



GOLDSBORO MPO BICYCLE, PEDESTRIAN and GREENWAY PLAN

Final Draft Plan

Summer 2014

Prepared for the Goldsboro MPO
Prepared by Alta/Greenways





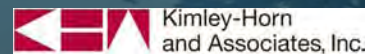
ACKNOWLEDGEMENTS

Thanks to the local residents, business leaders, community leaders, and government staff that participated in the development of this plan through meetings, events, volunteering, interviews, comment forms, and plan review. Special thanks to those who participated as steering committee members, listed below.

PROJECT STEERING COMMITTEE

The Steering Committee is made up of local residents, municipal and county government staff, NCDOT staff, Seymour Johnson AFB representatives, and other local community and business representatives.

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Prepared for the Goldsboro MPO

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VISION STATEMENT

Goldsboro's convenient network of sidewalks, bikeways, and greenways is a regional attraction that brings people of all ages and abilities together; safely connects them to where they want to go; encourages a healthy, active lifestyle; highlights the local history, culture, and environment; and promotes the local economy.



Chapter 1: Introduction

Chapter Contents:

*Planning Process
and Timeline*

Study Area

Why this is Important

Vision & Goals

INTRODUCTION

The Goldsboro MPO Bicycle, Pedestrian, and Greenway Plan communicates a vision and a clear path towards making the Goldsboro region more walkable and bikable. Funded by the Goldsboro Metropolitan Planning Organization (MPO), the Plan advances an agenda of better mobility, improved health, economic development, environmental stewardship, and improved safety impacts by recommending connected infrastructure, policies, and programs for bicycle and pedestrian transportation and recreation.

PLANNING PROCESS AND TIMELINE

The planning process began in February 2014 and lasted nine months, featuring robust stakeholder and public engagement. A Steering Committee was formed of key stakeholders and guided the planning process, meeting every two months. A series of targeted public outreach efforts took place to reach all communities within the MPO. A Draft Plan was completed in July 2014 and was reviewed by local government staff, stakeholders, and the general public. The Final Plan was adopted by the City of Goldsboro, Wayne County, the MPO TCC and TAC, Village of Walnut Creek, and Town of Pikeville in the Fall of 2014. Over 500 residents participated and contributed to the recommendations in this plan.

Concurrent with this effort, the Metropolitan Transportation Plan (MTP) underwent its regular five-year update process. Planning efforts were integrated together to ensure appropriate sharing of information and compatibility in recommendations to reach shared goals. This Bicycle, Pedestrian, and Greenway Plan serves as the official bicycle and pedestrian component of the MTP. The MTP also features roadway recommendations that include bicycle/pedestrian accommodations identified in this Plan.

STUDY AREA

The study area includes everything within the boundaries of the Goldsboro MPO which includes a large portion of Wayne County, City of Goldsboro, Village of Walnut Creek, and Town of Pikeville. A variety of landscapes can be found ranging from urban to rural and from developed to agricultural to riverways and wetlands. The Plan provides specific, appropriate, and context-sensitive infrastructure, policy, and programmatic recommendations for each land use type, roadway, and corridor.



WHY THIS PLAN IS IMPORTANT

Coming at the heels of the successful statewide bicycle and pedestrian planning initiative, WalkBikeNC, this Plan addresses the specific needs and interests of the Goldsboro region. The WalkBikeNC Plan emphasized the importance of providing North Carolina customers with multi-modal transportation options and identified the positive impacts of active transportation to statewide economic, health, and safety issues. The Goldsboro region faces many of the same challenges as the rest of the state. This Plan builds upon the WalkBikeNC effort and is tailored to the specific, and unique needs of the Goldsboro region.

The health and economic benefits of walkable and bikable communities are well-documented and serve to inform the importance of implementing this Plan. People and businesses are choosing to live and relocate in communities that offer high quality of life amenities including greenways and bikeways. Changes in the built environment offer more opportunities to increase physical activity. An economic impact analysis and health impact assessment (HIA) were conducted as part of the WalkBikeNC Plan and predicted significant positive impacts to the economy and resident and community health with the implementation of bicycle and pedestrian infrastructure such as greenways and sidewalks.

Appendix C includes a full report on current findings related to the many benefits related to creating more bikable and walkable communities.

