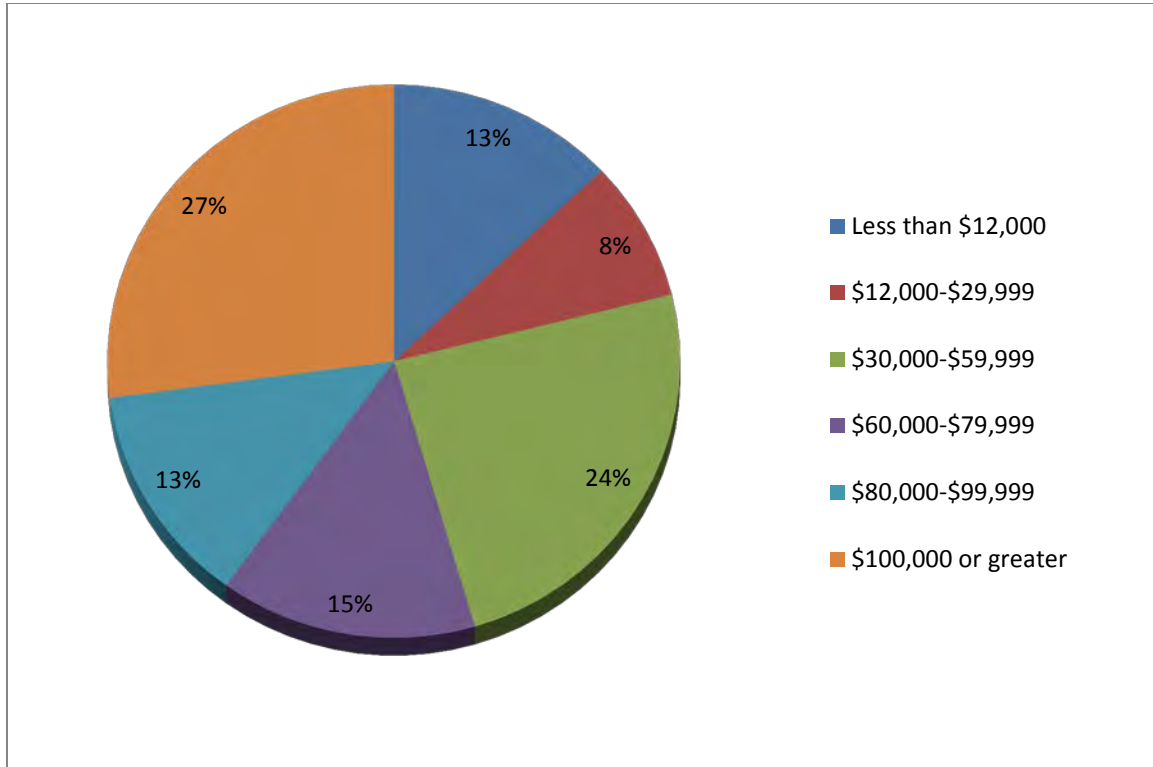
14. What is your race/ethnicity?



Answer Options	Response (%)	Response Count
White	65.4	191
Black/African American	27.7	81
Chinese	0.0	0
Vietnamese	0.3	1
Korean	0.0	0
American Indian/Alaskan Native	1.0	3
Native Hawaiian/Pacific Islander	0.0	0
Hispanic/Latino	5.5	16

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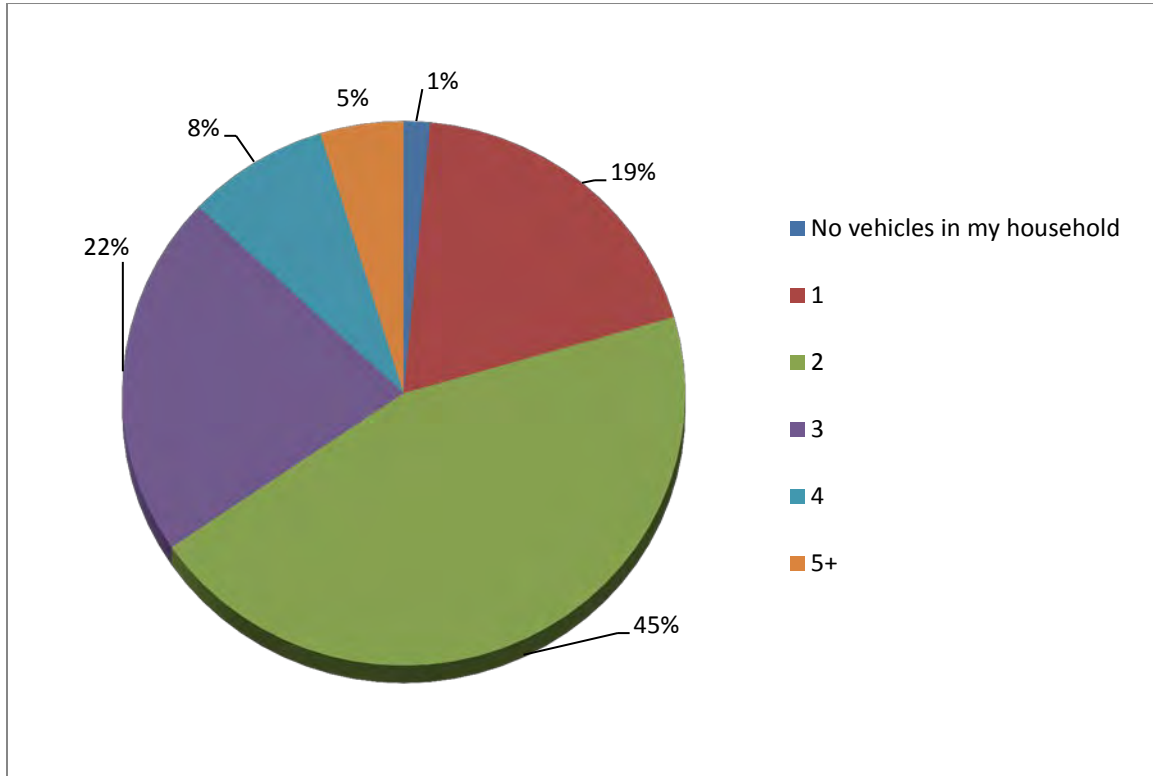
15. What is your annual household income?



Answer Options	Response (%)	Response Count
Less than \$12,000	12.9%	33
\$12,000-\$29,999	8.2%	21
\$30,000-\$59,999	24.3%	62
\$60,000-\$79,999	14.5%	37
\$80,000-\$99,999	12.9%	33
\$100,000 or greater	27.1%	69

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16. How many vehicles are in your household (automobiles, vans, motorcycles/scooters)?



Answer Options	Response (%)	Response Count
No vehicles in my household	1.5	4
1	19.0	51
2	45.0	121
3	21.6	58
4	8.2	22
5+	4.8	13

Summary of Responses

The results of the Public Survey are consistent with feedback received from Stakeholders, attendees at public outreach events, and public meetings. While the summary data does allow for a more in-depth analysis of the respondents, a brief overview of responses shows the following key data points:

- The majority of respondents both live (77 percent) and work (89 percent) within the two major populated zip codes in the Goldsboro Urban Area – 27530 and 27534 – showing that few respondents travel outside of the urban area to work or school.
- The majority of respondents travel by automobile, with smaller percentages walking, using public transit, or bicycling.
- A large majority of respondents (62 percent) are pleased with their transportation choice, of those not pleased transit, bicycling and train are the most commonly desired alternatives.
- Most respondents commute between five and ten miles (35 percent), followed by those commuting more than ten miles (30 percent) and those commuting between one and five miles (28 percent). Fewer than seven percent of respondents commute less than one mile.
- The most commonly selected trip duration is between ten and 20 minutes, followed by those commuting between five and ten minutes, combining to comprise over 70 percent of responses. Only three percent of respondents commute more than one hour.
- Not surprisingly, a large majority (77 percent) of respondents travel via single-occupant vehicle. Those carrying a single passenger comprise 13 percent, two passengers six percent and less than four percent carry three or more passengers.
- Most respondents do not have school-aged children (68 percent). Of those having school-aged children, 16 percent use an automobile and 11 percent use the school bus as the prime means of school transportation – 55 percent are pleased with the current school transportation choice while eight percent wish their children could ride public transit and four percent wish they could bicycle.
- Most frequently mentioned locations for traffic problems included Berkeley Boulevard, Wayne Memorial Drive, US 70 and their intersections. Congestion, at 13 percent, ranked slightly above those respondents who do not feel that there are specific traffic problems (ten percent). Signal Timing and Enforcement, Roadway Constraints and Operations, and inadequate alternative transportation facilities (transit, bicycle, and sidewalks) ranked slightly higher than Maintenance Needs (three percent).
- Most respondents are satisfied or neutral regarding transportation in their community while those dissatisfied most commonly cited bicycle facilities, sidewalks and recreation trails, mode choice, and traffic conditions. Roadway maintenance, more sidewalks, bicycle lanes and paths, and reducing traffic congestion were rated as the

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highest investment priorities; Carpool/Vanpool/Park N Ride Facilities and Public transportation were rated as the lowest investment priorities.

- Respondents generally reflected the demographic profiles of the area in age, race, and income with slightly lower participation from minority populations and slightly higher income percentages represented.

Stakeholder and Public Survey Responses – Similarities and Differences

The Stakeholder and Public surveys were each designed to reach a specific group of respondents, so there was not much overlap in the questions or in the purpose of the surveys. The Stakeholder Survey generally polled information related to long range planning and funding priorities, while the Public Survey generally queried more immediate transportation challenges. As such, survey responses show few similarities. However, taking a larger view of the two surveys and the gathered responses, some themes do emerge. They are:

- Both groups reflect a desire to improve the transportation infrastructure in both the near and longer terms, including operational improvements, maintenance and additional roadway improvements.
- Stakeholder responses tend to reflect a desire to improve the region's transportation system in order to assist the Goldsboro Urban Area in becoming more regionally accessible, more economically competitive, and more attractive for job creation. Public responses tend to focus more on day-to-day issues such as maintenance, congestion, mode choice, and infrastructure enhancements.
- Public responses reflect a desire for a more balanced transportation system, including additional/improved transit service, more sidewalks and pedestrian facilities, and the addition of bicycle facilities for both commuting and recreation. Stakeholder responses largely reflect a desire to invest in roads, interstate, and maintenance of existing roadways.
- Stakeholder and Public responses showed commonalities in the location of, and desire to improve, local congestion hotspots and infrastructure deficiencies. Wayne Memorial Drive, Central Heights Road, and Berkeley Boulevard were among the top locations identified.

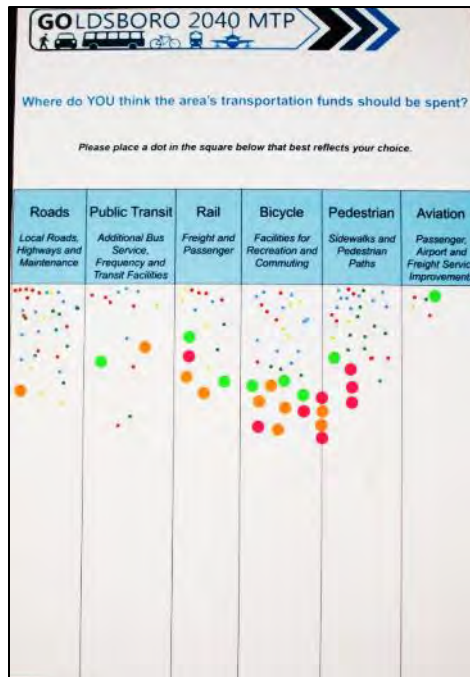
Mode and Funding Ad Hoc Poll

The public outreach process also provided the public with the opportunity to express their preferences with regard to specific transportation modes and funding sources. Two display boards were produced and displayed at public outreach events that asked attendees to:

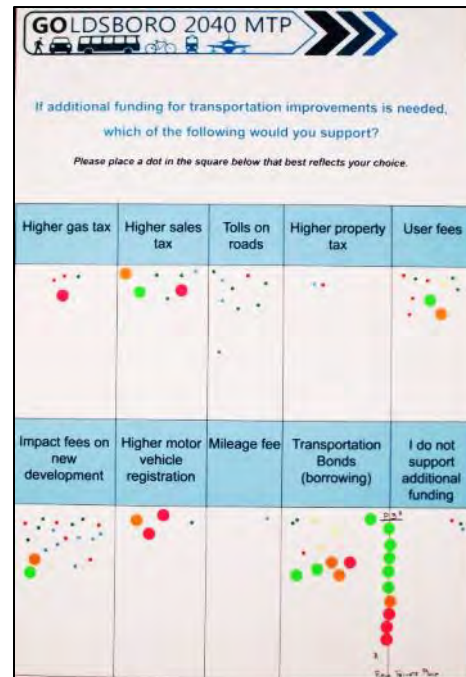
- Where should the area's transportation funds be spent?
- What additional funding sources would be supported?

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Responses were received at the various outreach events. The informational boards and the financial poll presented at the public outreach events are illustrated below.



Mode Choice Poll Source: URS



Funding Source Poll

Source: URS

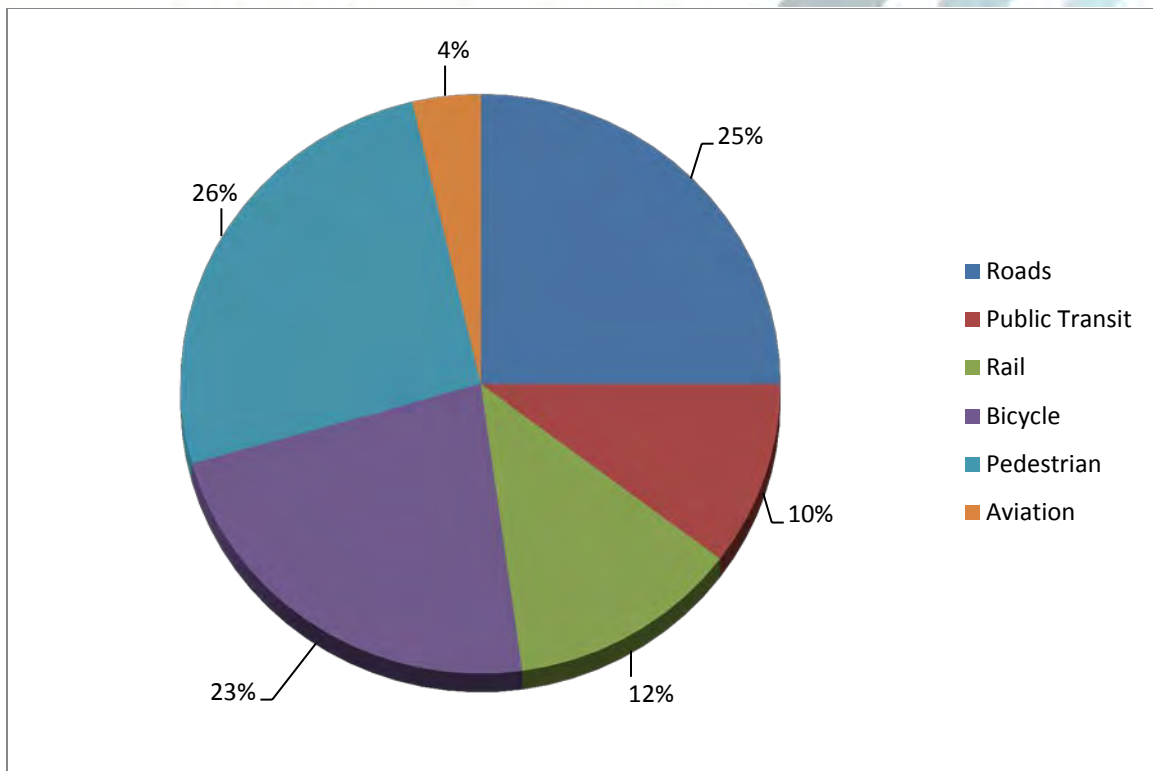
Results

The following is a summary of the Financial Poll responses:

Mode Choice Poll

A narrow majority of respondents felt that the area's transportation funds should be spent on pedestrian facilities (sidewalks and pedestrian paths), followed closely by those selecting roads (local roads, highways and maintenance) and bicycle (facilities for recreation and commuting) for funding. Aviation (passenger, airport and freight service improvements) was the option least selected, with rail (freight and passenger) and transit (additional bus service, frequency and transit facilities) scoring in the middle of the range.