VISION & GOALS

The Plan vision and goals were established through a visioning input session with the Steering Committee at the February 27, 2014 Kickoff Meeting and were confirmed and refined through the public input process. The vision and goals serve as the common thread and pulse for the analysis and recommendations found in this Plan.

GOLDSBORO VISION STATEMENT

Goldsboro's convenient network of sidewalks, bikeways, and greenways is a regional attraction that brings people of all ages and abilities together; safely connects them to where they want to go; encourages a healthy, active lifestyle; highlights the local history, culture, and environment; and promotes the local economy.



Cyclist on Center St.

Goal: Mobility (Increase Community Active Mobility and Accessibility)

- Identify and fill in gaps in the pedestrian and bicycle network to better connect neighborhoods to central business districts, commercial centers, public spaces, services, and schools.
- Reduce existing foot trails and dirt paths in the pedestrian network by providing new sidewalks and trails.
- Work with regional and state partners to develop a regionally connected network of bikeways and trails.
- Complete top priority pedestrian and bicycle projects by 2020.



Shops in Downtown Goldsboro.

Goal: Economy (Expand the local economy by making Goldsboro a better place to live, recreate, and explore)

- Develop and promote the bicycle and pedestrian network as a regional attraction for residents and visitors to the area, linking facilities to local businesses, historical sites, parks, and other attractions.
- Work with downtown businesses and business organizations to develop regional walking and bicycling events, such as fun runs and bicycle races, that attract visitors to Goldsboro.
- Draw visitors and new residents to the area by making the pedestrian and bicycle network attractive, fun, and easy to use.
- Expand and improve the Mountains-to-Sea Trail through Goldsboro including marketing and visibility efforts.



Pedestrian crossing signage.

Goal: Safety (Make Goldsboro a safer place for pedestrians and bicyclists).

- Start a pedestrian and bicycle safety education program in all elementary and middle schools for children in grades K-8.
- Develop a regional pedestrian and bicycle safety campaign that educates motorists, bicyclists, and pedestrians on traffic laws and how to safely share the road.
- Raise awareness and educate decision-makers, stakeholders, interest groups, and the public on the safety benefits of sidewalks, bikeways, improved crossings, and greenway trails.
- Increase traffic enforcement through ticketing, speed feedback trailers, crosswalk stings, and other methods to reduce unsafe driving behavior.
- Through improved infrastructure, education, and enforcement, reduce the number of pedestrian- and bicycle-related crashes by 50% by 2025.

Goal: Health (Improve the health of the community by promoting and encouraging active lifestyles).

- Partner with health organizations, hospitals, and the military to create recurring annual community events that use sidewalks, bikeways, and trails to promote physical activity, such as a walk/run event, a community fun day at local parks, or an “Open Streets” festival downtown.
- Educate decision-makers, stakeholders, interest groups, and the public on the health benefits of walking, bicycling, and an active lifestyle.
- Use the bicycle and pedestrian network and programs to promote healthy living and address high rates of obesity, diabetes, and other diseases linked to low physical activity rates.
- Reach out to diverse populations throughout Goldsboro to raise awareness of local walking and bicycling opportunities through education and encouragement programs.



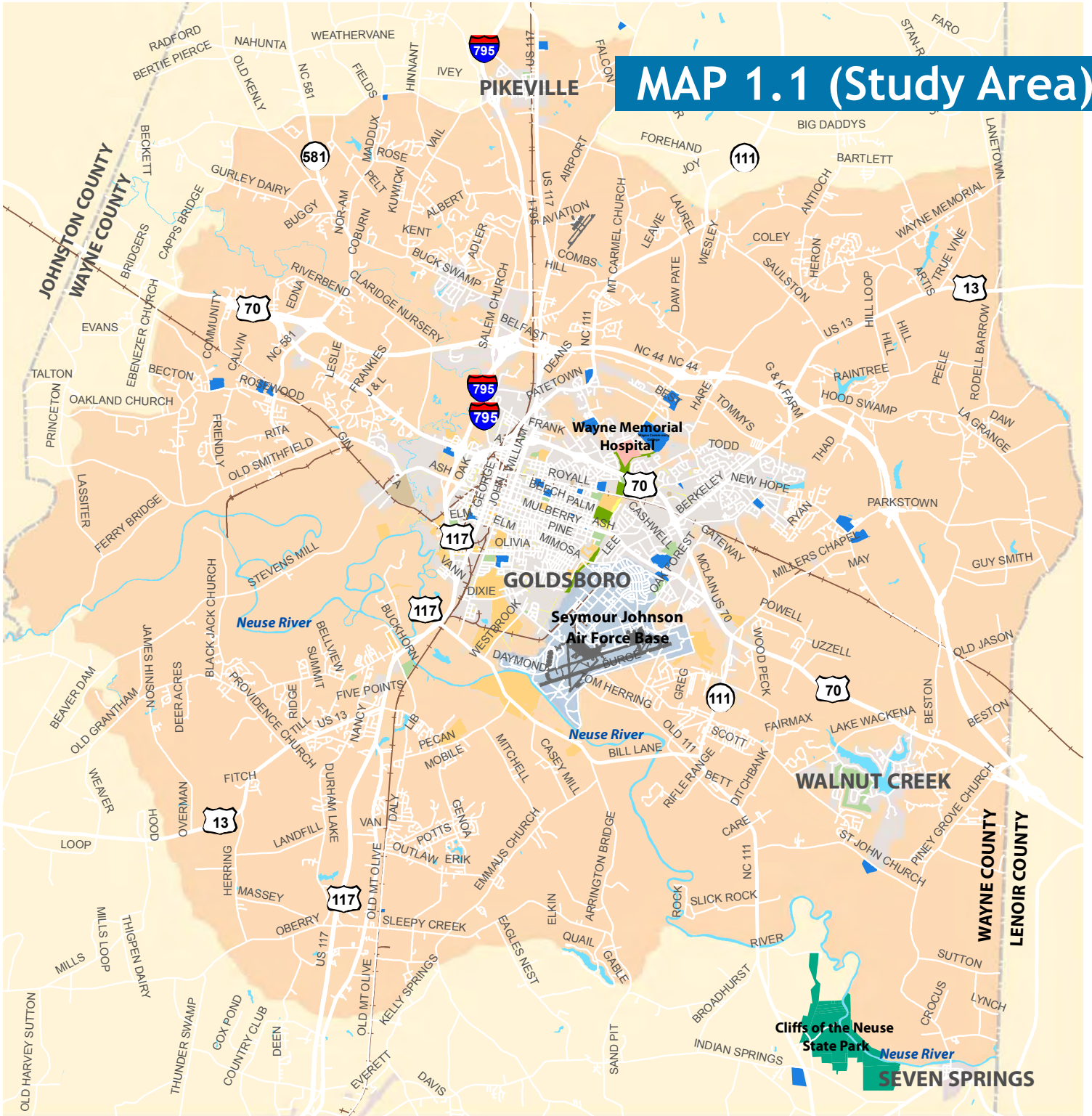
Open Streets Festival in NC.

Goal: Environment/Stewardship (Maintain and promote Goldsboro’s beautiful, natural environment)

- Educate decision-makers, stakeholders, interest groups, and the public on the environmental benefits of greenway trails.
- Integrate the regional trail network with local agricultural tourism and education opportunities.
- Use the regional pedestrian and bicycle network to promote local environmental stewardship through neighborhood cleanup days, nature walks, hike and paddle events, or similar events.
- Work with Friends of Wayne County Greenways and other local advocacy groups to develop strong community participation with the greenway network through local events, volunteering, and media promotions.



Goldsborough Bridge Battlefield.



MAP 1.1 (Study Area)

Overview Map



Legend

- Lands of Interest**
- City Greenway Lands
 - Park
 - State Park
 - Schools
 - Hospital
 - Other Destinations
 - City Easements
 - Other City/County Property

- Existing Infrastructure**
- Roadway
 - Railroad
- Additional Context**
- Water Bodies
 - Seymour Johnson Air Force Base
 - City Limits
 - MPO Limits
 - Wayne County Border







Chapter 2: Existing Conditions

Chapter Contents:

Photographic Summary of Existing Conditions

Existing Conditions Maps and Analyses

OVERVIEW

Goldsboro, Pikeville, Walnut Creek, and the Goldsboro MPO as a whole have a number of features to attract people to walk and bike in the area. A large portion of the population already walks or bikes at least some of the time for recreation, exercise, or utilitarian trips. This chapter discusses the current bicycle and pedestrian network, the many opportunities that exist as starting points for improvement, the constraints that the region must address to become more walk- and bike-friendly, and the demand for safer, better connected facilities throughout the region. The observations presented in this chapter help to inform this plan’s recommendations and implementation strategy.