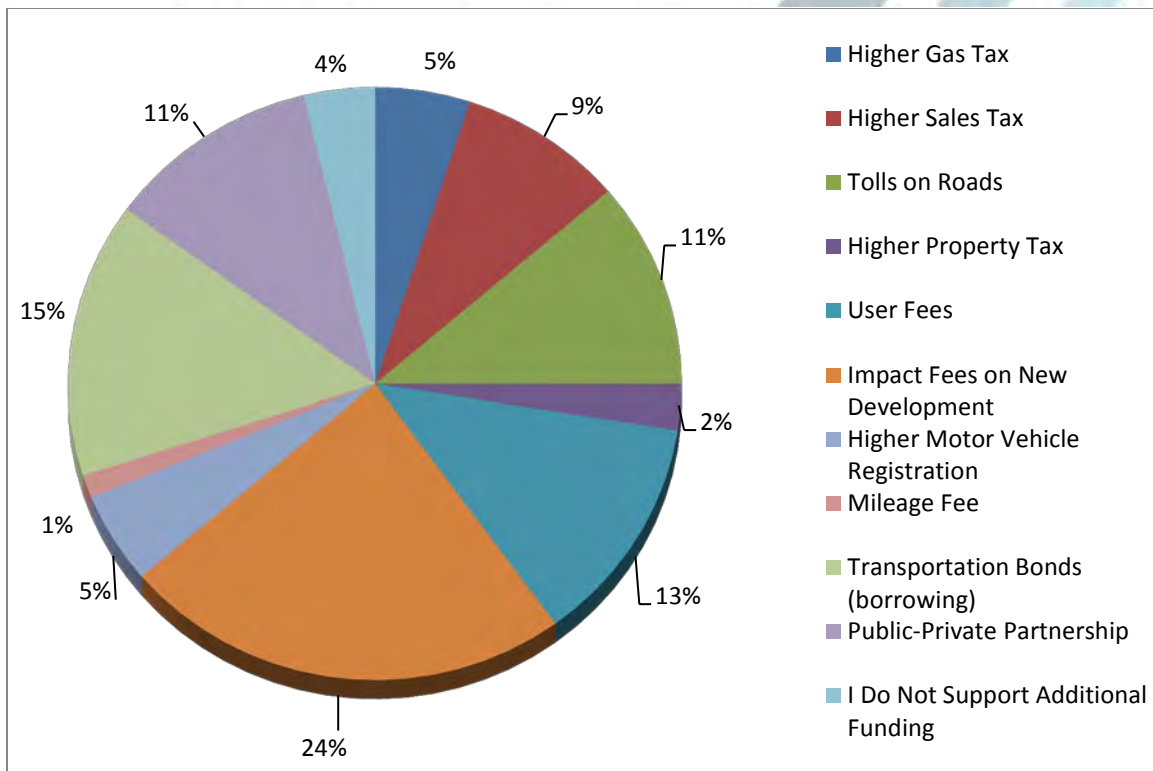
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[Funding Source Poll](#)

Not surprisingly, respondents largely selected funding sources that did not have direct impact upon their personal finances. Impact Fees on New Development was the option most selected, followed by User Fees and Transportation Bonds – these three options comprising over 50 percent of responses received. The Public-Private Partnership option, which resulted from discussions with respondents during the June 24, 2014 public meeting, garnered 11 percent of the results. Had this option existed throughout the duration of the ad hoc poll it is may have emerged as the most selected option. Tolls on Roads also received 11 percent of the responses, while increases in property tax, sales tax, motor vehicle registration, or mileage fee were the least popular choices. Only four percent of respondents did not support additional funding.

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Public Participation Activities

Online & Social Media Activities

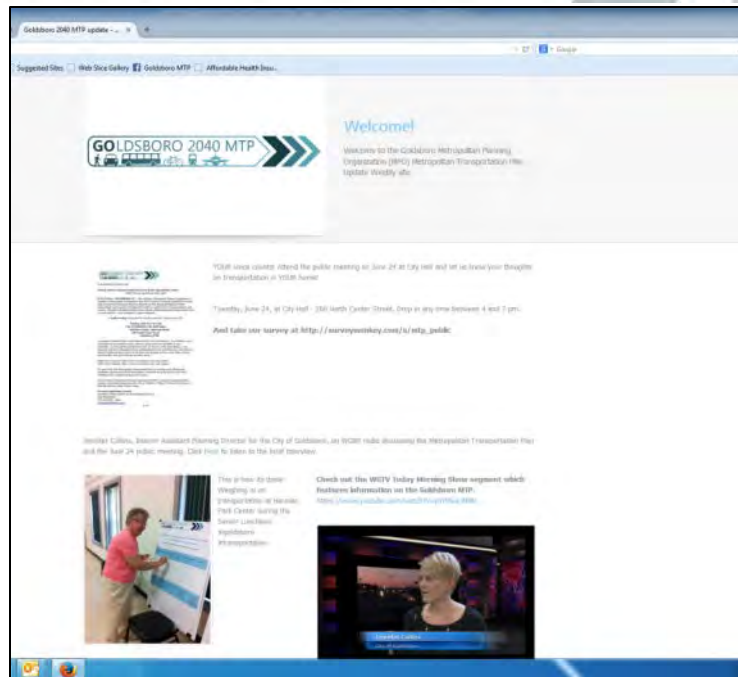
Weebly Website

A project website was prepared using the online Weebly platform. The Weebly site was created for the purposes of providing an additional resource to the public to educate, inform, and solicit comments from website viewers. The website contains information about the 2040 GMTP study, a link to the WGTV Morning Show interview with project staff, links to project social media sites, and a link to the online survey.

The website was periodically updated to include information on upcoming public meetings, public meeting materials, and other pertinent information. Over the duration of the site's existence, there were 138 unique visits and 143 page views.

The project website url address was: <http://goldsbormtp.weebly.com/>

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Facebook

A Facebook page was created for the project in order to provide information to the public and engage Facebook users in the 2040 GMTP study process. The page, as a companion to the Weebly website, contains study information, a link to the Morning Show interview, links to other project social media sites, and a link to the online survey.

The Facebook page is periodically updated to include information on upcoming public events, outreach activities, public meeting materials, and other pertinent information. Over the course of the existence of the Facebook page, there were over 70 posts and 31 “Likes”, with the page’s content being displayed nearly 10,000 times across Facebook. .

The project Facebook page can be accessed at: <https://www.facebook.com/Goldsboro-MTP>.

Project stakeholders “liked” the Facebook page, including Wayne County, Wayne County Chamber of Commerce, Goldsboro YMCA, and numerous other individuals and organizations.

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Twitter

A Twitter account was created for the project to complement the project website and Facebook efforts. Through the Twitter account, the project team was able to provide study information, survey links, and notice of upcoming public events to a wide variety of “followers.”

Tweets are sent out to followers on a periodic basis and include information on upcoming public events, outreach activities, public meeting materials, and other pertinent information. Over the course of the existence of the Twitter page, there were over 73 tweets, seven “followers” and five retweets.

The project Twitter page can be accessed at: <https://twitter.com/GoldsboroMTP>

QR Code Cards

A business card sized handout was created to include a brief summary of the 2040 GMTP project on the front of the card and QR (Quick Response) code links to the online surveys on the reverse side. QR codes are graphic representations of a specific website url address and, when scanned with a smart phone application, direct users to the website coded into the QR graphic. QR codes for both the English and Spanish surveys were included on the business card handout which is shown below. This QR code handout was distributed during the duration of the public outreach efforts.

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Stakeholder Email

A series of emails were sent out to project stakeholders encouraging them to share study information and the online survey link within their constituent organizations. These emails were sent to the Project Steering Committee members, area resource stakeholders, survey respondents, civic and fraternal organizations, women-/minority-owned businesses within Wayne County, totaling over 300 recipients. Many of the recipients were sent follow up email messages.

Wayne County Chamber of Commerce

The Wayne County Chamber of Commerce supported the outreach effort through sharing GMTP information via their social media and email networks. The Chamber “liked” the GMTP Facebook page and became a “follower” of the project’s Twitter feed, as well as adding the project survey link and news of the June 24, 2014 public meeting to the Chamber Facebook pages. In addition, an email containing the online survey link was sent to the 1,987 Chamber members.

Broadcast, Online & Print Media Activities

WGTV10 Morning Show Interview

From the City of Goldsboro website: “Wayne Goldsboro Television is a local community governmental daily show that showcases city and county services, Community Events and Activities. WGTV TODAY is a daily show, co-produced by the City of Goldsboro and Wayne County, which began airing on September 1, 2012 on local Time Warner Cable Channel 10 and AT&T Channel 99. WGTV Today will feature live and pre-taped segments highlighting various county and city departments, services as well as community highlights. The creation and development of this show is an example of the city and county partnership, sharing information, and show casing many of the positive activities in our community. We hope our citizens enjoy the information and people presented each day.”

The GMTP Team participated in the April 8, 2014 edition of the WGTV 10 Morning Show in order to educate viewers on the purpose of the study and the role of the public in the decision making process. A project team member explained the GMTP process, the goals and objectives of the study, and notified viewers of the online survey and the team’s attendance at the then-upcoming Pig in the Park event on April 12, 2014.

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Links to the Morning Show edition were added to the project Facebook, Weebly, and Twitter sites. As of the date of the writing of this report, there have been 195 views of this Morning Show edition via the city's YouTube page.

The GMTP Team again participated in the Morning Show on June 11, 2014, which aired on June 20, 2014. A project team member provided a brief update on the GMTP process, provided links to the online survey and provided information about the public meeting on June 24, 2014 at City Hall in Goldsboro.

WGBR Radio Interview

On June 16, 2014, Jennifer Collins, City of Goldsboro Interim Assistant Planning Director, participated in an interview for WGBR radio. The interview, which aired during normal daily broadcasts on June 17, 20 and 23, 2014, informed listeners of the 2040 GMTP process, the online survey, and the June 24, 2014 public meeting. The news segment was also added to the project website, Facebook page, and Twitter feeds.

Wayne County Government Employee Newsletter

Through a partnership with the Wayne County Public Information Office, the online survey link was published in the Wayne County Government Employee Newsletter throughout May and June of 2014.

Public Events

Project Kick-Off Public Meeting

A Project Kick-off Public Meeting was held on Thursday, April 17, 2014 from 4-7 pm at the Boys & Girls Club of Wayne County, located at 1401 Royall Avenue in Goldsboro. The purpose of the meeting was to provide attendees with background information on the study, its purpose, and goals and objectives – as well as the opportunity to complete a project survey. Valuable comments were collected from attendees and a number of surveys were completed.



Project Kick-Off Public Meeting



Source: URS

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Public Meeting #2

Public Meeting #2 was held on Tuesday, June 24, 2014 from 4 to 7 pm at the Goldsboro City Hall, City Hall Annex 2nd Floor Large Conference Room, 200 North Center Street in Goldsboro. Participants viewed maps of current traffic volumes, crash analysis data, and an area map illustrating projects being considered in the 2040 GMTP. Attendees were given a form which allowed them to note the top five projects they felt should receive priority in the 2040 GMTP. In addition, attendees were given a survey form, a Title VI form, and asked to participate in the ad hoc survey (financial poll) presented at other GMTP public outreach events. Twenty-seven people attended the meeting and 19 surveys and 13 comment sheets were completed. Twenty-six people participated in the mode and funding ad hoc poll. Comments received during the meeting mirrored those collected throughout the public outreach efforts with common themes including improvements to, and addition of, pedestrian and bicycle facilities; addressing congestion and maintenance needs; improvements to Wayne Memorial Drive, Central Heights Avenue, Berkeley Boulevard and US 70; and investing in passenger rail and transit.



Public Meeting #2

Source: URS

Pig in the Park

On Saturday, April 12, 2014, the project team attended the annual Pig in the Park event at Old Waynesborough in Goldsboro. During the event, the team staffed an information booth in order to provide study information, invite participation in an ad hoc survey, and encourage completion of the

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GMTP project survey. The event was successful, as over 40 surveys were completed during the Pig in the Park event.



Pig in the Park



Source: URS

Senior Luncheon

On Wednesday, June 11, 2014, a project team representative attended the Goldsboro Senior Luncheon at the Herman Park Center. Approximately 30 surveys were filled out during the event and 50 attendees participated in the mode and funding ad hoc survey.

Center Street Jam

On Thursday, June 12, 2014 surveys were conducted during the Center Street Jam event in downtown Goldsboro. Approximately four surveys were completed during this event.

GATEWAY (Goldsboro-Wayne Transit Authority)

On Wednesday, June 18, 2014 members of the Goldsboro-Wayne Transit Authority conducted surveys at the Department of Health and Human Services Health and Wellness Fair. Approximately 20 surveys were completed during this event.

On June 24, 2014 project team members staffed an information booth at the Goldsboro-Wayne Transit Authority Transfer Center during the peak activity between 9:00 am and 12:30 pm. During this event, approximately 40 surveys were completed.



Senior Luncheon Source: URS

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Title VI Community Outreach

As an effort to engage the Hispanic community in the 2040 GMTP community outreach efforts, a quarter-page newspaper advertisement for the June 24, 2014 public meeting was placed in the June 18, 2014 edition of the Spanish-language newspaper, La Conexión. In addition, a link to the Spanish-language online survey was placed on La Conexión's social media sites and in the online edition of the newspaper.



Wayne Community College

Wayne Community College's English as a Second Language (ESL) Coordinator, Maria Abalo-Zarate, was the school's Spanish-language liaison for the 2040 GMTP. The team provided Ms. Abalo-Zarate with a link to the online Spanish-language survey, a hard copy of the Spanish-language survey, and a copy of the news release for the June 24, 2014, public meeting. This information was shared with students and faculty within Wayne Community College, specifically those students and faculty within the ESL program. As a result, seven surveys were completed.

North Carolina Cooperative Extension Service (NES)

Michelle Estrada, Parents as Teachers Educator with the Wayne Center, the Goldsboro-based location of the North Carolina Cooperative Extension for North Carolina State University/North Carolina A&T State University, was an additional Spanish-language liaison for the 2040 GMTP. The team provided Ms. Estrada with a link to the online Spanish-language survey, a hard copy of the Spanish-language survey, and a copy of the news release for the June 24, 2014, public meeting. This information was shared with families participating in the NES program in the Goldsboro Urban Area, as well as with those families who attend regular meetings of the local NES. As a result, 17 surveys were completed.

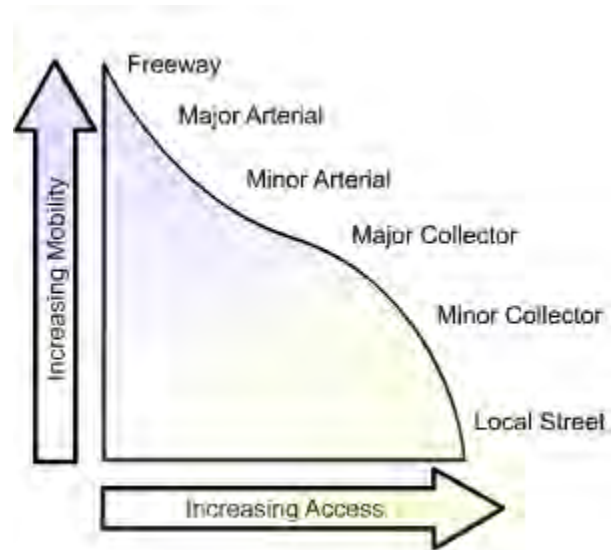
Appendix B: Transportation Planning Toolkit

The transportation planning toolkit includes specific elements that may be utilized to help strengthen the multi-modal network and assist in maximizing its efficiency. This appendix is organized into sections as follows:

- Access management
- Street Realms
- Corridors and Solutions
- Street Cross-Sections
- Bicycle and Pedestrian Facility and Program Opportunities

Access Management

Access management as defined by the FHWA is "the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good access management promotes safe and efficient use of the transportation network. Access Management encompasses a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways. These techniques include: Access Spacing, Driveway Spacing, Safe Turning Lanes, Median Treatments and Right-of-Way Management. Access Management provides an important means of maintaining mobility. It calls for effective ingress and egress to a facility, efficient spacing and design to preserve the functional integrity, and overall operational viability of street and road systems."



Source: USDOT FHWA

Access management works best when there is cooperation between government agencies and private land owners, and is achieved through the application of planning, regulatory, and design strategies.

Protecting the through trip capacity of a region's most traveled corridors is essential for the efficiency of the transportation system and continued economic growth. Access management balances the needs of motorists using a roadway with the needs of adjacent property owners dependent upon access to the roadway. Given the increasing pressure to stretch our transportation dollars, access

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management is not only a good policy directive, but is essential to ensuring the reliability of the entire transportation network.

Access Management Overview

Poor access management directly affects the livability and economic vitality of commercial corridors, ultimately discouraging potential customers from entering the area. A corridor with poor access management lengthens commute times, creates unsafe conditions, lowers fuel efficiency, and increases vehicle emissions. Signs of a corridor with poor access management include:

- Increased crashes between motorists, pedestrians, and cyclists
- Declining efficiency of the roadway
- Congestion outpacing growth in traffic
- Spillover cut-through traffic on adjacent residential streets
- Limited sustainability of commercial development

Without access management, the function and character of major roadway corridors can deteriorate rapidly and adjacent properties can suffer from declining property values and high turnover. Access management has wide-ranging benefits to a variety of users as shown in Table B-1.

Table B-1: Benefits of Corridor Access Management

User	Benefit
Motorists	Fewer delays and reduced travel times Safer travelling conditions
Bicyclists	Safer travelling conditions More predictable motorist movements More options in a connected street network
Pedestrians	Fewer access points and median refuges increase safety More pleasant walking environment
Transit Users	Fewer delays and reduced travel times Safer, more convenient trips to and from transit stops in a connected street and sidewalk network
Freight	Fewer delays and reduced travel times lower cost of delivering goods and services
Business Owners	More efficient roadway system serves local and regional customers More pleasant roadway corridor attracts customers Improved corridor aesthetics Stable property values
Government Agencies	Lower costs to achieve transportation goals and objectives Protection of long-term investment in transportation infrastructure
Communities	More attractive, efficient roadways without the need for constant road widening

As development continues along Goldsboro's most heavily traveled corridors, protecting the through capacity will be important for the well-being of the transportation system and economic vitality of the region. Without access management, the function and character of major roadway corridors (such as Berkeley Boulevard, Ash Street, and Wayne Memorial Boulevard) can deteriorate rapidly and adjacent properties can suffer from declining property values and high turnover.

Access Management Strategy Toolkit

Access management is not a one-size fits all solution to corridor congestion. Successful strategies will differ throughout the Goldsboro Urban Area. In fact, strategies will differ even along the same road. The following provides a general overview of the various strategies available to mitigate congestion and its effects. A comprehensive access management program includes



Multiple driveways in close proximity along Berkeley Blvd.
Source: URS

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regular evaluation methods and supports the efficient and safe use of the corridors for all transportation modes. The purpose of the toolkit is to provide local engineering and planning officials with access management strategies as well as an overview of their application, use, and in some cases unit costs.

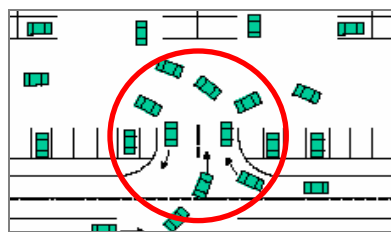
Access and Driveway Spacing

Improvements that reduce the total number of vehicle conflicts should be a key consideration during the approval of redeveloped sites along corridors identified for access management programs. Site Access Treatments include the following:

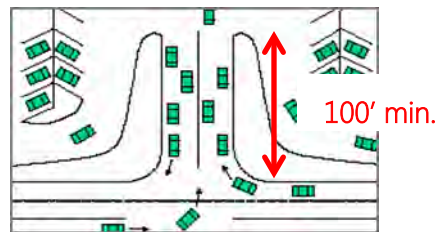
- On-Site Traffic Circulation Improvements
- Limitation on Number of Driveways
- Proper Driveway Placement/Relocation
- Cross Access

Improved On-Site Traffic Circulation

One way to reduce traffic congestion is to promote on-site traffic circulation. Extending the throat of an entrance further into the property, as shown in the illustrations below, helps to avoid cars stacking backup onto the arterial (also referred to as spillback). A longer internal driveway improves both the safety and efficiency of the roadway. A minimum separation of 100 feet should be provided to prevent internal site operations from affecting an adjacent public street, ultimately causing spillback problems. Approximate construction cost varies and usually is the responsibility of private development.



Driveway Throat Before



Driveway Throat After

Source: GMPO

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Number of Driveways

In consultation with local fire/rescue officials, only the minimum number of connections necessary to provide reasonable and safe access should be permitted. For those situations where outparcels are under separate ownership, easements for shared access can be used to reduce the number of necessary connections. Reducing the number of access points also decreases the number of conflict points, making the arterial safer and more efficient. Approximate construction cost varies and is usually the responsibility of private development.



Cross Access Opportunity
Source: GMPO

Driveway Placement/Relocation

Driveways located close to intersections create and contribute to operational and safety issues. These issues include intersection and driveway blockages, increased points of conflict, frequent/unexpected stops in the through travel lanes, and driver confusion as to where vehicles are turning. Driveways close to intersections should be relocated or closed, as appropriate. As a best planning practice, no driveway should be allowed within 100 feet of the nearest intersection.

Cross Access

Cross access is a service drive or secondary roadway that provides vehicular access between two or more continuous properties. Such access prevents the driver from having to enter the public street system to travel between adjacent uses. Cross access can be a function of good internal traffic circulation at large developments with substantial frontage along a major roadway. Similarly, rear access occurs when a parcel has access to a parallel street behind buildings and away from the main line. When combined with a median treatment, cross access and rear access ensure that all parcels have access to a median opening or traffic signal for left-turn movements.

Median Treatments and Safe Turning Lanes

Segments of a corridor with sufficient cross access, rear access, and on-site circulation may be candidates for median treatments. A median-divided roadway improves traffic flow, reduces congestion, and increases traffic safety — all important goals of access management. While medians restrict some left-turn movements, overall traffic delays are reduced by removing conflicting vehicles from the mainline. Landscaping and gateway features incorporated into median treatments improve the aesthetics of the corridor, in turn encouraging investment in the area. Median treatments include the following:

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- Non-Traversable Median
- Median U-Turn Treatment
- Directional Cross (Left-Over Crossing)
- Left-Turn Storage Bays
- Offset Left-Turn Treatment

Non-Traversable Median

These features are raised or depressed barriers that physically separate opposing traffic flows. Inclusion in a new cross-section or retrofit of an existing cross-section should be considered for multi-lane roadways with high pedestrian volumes or collision rates as well as in locations where aesthetics are a priority. A non-traversable median requires sufficient cross and rear access. As these treatments are considered, sufficient spacing and locations for U- and left-turn bays must be identified.



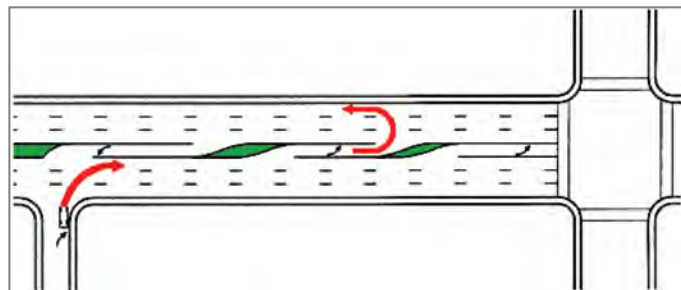
Non-Traversable Median

Source: Google Maps

The advantage of non-traversable medians include increased safety and capacity by separating opposing vehicle flows, providing space for pedestrians to find refuge, and restricting turning movements to locations with appropriate turn lanes. Disadvantages include increased emergency vehicle response time (indirect routes to some destinations), inconvenience, increased travel distance for some movements, and potential opposition from the general public and affected property owners. To overcome some of these disadvantages, sufficient spacing and location of U- and left-turn bays must be identified. Approximate construction cost varies.

Median U-Turn Treatment

These treatments involve prohibiting or preventing minor street or driveway left turns between signalized intersections. Instead, these turns are made by first making a right turn and then making a U-turn at a nearby median opening or intersection. These treatments can increase safety and efficiency of roadway corridors with high volumes of through traffic, but should not be used where there is not sufficient space available for the provision of U-turn movements. The location of U-turn bays must consider weaving distance, but also not contribute to excessive travel distance.



Median U-Turn Treatment

Source: GMPO

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Advantages of median U-turn treatments include reduced delay for major intersection movements, potential for better two-way traffic progression (major and minor streets), fewer stops for through traffic, and fewer points of conflict for pedestrians and vehicles at intersections. Disadvantages include increased delay for some turning movements, increased travel distance, increased travel time for minor street left turns, and increased driver confusion. Approximate construction cost is \$50,000 to \$60,000 per median opening.

Directional Crossover (Left-Over Crossing)

When a median exists on a corridor, special attention must be given to locations where left turns are necessary. A left-over is a type of directional crossover that prohibits drivers on the cross road (side street) from proceeding straight through the intersection with the main road, but allows vehicles on the mainline to turn left onto the cross road. Such designs are appropriate in areas with high traffic volumes on the major road and lower volumes of through traffic on the cross road, particularly where traffic needs to make left turns from the main line onto the minor street. A properly implemented left-over crossing reduces delay for through-traffic and diverts some left-turn maneuvers from intersections. By reducing the number of conflict points for vehicles along the corridor, these treatments improve safety.



Directional Crossover

Source: Google Maps

Where necessary, exclusive left-turn lanes/bays should be constructed to provide adequate storage space exclusive of through traffic for turning vehicles. The provision of these bays reduces vehicle delay related to waiting for vehicles to turn and also may decrease the frequency of collisions attributable to lane blockages. In some cases, turn lanes/bays can be constructed within an existing median. Where additional right-of-way is required, construction may be more costly.

Left-Turn Storage Bays

Where necessary, exclusive left-turn lanes/bays should be constructed to provide adequate storage space exclusive of through traffic for turning vehicles. The provision of these bays reduces vehicle delay related to waiting for vehicles to turn and also may decrease the frequency of collisions attributable to lane blockages. In some cases, turn lanes/bays can be constructed within an existing median. Where additional right-of-way is required, construction may be more costly.

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Offset Left-Turn Treatment

Exclusive left-turn lanes at intersections generally are configured to the right of one another, which causes opposing left-turning vehicles to block one another's forward visibility. An offset left-turn treatment shifts the left-turn lanes to the left, adjacent to the innermost lane of oncoming through traffic. In cases where permissive left-turn phasing is used, this treatment can improve efficiency by reducing crossing and exposure time and distance for left-turning vehicles. In addition, the positive offset improves sight distance and may improve gap recognition. In locations with sufficient median width, this treatment can be easily retrofitted. Where insufficient right-of-way width exists, the construction of this treatment can be difficult and costly. As a result, approximate construction costs vary.



Offset Left-Turn Treatment

Source: Google

Intersection and Minor Street Treatments

The operation of signalized intersections can be improved by reducing driver confusion, establishing proper curb radii, and ensuring adequate lanes at minor street approaches. Intersection and minor street treatments include the following:

- Skip Marks (Dotted Line Markings)
- Intersection and Driveway Curb Radii
- Minor Street Approach Improvements

Skip Marks (Dotted Line Markings)

These pavement markings can reduce driver confusion and increase safety by guiding drivers through complex intersections. Intersections that benefit from these lane markings include offset, skewed, or multi-legged intersections. Skip marks are also useful at intersections with multiple turn lanes. The dotted line markings extend the line markings of approaching roadways through the intersection. The markings should be designed to avoid confusing drivers in adjacent or opposing lanes.

Intersection and Driveway Curb Radii

Locations with inadequate curb radii may cause turning vehicles to use opposing travel lanes to complete their turning movement. Inadequate curb radii may cause vehicles to "mount the curb" as they turn a corner and cause damage to the curb and gutter, sidewalk, and any fixed objects located on the corner. This maneuver also can endanger pedestrians standing on the corner. Curb radii should be adequately sized for area context and likely vehicular usage.

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Minor Street Approach Improvements

At signalized intersections, minor street vehicular volumes and associated delays may require that a disproportionate amount of green time be allocated to the minor street, contributing to higher-than-desired main street delay. With lane improvements to the minor street approaches, such as an additional left-turn lane or right-turn lane, signal timing often can be re-allocated and optimized.

One-Way Frontage Roads

Many older major roadway corridors have two-way service roads along both sides of the street. Converting these service roads to one-way with slip ramps has the potential to improve their safety and efficiency — decreasing the number of intersection conflict points from 96 (two-way) to 36 (one-way) at minor road intersections and also reducing confusion at intersections.

Intelligent Transportation System

ITS have many potential benefits when implemented in concert with an overall transportation management strategy. ITS solutions use communications and computer technology to manage traffic flow in an effort to reduce crashes, mitigate environmental impacts such as fuel consumption and emissions, and reduce congestion from normal and unexpected delays. Successful systems include a variety of solutions that provide surveillance capabilities, remote control of signal systems components, seamless sharing of traveler information with the public, and even allow emergency vehicles to have priority to proceed safely through signalized intersections. ITS include the following:

- Signalization
- Progressive-Controlled Signal System
- Dynamic Message Signs
- Closed Circuit Television Traffic Monitoring
- Emergency Vehicle Preemption

Signalization

The volume of traffic attracted to some side streets or site driveways is more than can be accommodated acceptably under an unsignalized condition. Delays for minor street movements as well as left-turn movements on the main street may create or contribute to undue delays on the major roadway and numerous safety issues. The installation of a traffic signal at appropriate locations can mitigate these types of issues without adversely affecting the operation of the major roadway provided they are spaced appropriately.



N. James Street

Source: URS

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Progressive-Controlled Signal System

A progressive-controlled signal system coordinates the traffic signals along a corridor to allow vehicles to move through multiple signals without stopping. Traffic signals are spaced appropriately and synchronized so when a vehicle is released from one intersection the signal at the next intersection will be green by the time the vehicle reaches it.