PHOTOGRAPHIC SUMMARY OF EXISTING CONDITIONS

Opportunities

Downtown Core

Downtown Goldsboro is made up of a large grid network with shops, restaurants, and services that attract pedestrians and bicyclists to the area.

From left to right: Streetscape signage on Center Street, Center Street near Mulberry, and North John Street



Popular Destinations

Examples include schools, shopping centers, restaurants, places of worship, the Neuse River, Wayne Community College, Downtown Pikeville, and parks such as Herman Park.



From left to right: Canoes at the Neuse River, bicycle shop on Ash Street, and Herman Park

Existing Sidewalks

Many streets in central Goldsboro have sidewalks on at least one side of the street. Sidewalks downtown are wide and some have attractive street furniture and restaurant seating. A recent streetscape project along Center Street included reconstructed sidewalks with attractive pavers, ADA ramps, and high-visibility crossings.



From left to right: Center Street sidewalk at Mulberry Street, mid-block crossing on Center Street, and William Street sidewalk



Existing On-Road Bicycle Facilities

On-road bicycle facilities are limited to a few roads in Goldsboro and vary in quality and consistency. Parkway Drive, Harding Drive, and one block of Center Street have bike lanes. A wide paved shoulder exists on one side of North Park Road and a portion of New Hope Road. Bill Lane Road, south of Wayne County, has 4-foot paved shoulders on both sides. There are no on-road bicycle facilities in Pikeville or Walnut Creek.

From left to right: Harding Drive bike lane, Parkway Drive bike lane, and Center Street bike lane



Existing Shared-Use Trails & Walking Paths

Some trails and walking paths have been developed in Goldsboro, primarily in parks. Examples include paths in Herman Park, Fairview Park, and Stoney Creek Park. Dees Memorial Park in Pikeville and village-owned park land in Walnut Creek both have walking paths. A paved sidepath also exists in Goldsboro on the south side of New Hope Road from Hare Road to Harding Drive.

From left to right: New Hope Road sidepath, Stoney Creek Park, and Dees Memorial Park walking path in Pikeville



Greenway Lands and Easements

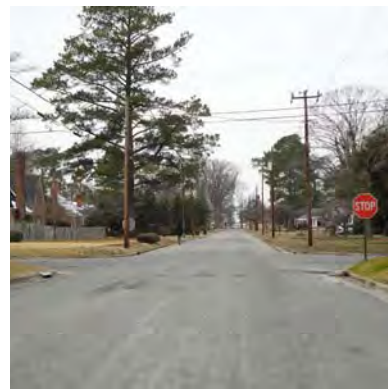
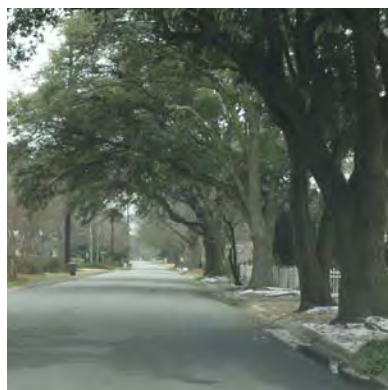
The City of Goldsboro has already obtained and designated several parcels as city greenway lands, which can be used for routing trails. Sewer easements throughout the city also serve as ideal corridors for future trails because they are flat, regularly maintained, and publicly owned.



From left to right: Easement at Chestnut Street and railroad crossing, sewer easement, and Willow Dale Cemetery

Quiet Neighborhood Streets

Neighborhood streets are favorable for walking and bicycling because they have low automobile traffic volumes and speeds. In Goldsboro, neighborhood streets often parallel busier roads and provide access to downtown and other popular destinations, giving pedestrians and bicyclists safer, quieter alternatives to busy streets.