Likewise, adaptive signal control involves continuously collecting automated intersection traffic volumes and using the volumes to alter signal timing and phasing to best accommodate actual — real-time — traffic volumes. Adaptive signal control can increase isolated intersection capacity as well as improve overall corridor mobility by up to 20 percent during off-peak periods and up to 10 percent during peak periods. Approximate construction cost is \$250,000 per system and \$10,000 to \$30,000 per intersection in addition to 25% of capital costs in training and such.

Dynamic Message Signs (DMS)

Dynamic Message Signs (also referred to as variable, changeable or electronic message signs) alert vehicles of congestion or incidents. DMS units give general alerts, such as “congestion ahead” or specific details on the location of the incident or predicted travel times so motorists can mentally prepare. Often, drivers are more patient if they can anticipate how long the delay will be or how far the congestion spreads. Perhaps most importantly, DMS informs drivers who can choose alternate travel routes during heavy congestion, thereby reducing the volume on the freeway, the likelihood of additional incidents, and the average travel time for the system as a whole.

Closed Circuit Television Traffic Monitoring

Closed Circuit Television (CCTV) cameras are primarily used on interstate facilities and major arterials to provide visual traffic volume and flow information to traffic management or monitoring centers. These centers use this information to deploy incident response patrols/equipment and to provide roadway travel delay information to motorists. By having visual roadway information, traffic management centers are able to identify incidents quickly and respond appropriately and efficiently, helping to reduce the effect of incidents on a single location or on multiple roadways.

Emergency Vehicle Preemption

This strategy involves an oncoming emergency or other suitably equipped vehicle changing the indication of a traffic signal to green to favor the direction of desired travel. Preemption improves emergency vehicle response time, reduces vehicular lane and roadway blockages, and improves the safety of the responders by stopping conflicting movements.

Corridors and Solutions

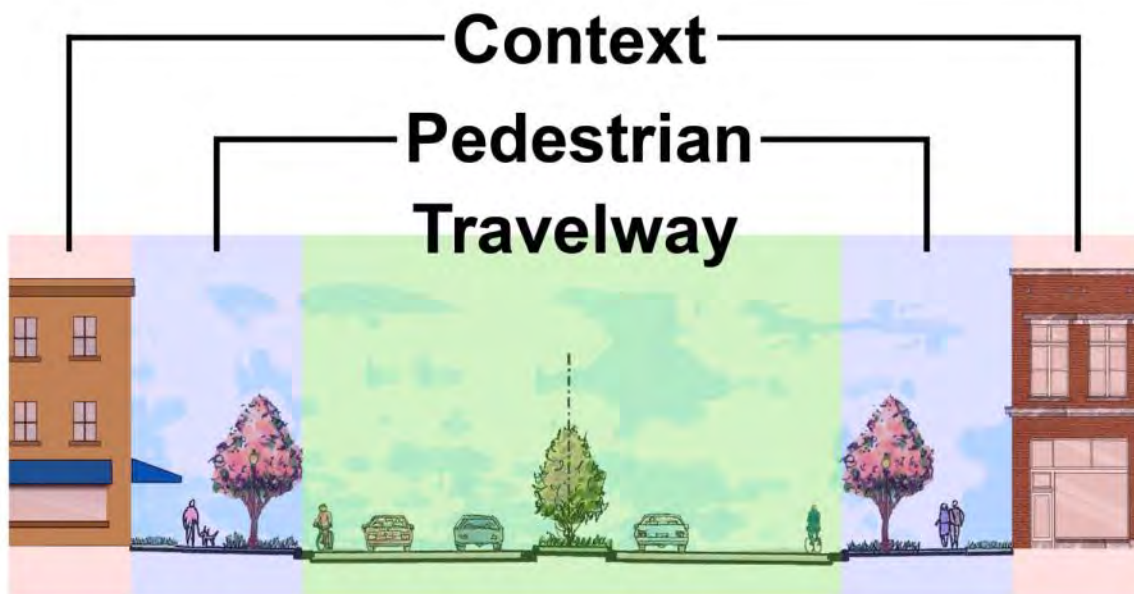
While acknowledging some access management strategies are better suited to one corridor type than another, Table B-2 lists four popular cross sections with local examples and potential access management strategies for each corridor type.

Table B-2: Types of Corridors and Potential Solutions		
Cross Section	Access Management Strategy	
Five Lanes (Predominantly Retail Land Uses) Local Example: <ul style="list-style-type: none"> Berkeley Boulevard Wayne Memorial Drive Spence Avenue 	<ul style="list-style-type: none"> Adaptive signal control Median u-turn treatment Non-traversable median treatment Offset left turn treatment Intersection and driveway curb radii Left-turn storage bays 	<ul style="list-style-type: none"> Minor street approach improvements (left-turn land and right-turn lane) Emergency vehicle preemption Driveway throat length Consolidate driveways/ cross access Driveway placement/ relocation
Four-Lane Divided With Landscaped Median Local Example: <ul style="list-style-type: none"> Portions of US 117 	<ul style="list-style-type: none"> Adaptive signal control Median u-turn treatment Offset left turn treatment Intersection and driveway curb radii Minor street approach improvements (left-turn land and right-turn lane) Left turn storage bays 	<ul style="list-style-type: none"> Emergency vehicle preemption Driveway throat length Consolidate driveways/ cross access Driveway placement/ relocation Signalization (driveways)
Four-Lane Undivided Local Example: <ul style="list-style-type: none"> William Street East Ash Street 	<ul style="list-style-type: none"> Adaptive signal control Offset left turn treatment Intersection and driveway curb radii Minor street approach improvements (left-turn land and right-turn lane) Left turn storage bays 	<ul style="list-style-type: none"> Emergency vehicle preemption Driveway throat length Consolidate driveways/ cross access Driveway placement/ relocation Signalization (driveways)
Four-Lane with Service Roads and Partially Controlled Access Local Example: <ul style="list-style-type: none"> Portions of US 70 Bypass 	<ul style="list-style-type: none"> Adaptive signal control CCTV traffic monitoring Non-traversable median treatment 	<ul style="list-style-type: none"> One-way frontage road system with skip ramps Emergency vehicle preemption

Street Realms

The following sections include an overview of how four distinct street realms foster interaction between different modes of travel and adjacent land uses. Included in this discussion is how the built environment and the different ways people travel directly influence the livability of a corridor.

As described on the following pages, complete streets can be viewed in terms of four basic zones or realms: the **context**, **pedestrian**, **travelway**, and **intersection** realms.



Street Realms

Source: GMPO

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Context Realm

The context realm of a complete street is defined by the buildings that frame the major roadway. Identifying distinct qualities of the context realm requires focusing on four areas: building form and massing, architectural elements, transit integration, and site design. Consideration should be given to all of the following, with modifications as appropriate to fit the specific context of the area.

Building Form and Massing

To enhance an already high-quality street design and help create a complete street, new buildings should be located close enough to the street that they frame the public space enjoyed by pedestrians. In more urban areas, these buildings should be located directly behind the sidewalk. Buildings with stairs, stoops, or awnings may even encroach into the pedestrian realm to provide visual interest and access to the public space. Suburban environments that must incorporate setbacks for adjacent buildings should limit this distance to 20 feet or less and avoid off-street parking between buildings and the pedestrian realm.

Larger setbacks in these suburban areas will diminish the sense of enclosure afforded to the pedestrian and move access to the buildings farther away from the street. In both environments, new building heights should measure at least 25 percent of the corridor width. For example, a 100-foot wide roadway right-of-way should be framed by new buildings that are at least 25 feet high (a typical two-story building) on both sides with facades that are at most 20 feet from the edge of right-of-way.



Buildings tall enough to frame a corridor and give pedestrians a comfortable sense of enclosure measure at least 25% of the roadway right-of-way.

Source: GMPO

Architectural Elements

Careful placement and design of new buildings adjacent to the major roadway offer opportunities for meaningful interaction between those traveling along the corridor and those using the corridor for other purposes. These opportunities are greatly enhanced when restaurants, small shops and boutiques, residential units, and offices are located adjacent to the street. Building scale and design details incorporated into individual buildings foster a comfortable, engaging environment focused on the pedestrian. Common building design treatments generally favored in a pedestrian environment include



Building awnings, site furnishings and vegetation create a sense of place and create a comfortable streetscape.

Source: URS

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awnings, porches, balconies, stairs, stoops, windows, appropriate lighting, promenades, and opaque windows.

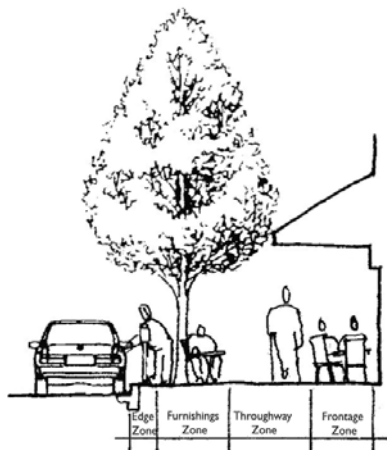
Transit Integration

Areas targeted for high-quality transit service must be supported through land use and zoning policies that support transit-oriented development and reflect the benefits of increased access to alternative modes of travel. Policy examples include appropriate densities and intensities for supporting transit use, parking ratios that reflect reduced reliance on the automobile, and setback and design guidelines that result in pedestrian-supportive urban design. In addition, potential transit service identified for transportation corridors within the community should consider the land use, density/intensity, and urban design characteristics of the surrounding environment before selecting proposed technologies or finalizing service plans.

Site Design

The complete street truly is integrated into the surrounding environment when the interface between the site and the street is complementary to the pedestrian environment created along the entire corridor. Access to the site should be controlled through a comprehensive access management program to minimize excessive driveways that create undesirable conflicts for traveling pedestrians. Buildings with entrances facing the street or nearby on the sides of buildings, further defined by interesting landscape and architectural elements incorporated into the entrance area, should reinforce a positive pedestrian experience. Public paths through sites should be provided to shorten blocks longer than 600 feet.

Pedestrian Realm



Source: GMPO

The pedestrian realm of a complete street extends between the outside edge of sidewalk and the face-of-curb located along the street. Safety and mobility for pedestrians within this realm relies on the presence of continuous sidewalks along both sides of the street built to a sufficient width for accommodating the street's needs as defined by the environment. For example, suburban settings will require different widths than downtown settings. The quality of the pedestrian realm also is greatly enhanced by the presence of high-quality buffers between pedestrians and moving traffic, safe and convenient opportunities to cross the street, and consideration for



Streetscape elements such as specialty paving, vegetation and site furnishings create visual interest and encourage pedestrian interaction.

Source: URS

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shade and lighting needs.

The pedestrian realm may consist of up to four distinct functional zones: frontage zone, throughway zone, furnishing zone, and edge zone. The frontage zone is located near the back of the sidewalk and varies in width to accommodate potential window shoppers, stairs, stoops, planters, marquees, outdoor displays, awnings, or café tables. The throughway zone provides clear space for pedestrians to move between destinations and varies between six and 16 feet wide, based on the anticipated demand for unimpeded walking areas. The furnishing zone provides a key buffer between pedestrians and moving traffic. It generally measures at least eight feet wide to accommodate street trees, planting strips, street furniture, utility poles, sign poles, signal and electrical cabinets, phone booths, fire hydrants, bicycle racks, or retail kiosks targeted for the pedestrian realm. The edge zone is incorporated into the pedestrian realm concurrent with the presence of on-street parking to allow sufficient room for opening car doors.

Incorporation of one or more of these function zones in the pedestrian realm of a street generally is based on the context of the surrounding built environment. For example, a more urban, downtown environment will include all four zones in the pedestrian realm and could measure up to 24 feet wide. The pedestrian network located in a more suburban setting may omit one or more of the function zones listed above, resulting in an overall minimum width of 11 feet.

Recommended design elements for promoting a healthy pedestrian realm generally focus on one of four areas of concentration: pedestrian mobility, quality buffers, vertical elements, and public open space.

Pedestrian Mobility

The presence of a comprehensive, continuous pedestrian network serves as the foundation for fostering a walkable community that supports active transportation and mode choice. Sidewalks generally provide clear zones of six to eight feet wide to accommodate pedestrian travel. In more urban environments, amenities in the frontage zone and furniture zone will greatly increase the overall width of the corridor when compared with more suburban settings. Mid-block pedestrian crosswalks should be incorporated into the urban fabric as needed to ensure convenient crossing opportunities are provided approximately every 300 feet for maximum efficiency and safety within the pedestrian system. As a general rule, mid-block crossings should be considered on two-lane urban streets when the block length is greater than 500 feet and the posted speed limit for the travel lanes does not exceed 40 miles per hour.

Quality Buffers

Providing separation between pedestrians and moving traffic greatly enhances the character of the pedestrian realm. The amount of separation incorporated into the pedestrian realm may vary based on the building context or on streets with different travel speed and/or traffic volume characteristics. In downtown areas, parallel or angled on-street parking provides sufficient distance (eight to 18 feet) for separating pedestrian and vehicle traffic. Likewise, landscape planting areas (typically five feet

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wide) incorporated into urban or suburban environments provide adequate lateral separation for pedestrians. In urban areas, street trees may be placed in tree wells within an overall hardscaping surface instead of using suburban-style grass areas.

Vertical Elements

Vertical elements traditionally incorporated into the pedestrian realm include street trees, pedestrian-scale street lighting, and utilities. Street trees provide necessary shade to pedestrians and soften the character of the surrounding built environment. Trees should be spaced 15 to 30 feet apart, be adapted to the local environment, and fit the scale and character of the surrounding area.

Pedestrian-scale street lighting incorporated into the pedestrian realm should consider metal halide fixtures mounted 12 to 20 feet high. Utilities should not interfere with pedestrian circulation or block entrances to buildings, curb cuts, or interfere with sight distance triangles. In some cases, burying utilities underground avoids conflicts and clutter caused by utility poles and overhead wires.

Relocation of overhead utilities to tall poles on just one side of the roadway can be a cost-effective aesthetic alternative to burial of utilities in a duct bank under the road.

Public Open Space

The pedestrian realm serves a dual purpose within the built environment, acting as both a transportation corridor and a public open space accessible to the entire community. As a result, specific design elements incorporated into the pedestrian environment should reinforce this area as a public space. Properly planned, these design elements could provide opportunities for visitors to enjoy the unique character of the corridor in both formal and informal seating areas. Public art and/or specialized surfaces and materials introduced into the pedestrian realm are appreciated by slower moving pedestrians. In more urban areas, street furniture and/or outdoor cafes provide opportunities that foster community ownership in the pedestrian realm, such as people watching. Furthermore, building encroachments in downtown areas, such as stairs and stoops, provide interesting points of access to the pedestrian realm. Lastly, awnings and canopy trees provide shade, which is often a welcomed relief.

Travelway Realm

The travelway realm is defined by the edge of pavement or curb line that traditionally accommodates the travel or parking lanes needed to provide mobility for bicycles, transit, and automobiles sharing the transportation corridor. Recommended design elements incorporated into the travelway realm attempt to achieve greater balance between travel modes sharing the corridor and favor design solutions that promote human scale for the street and minimize pedestrian crossing distance. Recommendations for the travelway realm focus on two areas of consideration: modes of travel and medians.

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Multimodal Corridors

Balance between travel modes within the same transportation corridor fosters an environment of choice for mobility that could lead to reduced congestion on major roadways and a healthier citizenry. On a complete street, safe and convenient access to the transportation network for bicycles, transit, and automobiles is afforded within the travelway realm. Travel lanes for automobiles and transit vehicles should measure between 10 and 11 feet wide, depending on the target speed, to manage travel speeds and reinforce the intended character of the street. Parking lanes incorporated into the travelway realm should not exceed eight feet in width (including the gutter pan) and may be protected by bulb-outs evenly spaced throughout the corridor. Bus stops located along the corridor should be well-designed to include benches and shelters that comfort patrons waiting for the bus. On-street bicycle lanes (typically four feet wide) should be considered when vehicle speeds range from 35 to 45 miles per hour. Wide outside lanes may be preferred on other streets. To avoid situations where citizens with only basic bicycle skills may be attracted to a corridor, designated bicycle routes on parallel corridors may be the best option when speeds on the major street exceed 45 mph. According to state law, bicyclists are considered vehicles and are permitted on all corridors except freeways and access-controlled highways.

Median Treatments

Medians often are incorporated into the travelway realm to provide dedicated left-turn lanes, opportunities for landscaping, and pedestrian refuge at crossings. Medians generally vary between eight and 16 feet wide, depending on their intended application and the limitations of the surrounding built environment. Medians also reinforce other access management solutions provided within the travelway to reduce the number of conflict points and maintain the human scale intended for the complete street.

In addition to center medians, other access management solutions incorporated into the travelway realm should limit the number of individual driveways along the corridor and avoid the use of right-turn deceleration lanes. Together, these improvements will reduce the overall pedestrian crossing distance for the travelway and improve the safety for pedestrians traveling inside the pedestrian realm.

Intersection Realm

Evaluating potential changes for the intersection realm of a street requires careful consideration of the concerns of multiple travel modes that could meet at major intersections within the transportation system. Recommendations for improving the multimodal environment in and around these major intersections focus on two areas of the facility: operations and geometric design.

Geometric Design

Geometric design of an urban intersection should reinforce the operational characteristics of a traffic signal or roundabout. With traffic signals, this includes the introduction of curb extensions, or bulb-outs, to shorten pedestrian crossing distance and protect on-street parking near the intersection.

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Curb return radii designed for signalized intersections should be 15 to 30 feet to control turning speed around corners. At roundabouts, special consideration should be given to entry and exit speeds, pedestrian refuge in the splitter islands, and assigning predictability to the intersection for pedestrians, bicycles, and vehicles. Both intersection treatments may consider special pavement markings to distinguish pedestrian areas or bicycle lanes, although these surfaces need to be stable, firm, and slip resistant. Additional consideration should be given to maintaining adequate sight triangles in the intersection, addressing the treatment of bicycle lanes through the intersection, and compliance with federal requirements per the American with Disabilities Act for crosswalk and curb ramp design.

Operations and Safety

In terms of operations, traffic signals or roundabouts are the two most appropriate applications for traffic control devices that also could maintain the pedestrian scale of the street reinforced in the context, pedestrian, and travelway realms. The merits of a traffic signal rather than a roundabout for intersection control should be determined on a case-by-case basis after considering key issues such as desired traffic speed, availability of right-of-way, anticipated traffic patterns, and the context of the built environment surrounding the intersection. In general, small signalized intersections may be safer for pedestrians than roundabouts. However, studies of intersection widening always should consider a roundabout. Crash histories support the premise that roundabouts typically have less injury-inducing crashes than large signalized intersections. Furthermore, the slower vehicle speeds associated with most roundabouts result in less injury-inducing crashes when pedestrians are hit by a vehicle.

Street Cross Sections

The following pages illustrate proposed typical cross-sections and plan views for streets in the Goldsboro Urban Area. The cross sections reflect the concept of complete streets that provide safe and convenient travel for all modes. To create a transportation network that respects the needs of pedestrians, bicyclists, and motorists, certain elements may require designs different from the current norm. Right-of-way for the recommended cross sections ranges from less than 50 feet for a two-lane collector to nearly 100 feet for a four-lane divided principal arterial. Within the right-of-way, the sidewalks and landscaping strips typically are wider than presently found in the Goldsboro Urban Area. As a result, careful evaluation of these recommendations by agencies initiating roadway projects is anticipated.

Table B-3 describes the elements of street typology for the streets illustrated on the following pages as well as local streets not illustrated. The table details the multimodal building blocks that form a complete street. A few of the illustrative cross sections include alternatives for bicycle facilities. The type of bicycle facility for these corridors should be determined on a case-by-case basis after considering the surrounding land uses and anticipated skill level of bicyclists on the corridors

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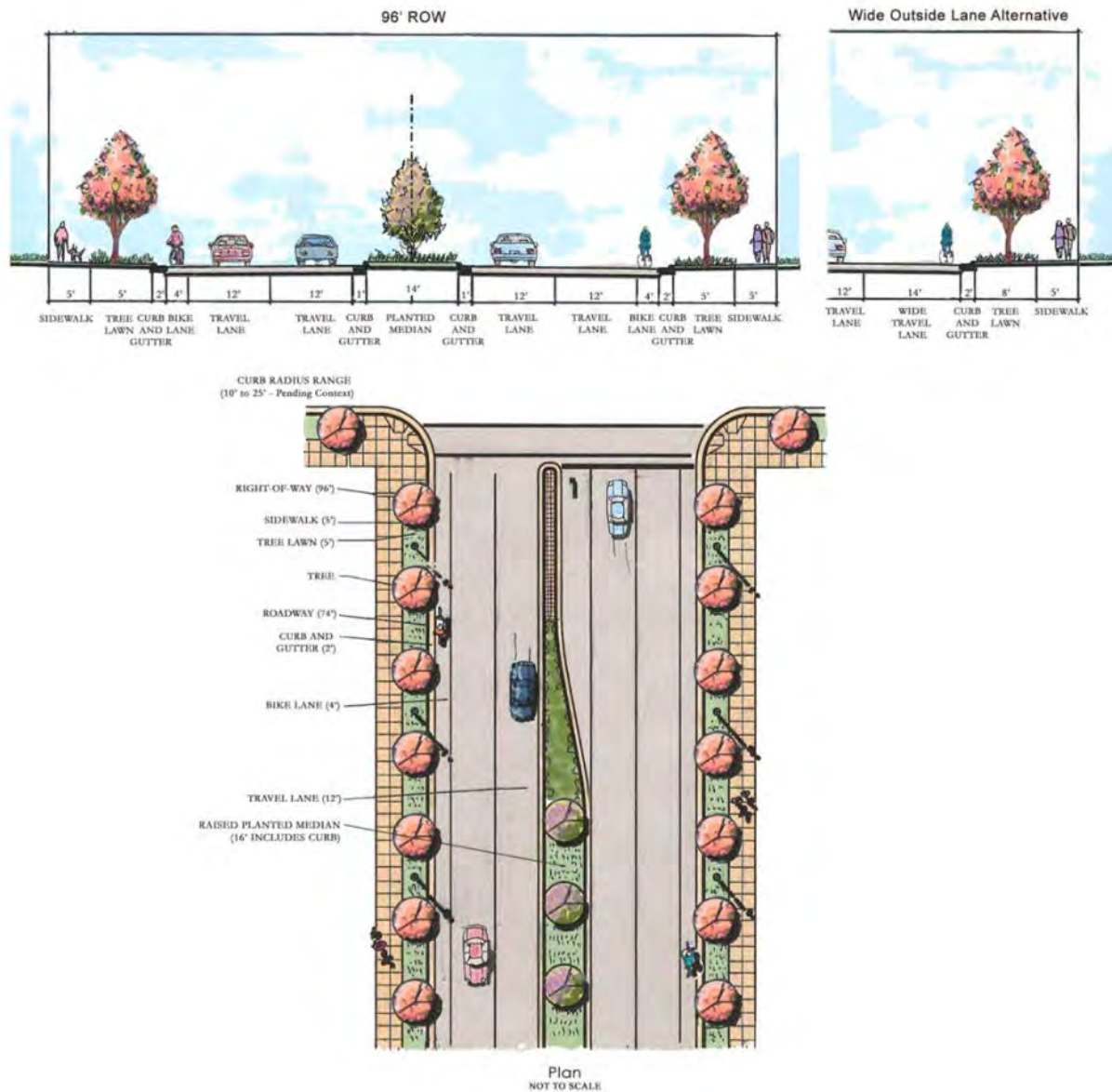
Table B-3: Elements of Street Typology

	Roadway Context	Access/Mobility	Travel Lanes	Center Treatment	Bicycle Facilities	Pedestrian Facilities	Roadway Capacity
Principal Arterials							
4-Lane Divided w/ Wide Outside Lanes 96' Right-of-Way 76' Roadway Width	Urban/ Suburban	High mobility	2 - 14' 2 - 12'	14' planted median (1' curb/gutter)	14' wide outside lanes	5' sidewalks, both sides	28,000 to 40,000
4-Lane Divided w/ Bike Lanes 96' Right-of-Way 76' Roadway Width	Urban/ Suburban	High mobility	4 - 12'	14' planted median (1' curb/gutter)	4' bike lanes, both sides	5' sidewalks, both sides	28,000 to 40,000
Minor Arterials							
4-Lane Divided w/ Multi-Use Path 88' Right-of-Way 68' Roadway Width	Urban/ Suburban	Moderate mobility	4 - 12'	14' planted median (1' curb/gutter)	10' multi-use path, one side	10' multi-use path, one side	28,000 to 40,000
2-Lane Divided on 4-Lane Divided Right-of-Way 100' Right-of-Way 44' Roadway Width	Suburban	Moderate mobility	2 - 12'	14' planted median (1' curb/gutter)	10' multi-use path, one side	10' multi-use path, one side	12,000 to 20,000
3-Lane 64' Right-of-Way 44' Roadway Width	Suburban	High access/ Moderate mobility	2 - 14'	12' two-way left-turn lane	14' wide outside lanes	5' sidewalks, both sides	12,000 to 20,000
Collectors							
2-Lane Divided w/ 8' Parallel Parking 78' Right-of-Way 58' Roadway Width	Urban	Moderate access/ Moderate mobility	2 - 12'	12' planted median (1' curb/gutter)	Use travel lane	5' sidewalks, both sides	12,000 to 20,000
2-Lane Divided w/ Bike Lanes 70' Right-of-Way 50' Roadway Width	Suburban	Moderate access/ Moderate mobility	2 - 12'	12' planted median (1' curb/gutter)	4' bike lanes, both sides	5' sidewalks, both sides	12,000 to 20,000
2-Lane w/ Bike Lanes 56' Right-of-Way 36' Roadway Width	Urban/ Suburban	High access/ Moderate mobility	2 - 12'	None	4' bike lanes, both sides	5' sidewalks, both sides	9,000 to 14,000
2-Lane w/ Bike Lanes 56' Right-of-Way 36' Roadway Width	Urban/ Suburban	High access/ Moderate mobility	2 - 14'	None	14' wide outside lanes	5' sidewalks, both sides	9,000 to 14,000
2-Lane 48' Right-of-Way 28' Roadway Width	Urban/ Suburban	High Access	2 - 12'	None	Use travel lane	5' sidewalks, both sides	9,000 to 14,000
Rural 2-Lane w/ Multi-Use Path 56' Right-of-Way 36' Roadway Width	Rural	High Access	2 - 12'	None	10' multi-use path, one side or 4' paved shoulder		9,000 to 14,000

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Principal Arterial: 4-Lane Divided with Bicycle Facilities

(4-Lane Divided with Planted Median, Bike Lanes, Sidewalks, Landscaping)

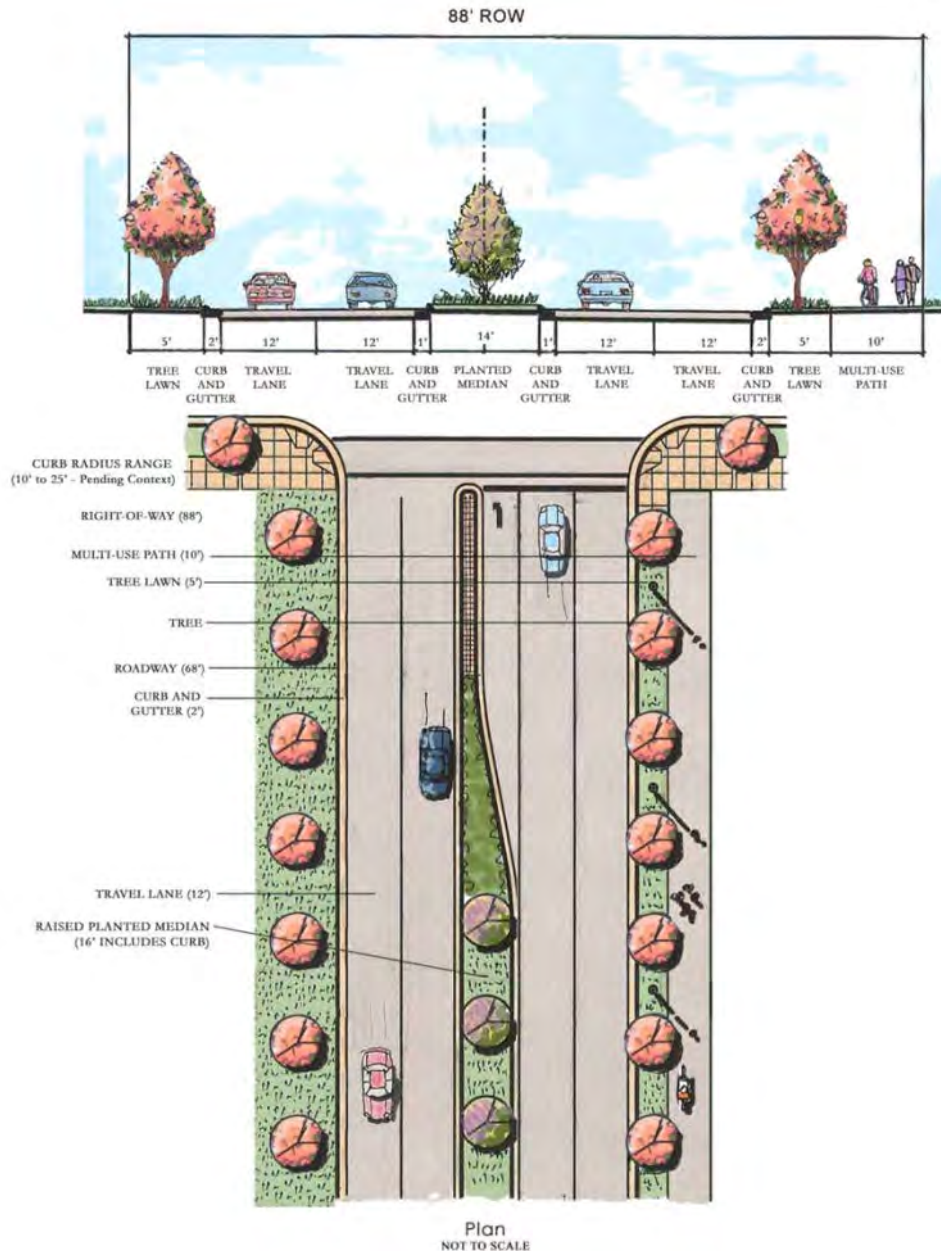


Source: GMPO

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Minor Arterial: 4-Lane Divided with Multi-Use Path

(4-Lane Divided with Planted Median, Multi-Use Path & Landscaping)