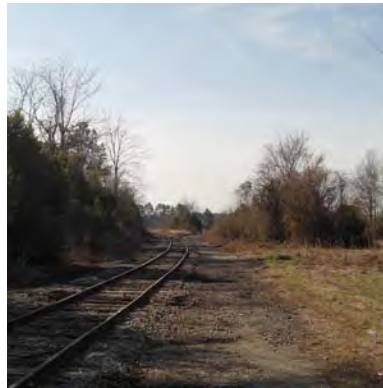
From left to right: Mulberry Street at George Street, Madison Avenue at Palm Street, and Holly Street at Audubon Avenue



Inactive Rail Lines

Some rail lines in Goldsboro are no longer active and show signs of their lack of use. In the future, these inactive lines could be pursued for rails-to-trails projects.

From left to right: US 117 at railroad crossing, railroad near Center Street at Elm Street, and George Street at railroad crossing



Neuse River and Paddle Access Points

The Neuse River is a major natural feature and attraction for campers, paddlers, hikers, and other outdoor enthusiasts. Several paddle access points exist along the river as part of the Wayne County Paddle Trails network.

From left to right: Cliffs of the Neuse State Park, canoes at the Neuse River, and Seven Springs canoe launch at the Neuse River



Constraints

Sidewalk Gaps

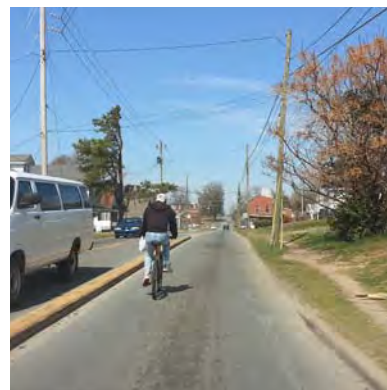
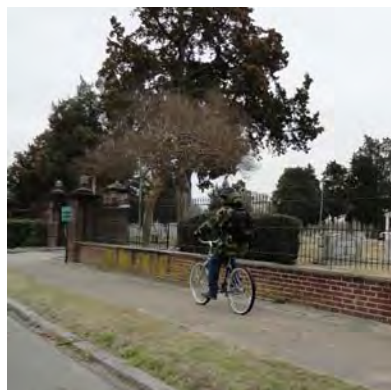
The sidewalk network in Goldsboro and Pikeville contains a number of key gaps that make it difficult to walk to many destinations. Walnut Creek does not feature sidewalks. While sidewalks exist along many streets in central Goldsboro, the network becomes more and more disconnected the further one gets from downtown. Many schools and parks in town lack convenient sidewalk access from surrounding neighborhoods. Some major streets lack sidewalks altogether, requiring pedestrians to walk in the road or through private property to reach a destination.



From left to right: Wayne Memorial Drive, Spence Avenue, and Pinewood Plaza bus stop

Lack of a Bicycle Network

Goldsboro lacks on-road bicycle facilities on most of its streets, and Pikeville and Walnut Creek do not currently have any on-road bicycle facilities in town. Many bicyclists choose to ride on the sidewalk to avoid sharing the road with cars. In Pikeville, Walnut Creek, and rural areas of Wayne County, there is a lack of shoulders or signage to direct bicyclists. Those who choose to ride must share the lane with cars, even on high volume and high speed roads.



From left to right: Ash Street at Glenwood Trail, Elm Street at Willow Dale Cemetery, and George Street near Pine Street



Railroad Crossings

Railroad crossings are often a physical barrier for bicyclists and pedestrians. Uneven crossings, gaps between the pavement and the rail, and collected debris all make it difficult for pedestrians and bicyclists to safely cross, especially those individuals with disabilities who may be using a wheelchair or a walker for mobility.