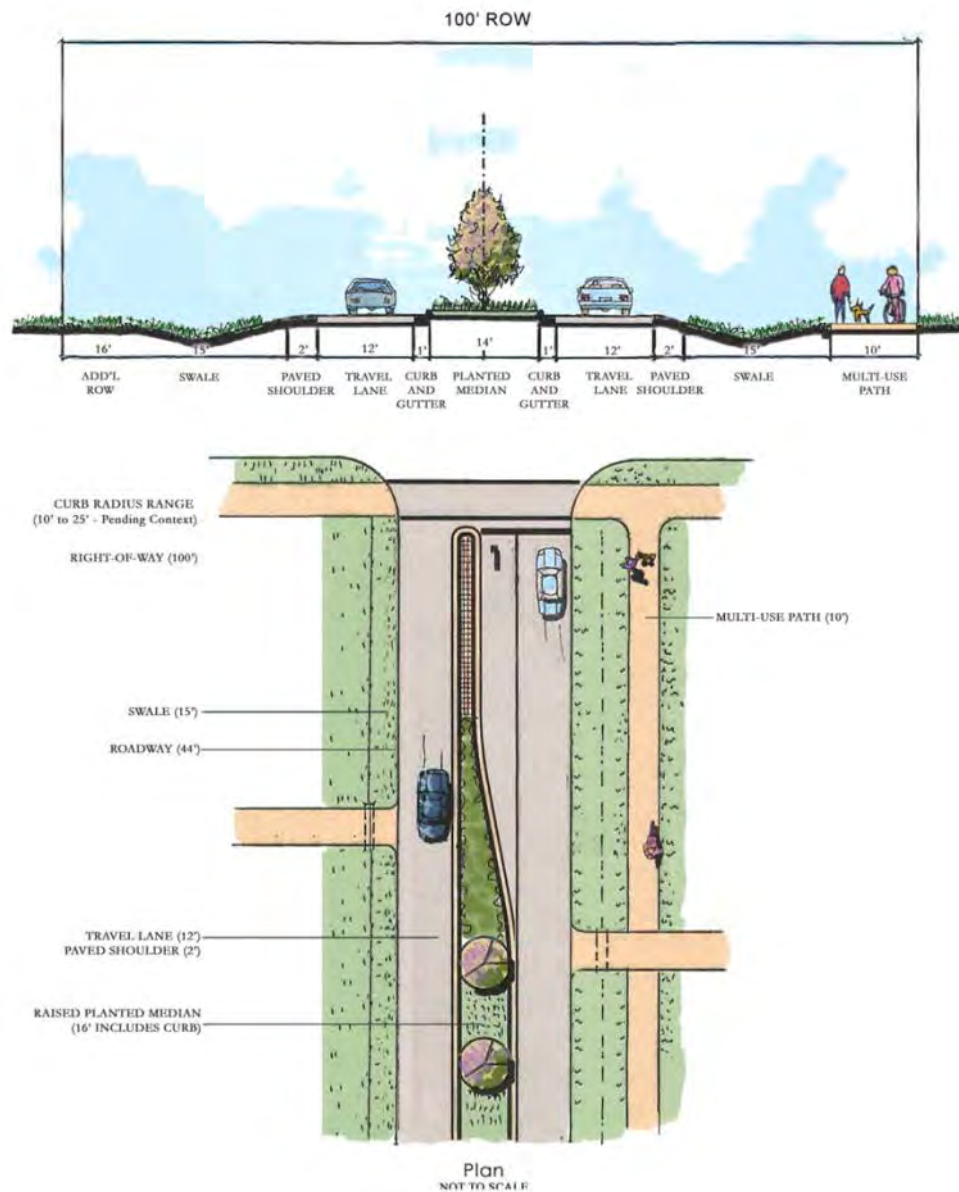


Source: GMPO

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Minor Arterial: 2-Lane Divided on a 4-Lane Divided Right of Way

(2-Lane Divided with Planted Median, Multi-Use Path & Landscaping)

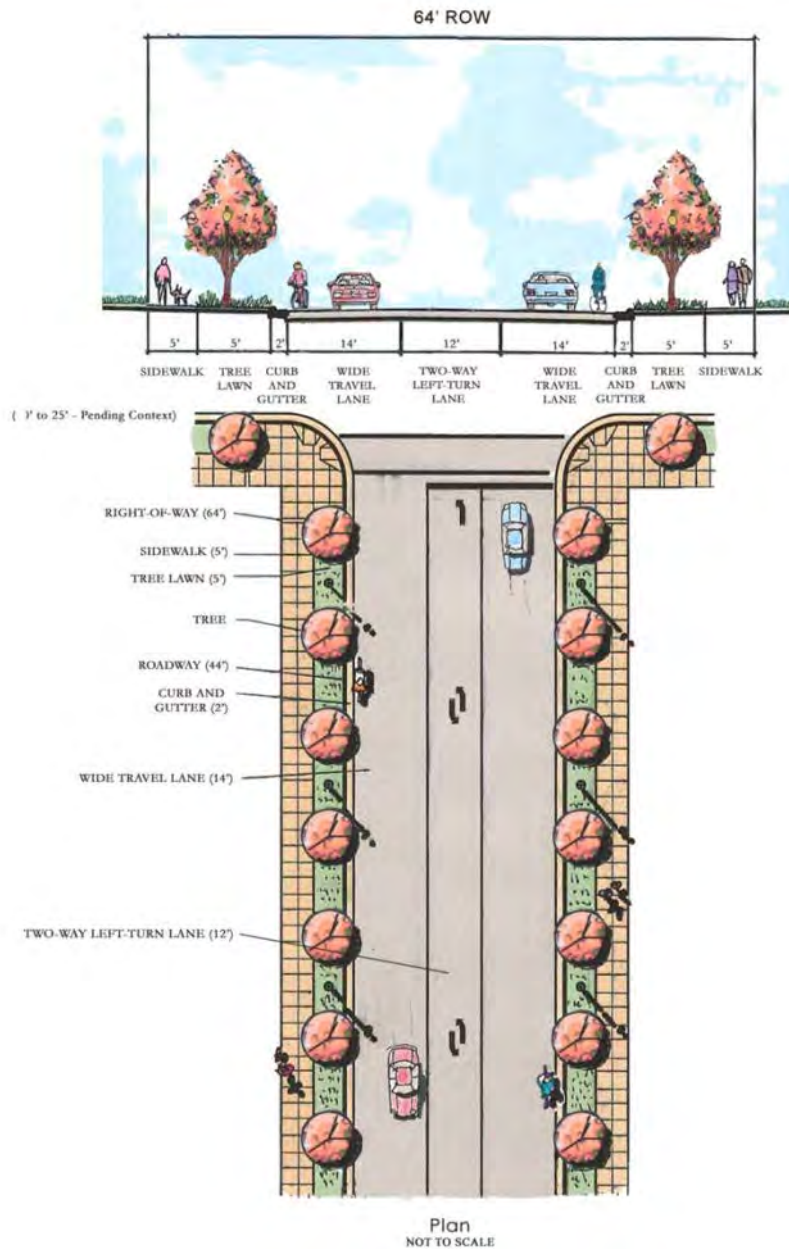


Source: GMPO

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Minor Arterial: 3-Lane

(3-Lane with Wide outside Lanes, Sidewalks & Landscaping)

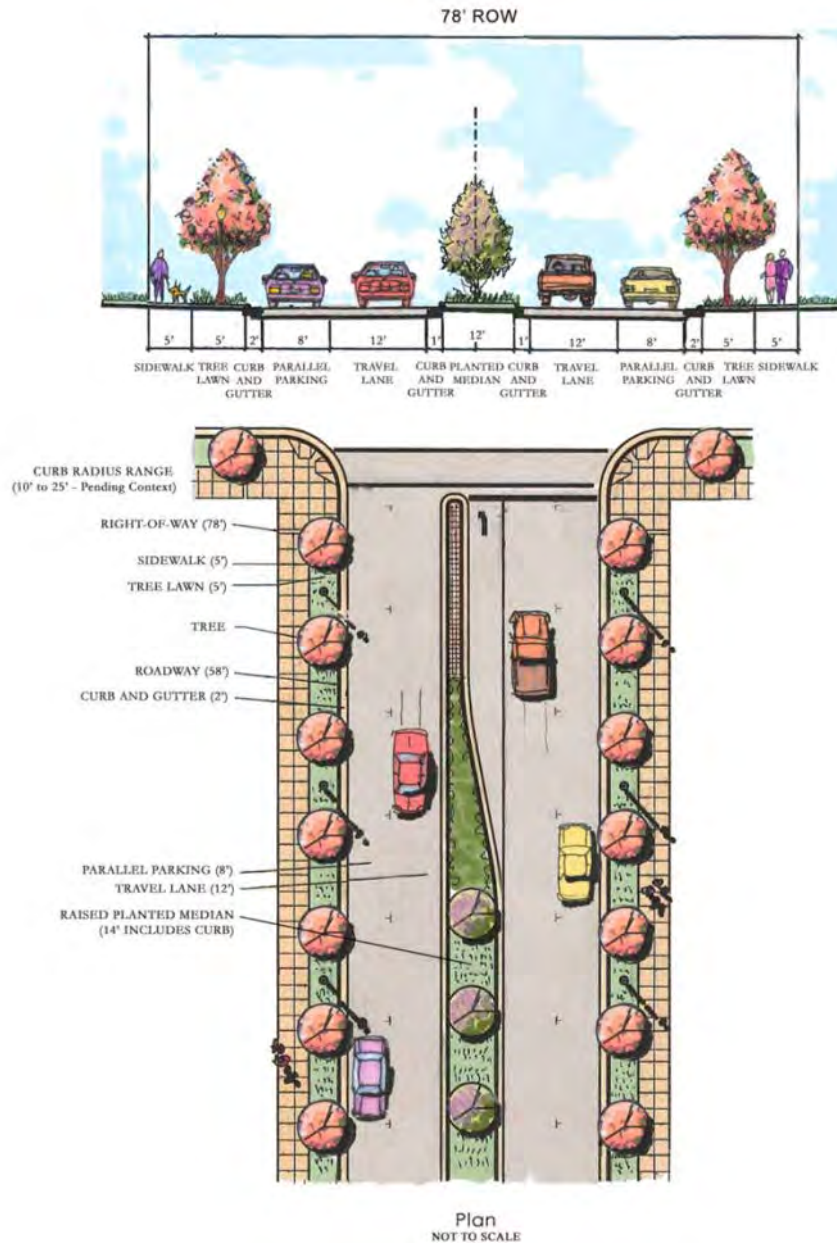


Source: GMPO

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Collector: 2-Lane Divided with Parking

(2-Lane Divided with Planted Median, Parallel Parking, Sidewalks & Landscaping)

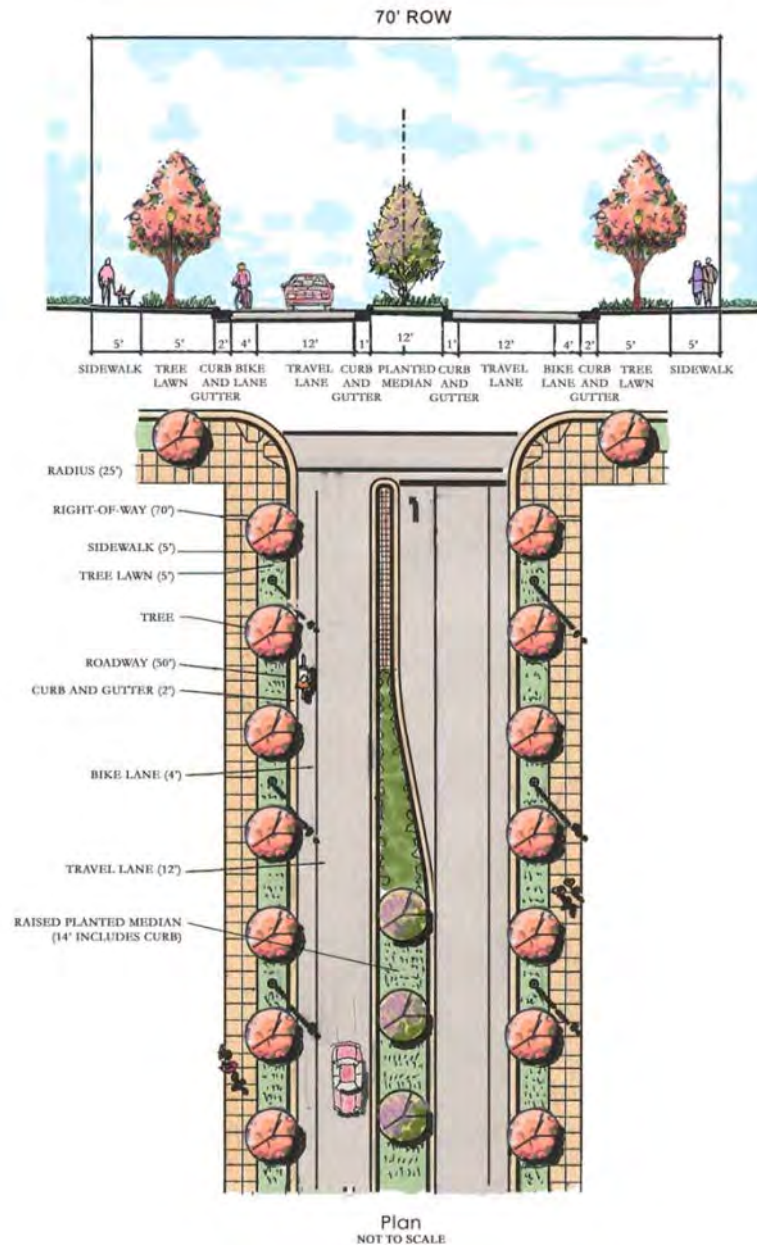


Source: GMPO

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Collector: 2-Lane Divided with Bike Lanes

(2-Lane Divided with Planted Median, Bike Lanes, Sidewalks & Landscaping)

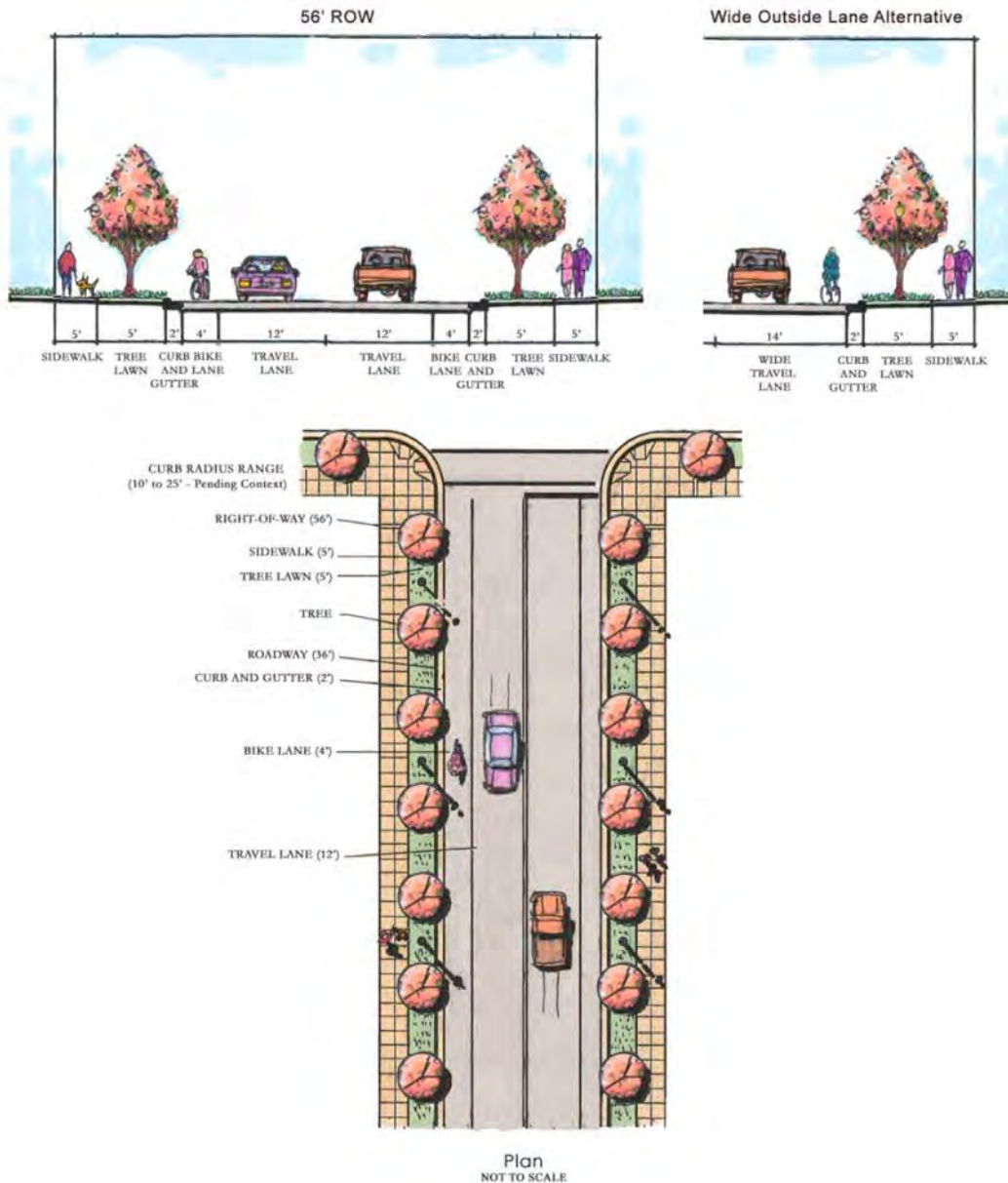


Source: GMPO

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Collector: 2-Lane with Bike Facilities

(2-Lane with Bike Lanes, Sidewalks & Landscaping)

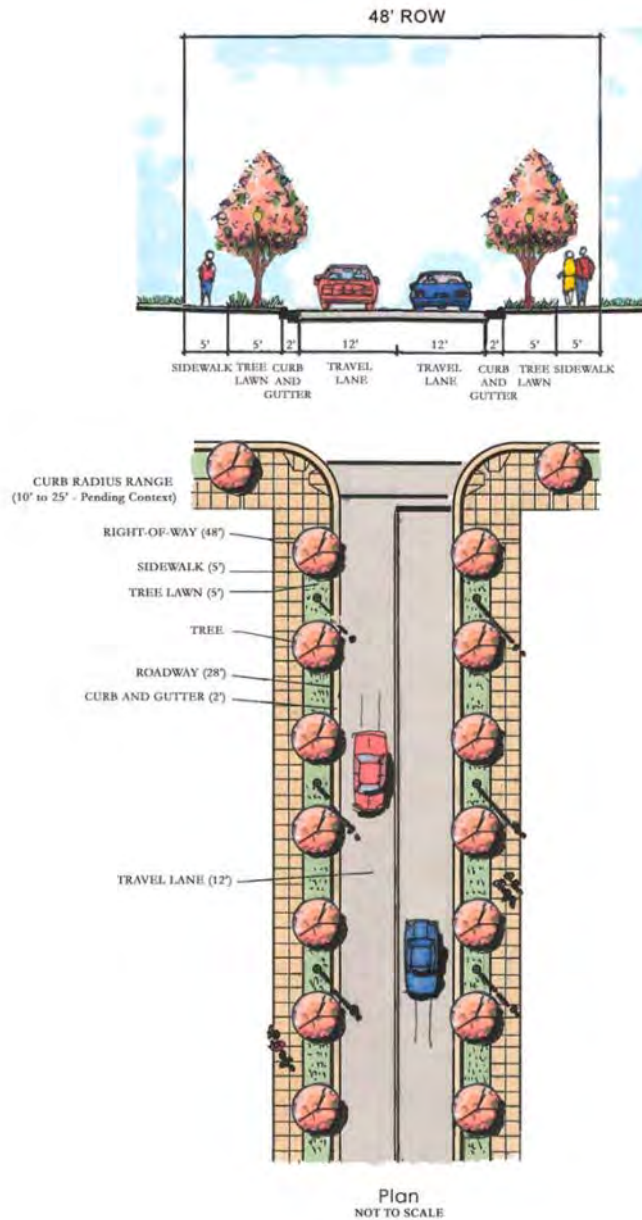


Source: GMPO

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Collector: 2-Lane

(2-Lane with Sidewalks & Landscaping)

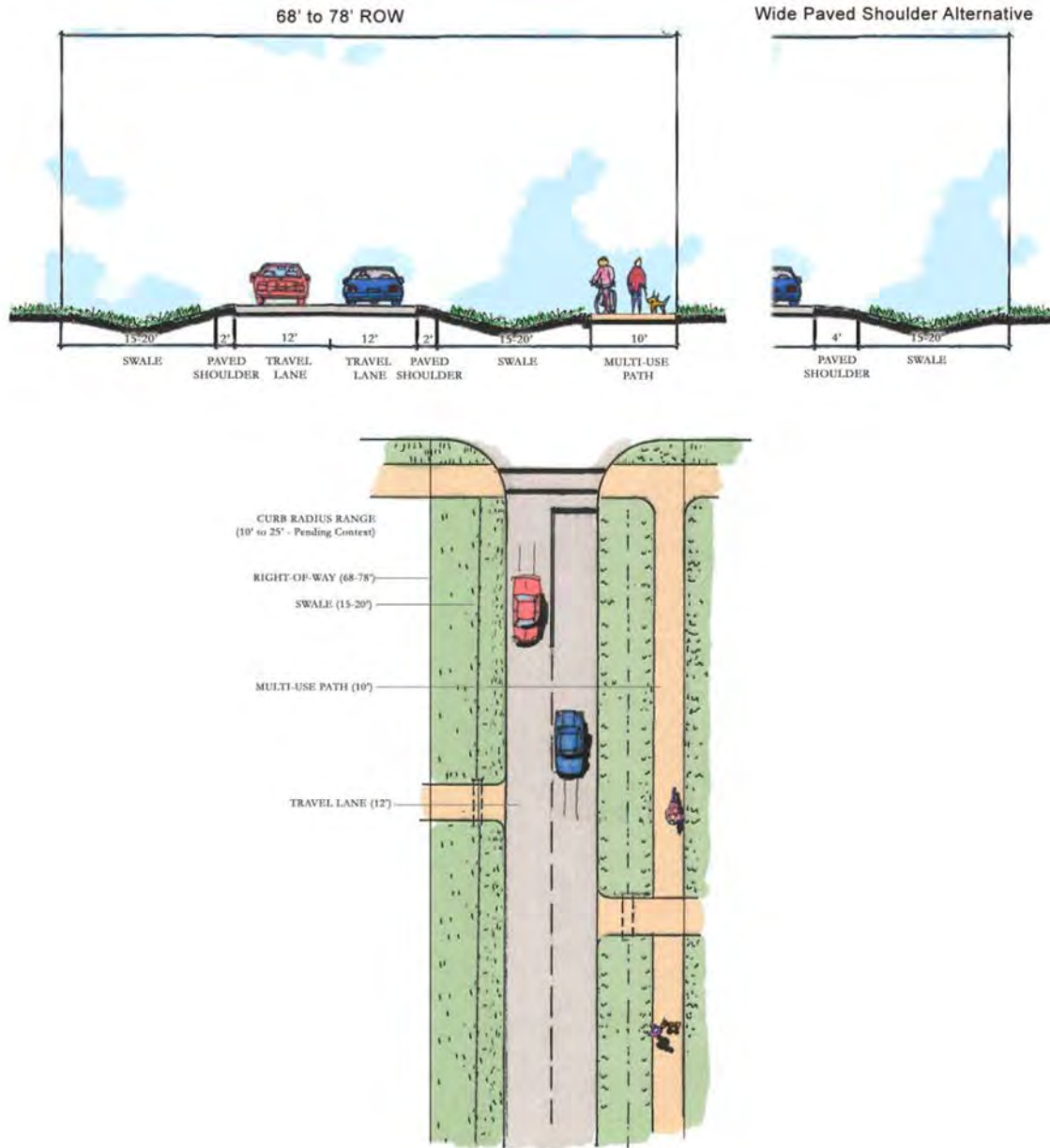


Source: GMPO

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Collector: Rural 2-Lane with Multi-Use Path

(2-Lane with Multi-Use Path & Swale)



Source: GMPO

Bicycle and Pedestrian Facility and Program Opportunities

Bicycle Facilities

The needs of all types of cyclists (basic to advanced) must be constantly evaluated and accommodated. To make sure adequate amenities are available to users of all skill levels, the facilities identified here should be incorporated into roadway projects in the Goldsboro Urban Area. Three guideline documents are helpful in the planning and design of bicycle facilities:

- *American Association of State Highway & Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities* — This is a federal document which sets forth the current design practices accepted by FHWA. This document discusses planning, design, operations, and maintenance issues associated with bicycle facilities. With respect to design, it addresses width dimensions, grades, cross slopes, radii, acceleration rates, deceleration rates, and sight distances. It is not intended to establish strict standards; instead, it provides guidance that assists in attaining good design that is sensitive to the needs of bicyclists as well as other highway users.
- *FHWA Manual on Uniform Traffic Control Devices (MUTCD)* — The MUTCD constitutes a standard. Failure to comply with the MUTCD can result in being denied federal funds and makes non-compliant jurisdictions liable in the event of a crash. The MUTCD addresses standards for signing, striping, markings, signals, islands, and traffic work zone devices (e.g., cones and barricades). It provides information on what symbols may be used on signs and when sign text can vary from the signs provided. The color, width, types and applications of striping are defined in detail. It also provides dimensions and shapes of pavement markings and pavement lettering.
- *North Carolina Bicycle Facility Planning and Design Guidelines* — This manual produced by NCDOT provides design standards and guidelines for bicycle facilities in North Carolina. The document helps clarify standards that should be used when designing bicycle facilities.

On-Street Bicycle Facilities

On-street bicycle facilities are designated by striping, signing, and pavement markings on the public right-of-way for the preferential or exclusive use of bicyclists. The type of on-street facility recommended depends on the roadway classification and characteristics. Several types of on-street facilities can be used in conjunction with another to create a well-developed bicycle network. These facilities are described in Table B-4.

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Table B-4: On-Street Bicycle Facility Overview

Striped Bike Lanes	
Description <ul style="list-style-type: none"> • Exclusive-use area adjacent to the outermost travel lane • Typical width: 4' to 5' 	Target User <ul style="list-style-type: none"> • Basic and Intermediate Cyclists Estimated Cost <ul style="list-style-type: none"> • \$18,000 per mile (striping only)
Wide Outside Lane	
Description <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Advanced Cyclists Estimated Cost <ul style="list-style-type: none"> • \$18,000 per mile (striping only)
Multi-Use Path	
Description <ul style="list-style-type: none"> • Separated from traffic and located in open space (greenway) or adjacent to road with more setback and width than sidewalks (sidepath) • Typical width: 10' preferred, 8' in constrained areas 	Target User <ul style="list-style-type: none"> • All Cyclists, Pedestrians Estimated Cost <ul style="list-style-type: none"> • \$600,000 per mile (includes clearing, grubbing, grading, and construction)
Paved Shoulders	
Description <ul style="list-style-type: none"> • Extends the service life of the road by reducing edge deterioration • Connects signed routes and rural roads to more urbanized areas • Provides greater level of safety and comfort for bicyclists • Typical width: 4' (no minimum width required) 	Target User <ul style="list-style-type: none"> • Advanced Cyclists Estimated Cost <ul style="list-style-type: none"> • \$500,000 per mile

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Shared Roadways

Shared roadways are streets and roads where bicyclists can be served by sharing the travel lanes with motor vehicles. Usually, these are streets with low traffic volumes and/or low speeds, which do not need special bicycle accommodations in order to be bicycle-friendly.

Signed Bicycle Routes

Signed routes will be an integral part of the bicycling network in the Goldsboro Urban Area. These facilities are an inexpensive way to guide riders to more bicycle-friendly roads. They can be used with any of the facilities listed above, including roads with bicycle lanes, shared roadways, and multi-use paths. The traffic and geometry of a road are important considerations when determining the location of a signed route. In addition, the functionality of the route for the purpose it was intended (e.g., scenic route or utilitarian connector) is a necessary component in the decision-making process.

SHARE THE ROAD signs can be used to alert drivers to the presence of bicyclists. They are typically considered when one or more of the following criteria are met:

- Safety problems exist and the roadway cannot be improved with bicycle lanes
- Bicycling volumes are high
- A conflict of obvious courtesy problem exists between motor vehicle and bicycle traffic sharing the road

BIKE ROUTE signing is another treatment which can be implemented to improve conditions for bicyclists. BIKE ROUTE signs help guide bicyclists to preferred routes — roads with lower motor vehicle traffic speeds, fewer trucks, or lower volumes. Typically they are supplemented with destination and distance signing.

Special signs should be designed to guide bicyclists along the recommended routes. These signs should incorporate their own colors and logo so that they can be recognized easily and help advertise the route to potential bicyclists; they also should include the name of the route being used.

Other Bicycle Facilities and Amenities

Design considerations also should be given to ancillary bicycle facilities and amenities such as bike racks, bikes on buses and bike amenities at transit stops, and bike-friendly drainage inlets.

Pedestrian Facilities

Analysis and development of recommendations in this chapter involved reviewing pedestrian facility design guidelines for sidewalks and walkways, curb ramps, marked crosswalks and enhancements, and transit stop treatments.



Share the Road Signage
Source: BikePedImages.org



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Sidewalks and Walkways

The FHWA defines sidewalks as “walkways that are parallel to a street or highway” and walkways as “pedestrian paths, including plazas and courtyards.” The FHWA recommends that sidewalks and walkways be designed with the following characteristics in mind:

- Wide pathways with minimal obstacles or protruding objects
- Clearly defined pedestrian furniture, and frontage zones
- Moderate grades and cross slopes
- Rest areas outside of pedestrian zone
- Minimal changes in level
- Firm, stable, and slip resistant surfaces
- Good lighting

The Institute of Traffic Engineers, AASHTO, and FHWA all recommend a minimum width of five feet for a sidewalk or walkway to allow two people to pass comfortably or walk side-by-side; they also prefer that four- to six- foot buffer zones be provided to separate pedestrians from the street. For those with mobility impairments, sidewalks and walkways should be designed to minimize grades and cross slopes. FHWA recommends that the grade and cross slope not exceed five percent and two percent, respectively, wherever possible.

Curb Ramps

For persons with disabilities, curb ramps provide critical access between the sidewalk and street. While allowing for site-specific designs for curb ramps, the FHWA suggests the ramp provide a level land area, be within the marked crosswalk area, avoid large changes of grade, and be distinguishable from surrounding terrain. The Federal ADA mandates curb ramps at all intersections and mid-block locations where pedestrian crossings exist.

Marked Crosswalks and Enhancements

Marked crosswalks indicate the optimal location for pedestrians to cross a street. While crosswalks are usually installed at signalized intersections, mid-block crosswalks are becoming more popular. In locations that require increased levels of pedestrian visibility, the following enhancements can be incorporated into the crosswalk and street design:

- **Raised Crosswalk.** A raised crosswalk elevates the roadway by three to six inches, in effect reducing the speed of automobiles and providing increased visibility for high pedestrian-traveled areas. Raised crosswalks must be well-lighted and well-marked to allow motorists to detect them at night and during inclement weather.



Raised Crosswalk
Source: BikePedImages.org

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- **Pedestrian Refuge Island.** These raised islands in the center of a street protect pedestrians from vehicles. At such crossings, pedestrians can concentrate on one direction of traffic at a time by crossing to the center island and waiting for a gap in traffic to complete the trip across the street.
- **Curb Extensions.** Curb extensions can be placed at intersections or mid-block crossings. They extend the sidewalk into the street to improve pedestrian safety by calming traffic, increasing driver awareness of pedestrian activity, and shortening the crossing distance for pedestrians. When combined with landscaping, curb extensions can compensate for overly wide streets and improve a street's character.