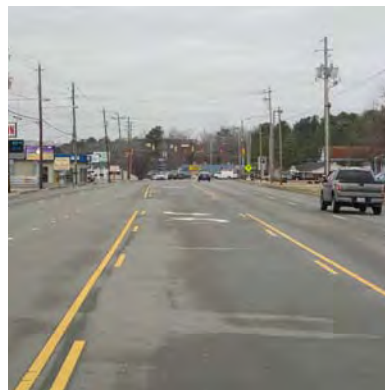
From left to right: Beech Street at Center Street, Holly Street, and Downtown Pikeville



Major Roads and Highways

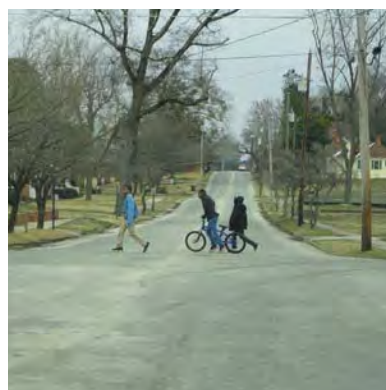
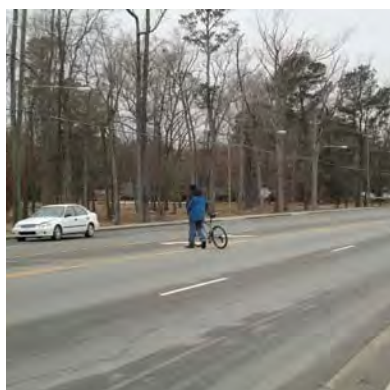
Highways and other major roads with high posted speeds and traffic volumes are especially uncomfortable for pedestrians and bicyclists. Roads such as Ash, Berkeley, Spence, US 117, and Highway 70 have many driveway cuts, disconnected sidewalks, and a lack of dedicated bicycle facilities that make it impractical and uncomfortable to walk or bike these corridors. These roads have major implications for pedestrian and bicycle accessibility: because many shopping centers, services, and other destinations are located along Goldsboro's major roads and highways, pedestrians and bicyclists are often cut off from accessing these areas.

From left to right: Ash Street at Audubon Avenue, Ash Street at Berkeley Boulevard, and Royall Avenue at Spence Avenue



Lack of Safe Pedestrian Crossings

Crossings that are too far apart or without sufficient pedestrian safety elements are a significant barrier to walking and bicycling. Wide roads with heavy traffic, high speeds, and few protected crossings make it difficult for pedestrians and bicyclists to safely and comfortably walk or bike, even if the conditions on either side of the corridor are acceptable. During the fieldwork phase of this plan, many pedestrians and bicyclists were observed crossing the road mid-block or at intersections that lacked a marked crosswalk or signal.



From left to right: Cyclist crossing Ash Street, William Street at Royall Avenue, and pedestrians at Mulberry Street and Daisy Street

Maintenance Issues

Some sidewalks, bike lanes, and marked crossings are in need of more regular maintenance and repair. Examples include debris in bike lanes, heavily worn crosswalk markings, and cracked and overgrown sidewalks.



From left to right: Overgrown sidewalk on John Street, debris on New Hope Road, and worn crosswalks at Herman Street and Holly Street



EXISTING CONDITIONS MAPS AND ANALYSES

This section presents a series of maps that showcase existing bicycle and pedestrian conditions, and the demand for improved conditions, in the Goldsboro MPO. It is important to analyze the existing network, its gaps, and the diverse needs of the community to determine how future investments in the region can best be prioritized. The following maps and analyses provide a summary of existing conditions in the Goldsboro MPO that help to guide the recommendations made in Chapters 3, 4, and 5:

- Overview Map
- Existing Facilities
- Low-Stress Streets for Bicycling
- Destinations
- Safety Challenges
- Equity Analysis
- Bike and Walk Commute Rates
- Live/Work/Play Analysis
- Footpaths

Overview Map

Map 2.1 features municipalities in the Goldsboro MPO, roadways, railroads, parks, schools, publicly-owned land, and water features in the MPO. Map 2.2 features a focus on the City of Goldsboro.