Curb Extension
Source: BikePedImages.org

In North Carolina, pedestrians within a crosswalk have the right-of-way and motorists must yield.

Transit Stop Treatments

Most transit trips require pedestrian or bicycle connections. In addition to having well-planned routes, a good transit system provides riders with safe, accessible stops. The design of transit stops should be tailored to the number of riders and provider, and should consider including amenities such as:

- Buffer from vehicle traffic
- Sheltered seating
- Trash cans
- Bicycle parking
- Clear signage that includes route information

To encourage active use of the transit system, a network of sidewalks and paths should connect high-volume transit stops to popular destinations. Pedestrian-level lighting along these paths improves visibility and increases safety for users.

Multi-Use Facilities

Some facilities are designed to accommodate both bicyclists and pedestrians. These multi-use facilities separate non-motorized users from automobile traffic.

Multi-Use Paths on Independent Alignments

Multi-use paths — or shared-use trails—are becoming quite popular, not only with bicyclists, but also with many non-motorized transportation device users across the country. They



Multi-Use Facility
Source: BikePedImages.org

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can provide a high-quality bicycling experience in an environment that is protected from motorized traffic because they are constructed in their own corridor, often within open-space areas. Multi-use paths can be paved and should be a minimum of 10-feet wide. Their width may be reduced to eight feet if there are physical or right-of-way constraints. Additional width should be considered for areas with difficult terrain or heavy-traffic.

Multi-use paths are, in effect, little roads and should be designed with clearance requirements, minimum radii, stopping sight distance requirements, and other criteria just as roadways are designed. Additionally, designers must comply with the North Carolina Bicycle Facility Planning and Design Guidelines, MUTCD, and AASHTO Bicycle Guide when designing these facilities.

Although paths should share geometric and operational design guidelines with roadways, they require a greater consideration of amenities. Shade and rest areas with benches and water sources should be designed along multi-use paths. Where possible, vistas should be preserved. Way finding signs (e.g., how far to the library or the next rest area, or directions to restrooms) are important for non-motorized users. These types of design considerations can help make a multi-use path more attractive to potential users.

Sidepaths/Wide Sidewalks

A sidepath is essentially a multi-use path that is oriented alongside a road. The AASHTO Guide to Development of Bicycle Facilities strongly cautions those contemplating a sidepath (or wide sidewalk) facility to investigate various elements of the roadway corridor environment and right-of-way before deciding upon a final design. AASHTO provides nine cautions/criteria (pp. 34-35) for designing sidepaths. Research confirms that bicycle/motor vehicle crash rates can be higher for bicyclists riding on a sidepath compared to riders on the roadway. Crashes between motor vehicles and bicyclists on sidepaths can occur when motorists falsely expect bicyclists to yield at all cross streets and driveways. Likewise, stopped vehicles entering or exiting side streets or driveways may block the bicyclists' path. However, careful design can mitigate some of these concerns.

Some high-volume, high-speed roadways exist where sidepaths are the best bicycle facility that can be provided without very costly changes to the roadway corridor. In these cases, it may be desirable to provide a sidepath. This decision must consider the magnitude of intersecting driveway and roadway conflicts. If possible, sidepaths should be provided on both sides of the roadway to encourage bicyclists to ride in the same direction as adjacent traffic. The long-term strategy on these roadways should be to widen the road or narrow the lanes to provide additional space for bicyclists in on-street bike lanes or shoulders.

Ancillary Facilities

In order to form a complete system, the recommended on-street facilities, sidewalks, and multi-use paths need to be supplemented with ancillary facilities. These facilities are often low-cost measures designed to enhance the functionality and safety of the bicycle and pedestrian network. Ancillary

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facilities include physical components of education, encouragement, and enforcement programs recommended in this chapter.

Traffic Calming

The importance of traffic calming increases as motorists find short cuts around congested roads and intersections. Even the best planned street networks fall prey to unwanted cut-through and speeding traffic. Traffic calming includes a variety of tools to slow speeds, reduce cut-through traffic, and improve the appearance of the street while increasing safety for pedestrians, bicyclists, and vehicles. Best practices for traffic calming are widely published, but the greatest programs include specific measures and general methods tailored to local travel patterns and citizen expectations. As high speeds and changing travel habits continue to threaten bicyclists and pedestrians, the Goldsboro Urban Area is encouraged to develop traffic calming plans for the most unsafe roadways.

Signage and Mapping Projects

Comprehensive Route Systems

In order to maximize the use of the new and retrofitted facilities, users must know the location of routes, accessible destinations, connections to other routes, and provisions along the way. A route signage plan is recommended to include information on the direction and distance to destinations spaced so bicyclists receive periodic confirmation that they remain on the correct route. Different types of facilities can benefit from comprehensive route systems, including multi-use paths, bike lanes, shoulders, and wide outside curb lanes.

In addition to comprehensive route signing, informative maps of bicycle routes and pedestrian trails and pathways should be produced. Seyboro Cyclists have led many citizens on informal bike rides throughout the area, and will likely continue to do so. As recommended improvements are completed, their informal routes will be linked to these facilities.

Share the Road Signing Initiative

"Share the Road" signs make motorists more aware of the presence of bicyclists on high-use roads with potentially hazardous conditions. These signs serve as important and cost-effective safety and education tools.

Intersection Signage

Static and blank out signs reduce vehicular crashes with pedestrians. Static signs with messages such as "No Turn on Red When Pedestrians Present" or "Left.

Turning Vehicles Yield to Pedestrians" should be used only where problems have been documented and relatively constant pedestrian/bicycle use exists. Any overuse of the signs limits their effectiveness by diluting the ability of the sign to command the attention of motorists.

At locations where conflicts are not frequent enough to warrant a static sign, a blank out sign may be appropriate. These signs are activated when there is a potential conflict. Thus, if a pedestrian enters

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the crosswalk, the motorist will see a “Yield to Pedestrian” sign next to the permissive turn signal. The real-time aspect ensures the signs will be visible when needed and never relegated to visual clutter.

[Shared Lane Symbol](#)

The use of Shared Lane Symbols can reduce crashes but should be used in moderation. Also called a “sharrow,” this lane marking reduces crashes in which a parked motorist opens a car door into the path of cyclists and cuts down on the number of cyclists traveling in the wrong direction. The treatment should be limited to travel lanes adjacent to on-street parking or on roadways that complete a link in a bicycle route.

[Bicycle Parking Facilities](#)

Like motorists, bicyclists need a place to park their bicycles. Bicycle parking should be included near shopping areas, schools, and recreational areas as well as in downtown and near businesses frequented by bicycle riders. It is not enough to simply place a bike rack at a random location. The bike rack should be highly visible, preferably near store fronts or in high pedestrian use zones to reduce the threat of theft. If bicycles are parked after dark, the area also should be well lit. The necessary protection varies according to the purpose of the bicycle trip. For short trips, a U-shaped bicycle rack may be acceptable. For commuter trips, bike lockers or covered parking may be more appropriate.

Bicycle racks also provide an opportunity to enhance the character of an area when they reflect the community culture or character. For additional information on bike rack designs, the Association of Pedestrian and Bicycle Professionals has produced guidance that covers rack design, rack placement, and specifics for appropriate layout of the rack area in dimensions and relation to the surrounding land uses. In addition to bicycle parking facilities, benches, water fountains, public restrooms, and changing areas would be helpful near popular downtown locations and near major destination points such as shopping areas and schools.

Spot Improvement and Maintenance Programs

[General Considerations](#)

Regarding bicycle safety, several questions should be used to assess the maintenance of a roadway. Has debris collected in the bike lane? Are longitudinal cracks present? Are there longitudinal drainage grates? Are utility covers uneven with the roadway surface? An answer of “yes” to any of these questions should result in roadway maintenance. All bicycle facilities, including trails and the right side of roadways, require additional effort to ensure acceptable maintenance. A more frequent maintenance cycle to address these defects should be provided for bicycle routes. Likewise, areas where excessive debris tends to build and bicyclists have limited refuge should be maintained even more frequently.

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Traffic Signal Considerations

Traffic signal location, timing, and loops along bicycle facilities require extra attention. The MUTCD requires signal faces to be adjusted or separated for optimal visibility by bicyclists and for signal timing to consider the needs of bicyclists. Additional guidance for signal timing and loops is provided by AASHTO.

Roadway Symbol Buildup

Bike lane symbols, lane directional symbols, and crosswalks use thermoplastic markings. To prevent handling problems for bicyclists, the number of layers of thermoplastic should be limited to one. In addition to build-up, the slipperiness of thermoplastic and paints can cause problems. The texture of the treatment can be altered by adding sharp silica sand to the glass spheres during application.

Safety Railings along Bicycle Facilities

Bridge railing heights have been the subject of recent revisions to the AASHTO Bicycle Guide and ongoing debates among bicycle facility design professionals. The current guide states that railing heights should be at least 42 inches to prevent bicyclists who hit the railing from tipping over the top. However, the current AASHTO Bridge Specifications require a 54-inch railing. In practice, designers have been using the 54-inch railing when a structure is being built to the AASHTO specifications and a 42-inch railing along non-structural locations, such as when protecting bicyclists from embankments.

Transit Interface

Goldsboro transit services should accommodate cyclists by providing bike racks on public vans and buses. In addition, shelters and route information should be provided for pedestrians. Linking transit services with bike and pedestrian facilities ensures that there will be a seamless transition between these modes of transportation. Facility improvements for transit will complement the recommended bike and pedestrian facilities. As the GUS refurbishment is completed, consideration should be given for including bicycle and pedestrian amenities at this multimodal hub.

Program Recommendations

The facility recommendations described above must be supplemented with coordinated education, enforcement, and encouragement programs. Some programs instruct and encourage bicyclists and pedestrians in the full and proper use of the non-motorized transportation network. Other programs ensure the safety of the system is upheld by enforcing rules and regulations.

Education Programs

Education programs can be initiated from a variety of sources. Local governments can host workshops and bike rodeos, law enforcement officers can launch school-based education programs, and local advocacy groups can distribute educational materials.

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School-Based Safety Education

More than any other age group, school age children need to be educated about bicycle and pedestrian safety. Education programs can be incorporated into local school curricula and tailored to specific age groups. Younger children could be taught pedestrian safety, while older students could receive hands-on bicycle safety lessons. The program can be a collaborative effort of the city and county, local law enforcement departments, and local advocacy groups.



Training Session

Source: PedBikeImages.org

Walkable Community Workshops

These interactive workshops bring a variety of experts and stakeholders to the table with residents to identify real-world problems and proactive solutions for their community. The workshops last several hours and include an educational presentation, walking audit, and strategy session. The key to Walkable Community Workshops are the walking audits in which a professional leads participants on a tour to identify problems and solutions.

Bike Rodeos

At bike rodeos, school age children learn bicycling skills, rules, and safety tips in a fun, interactive environment. Bike rodeos are flexible in that they can be part of a larger safety education program, an independent program, or part of other fun group riding activities.

Public Outreach

Seyboro Cyclists (www.seyborocyclists.org) attempt to gain support and recognition of bicycling in the community. Informal weekly bike rides and other forms of outreach like these should be encouraged. These rides can be paired with bike rodeos or more formal rideabouts to bring the bicycle education message to a larger segment of the population. It also may be possible to combine biking or walking events with other community activities, such as commemorations of historical events or milestones.

Encouragement Programs

Encouragement programs are important regardless of age. The programs that follow include individual and city-wide endeavors.

Safe Routes to School

Safe Routes to School, a national initiative, has encouraged many children to bike and walk to school by promoting bicycle and pedestrian education. Goldsboro and Wayne County should partner with local schools and advocacy groups to leverage funding. More information on the program can be found at www.saferoutestoschool.org. The Wayne County Comprehensive Plan also includes Action 6.5: "Apply for a Safe Routes to School Grant through the North Carolina Department of

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Transportation.” The City of Goldsboro, the Village of Walnut Creek, the Town of Pikeville and Wayne County should work together to identify one to two pilot schools in each member jurisdiction that could benefit from this program and submit applications in an upcoming grant period.

Bicycle Rideabout

At a bicycle rideabout, local citizens take part in a short three- to five-mile ride along bicycle-friendly roads and attend informational sessions about bicycle safety and ongoing projects in the community. The events should include local law enforcement officers to promote safety and local advocacy groups to recruit new members. A bicycle rideabout can be a stand-alone fun activity or part of a larger event. A rideabout is also a great way to kick off a new initiative or open a new facility.

Bicycle to Work Week

For adults, Bicycle to Work Week can serve as a week-long reminder that bicycling can be a good way to get to work. The success of Bicycle to Work Week often depends on local employers. Successful programs have included friendly competition between employers to see which can get the highest percentage of employees to ride bikes to work. Employers could also sponsor a raffle for employees that bike to work during the week to give away a new bicycle, helmet, or gift certificates to local bike shops.

Bicycle Mentor Program

This program matches experienced riders with those who want to learn more about commuting by bicycle. Volunteers from local riding clubs such as the Seyboro Cyclists can organize and provide volunteers. The idea is to help a new rider find the best route to work and to educate him or her on how to ride in traffic, in the dark, or in poor weather.

Enforcement Programs

North Carolina affords bicycles the same legal status as motor vehicles. As such, bicyclists have all the rights on the roadway as a motorist while being subject to the same rules, regulations, and responsibilities. Other laws are specific to bicyclists and include:

- Bicyclists must use a front lamp and rear reflector when riding at night
- Bicyclists traveling below the posted speed limit must ride in the right-hand lane or as close as practicable to the right-hand curb or highway edge, except when passing another vehicle or preparing for a left turn

Rules and regulations such as these should be conveyed during education and encouragement initiatives. To ensure the safety of bicyclists, pedestrians, and motorists, education and encouragement programs must be supplemented with enforcement. Enforcement often falls into the hands of local and state law enforcement. The City of Goldsboro, the Village of Walnut Creek, Town of Pikeville and Wayne County should partner with law enforcement to develop a coordinated bicycle and pedestrian enforcement campaign. Bicyclists, pedestrians, and motorists contribute to unsafe roadways. Bicyclists often ignore traffic laws by running red lights and stops signs or by riding on the wrong side of the

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street. Many bicyclists riding at night do not have proper reflectors and lights. Pedestrians break the law by crossing streets between parked cars and at unmarked mid-block locations rather than at intersections.

Motorists often pass too close to bicyclists or do not yield to turning bicyclists. These unlawful and potential harmful habits must be broken to maintain a safe transportation network. Local authorities also should require safety helmets be worn by all bicyclists regardless of age on all public facilities. Police patrols, particularly those on bicycles, should be increased on local streets as well as off-street trails and parks. The programs identified here should accompany the increased enforcement campaign.



Bicyclist crossing mid-block.

Source: Alta

[Bicycle Licensing/Registration Program](#)

Bicycle licensing should be considered as a way to enforce bicycle safety and reduce losses to theft. A registered bicycle helps local authorities identify an unresponsive cyclist in the event of an accident and return a stolen bicycle to its owner. The City of Goldsboro already mandates bicycle registration as a part of its ordinances. A mandatory program such as this or a voluntary program should be considered for all member agencies of the GMPO.

[Positive Reinforcement](#)

Positive reinforcement can be a valuable way to encourage safe actions by bicyclists and pedestrians. Police departments across the nation have recognized and rewarded children operating their bicycle in a safe manner. The rewards can include coupons for free ice cream, pizza, or movie tickets, or for discounts at local bicycle shops. This program encourages the child to continue to act safely and encourages their peers to follow their example.