Bicycle and Pedestrian Facility Supply

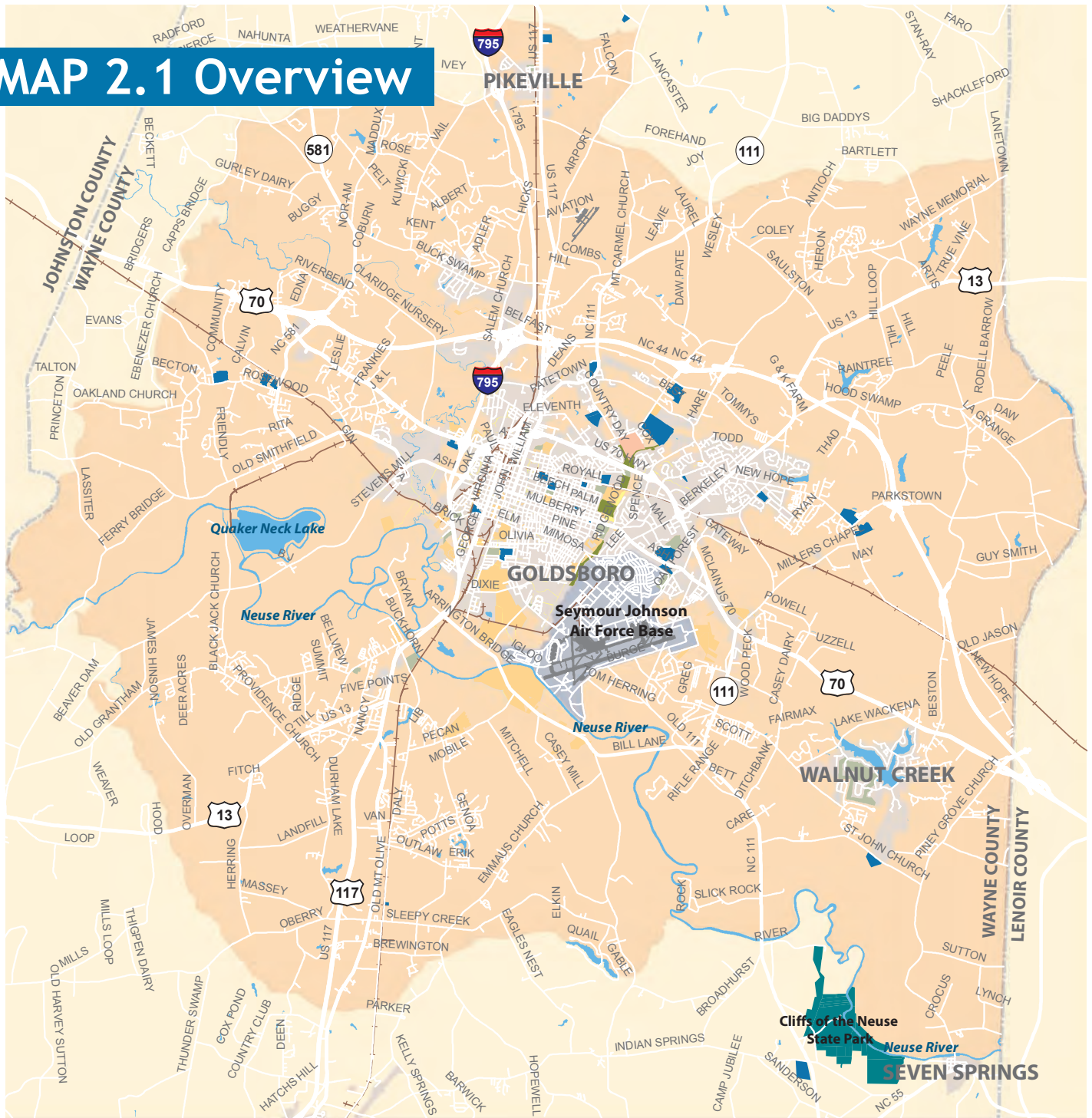
Existing Facilities

Maps 2.3 and 2.4 show existing sidewalks, bike lanes, and paved shared-use trails in the Goldsboro MPO. A dense network of sidewalk exists in sections of central Goldsboro, including downtown, but many areas still remain unconnected. Small segments of bike lanes and shared-use trails have been constructed in parts of town, but do not yet form a network.

<u>Facility Type</u>	<u>Mileage</u>
Sidewalk	61
Bike Lanes	2
Paved Shared-Use Trails	3



MAP 2.1 Overview



Overview Map



Legend

Lands of Interest

- City Greenway Lands
- Park
- State Park
- Schools
- Hospital
- City Easements
- Other City/County Property

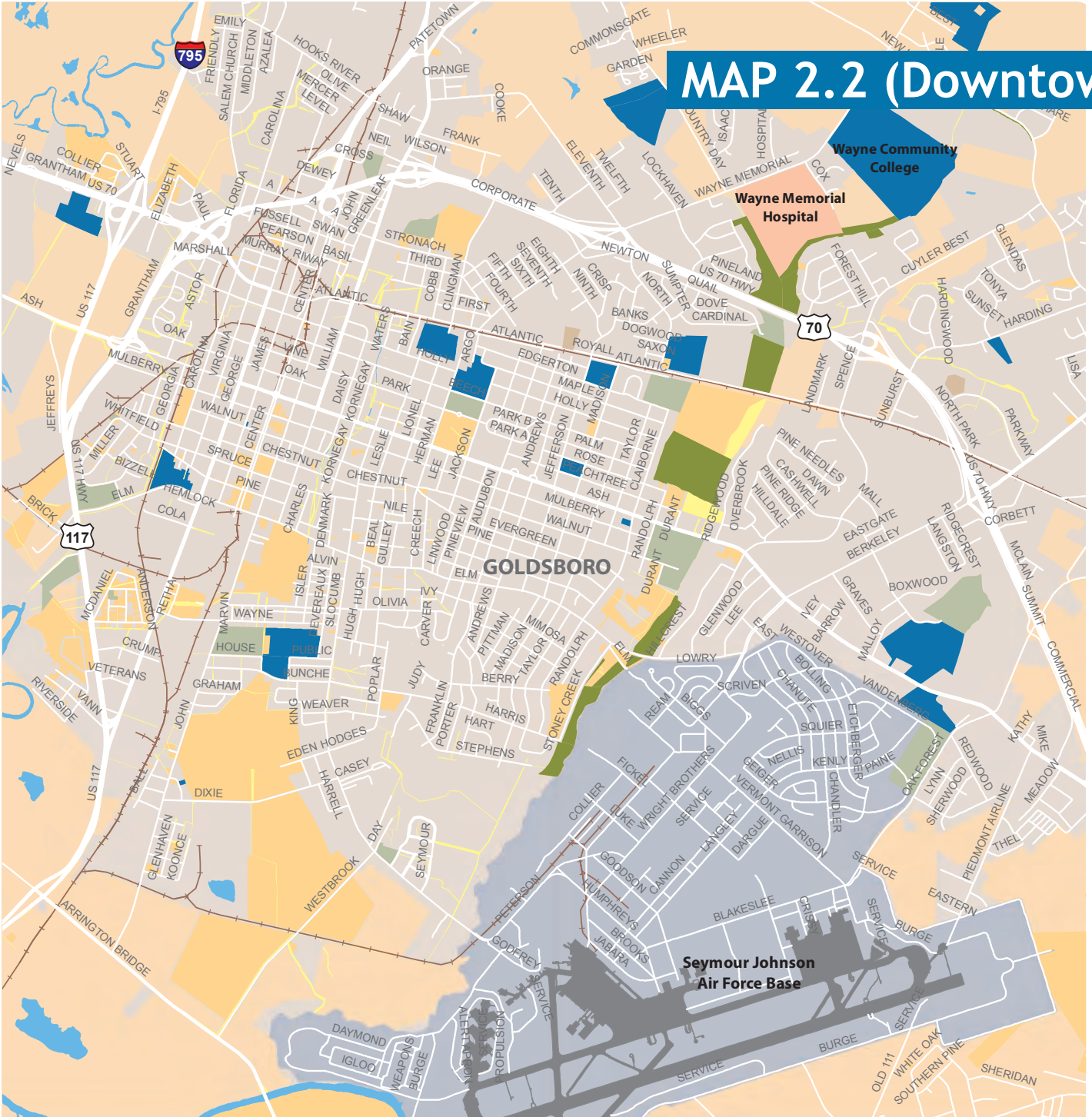
Existing Infrastructure

- Roadway
 - Railroad
- #### Additional Context
- Water Features
 - Seymour Johnson Air Force Base
 - City Limits
 - MPO Limits
 - Wayne County Border





MAP 2.2 (Downtown)



Overview Map - Downtown



Legend

Lands of Interest

- City Greenway Lands
- Park
- State Park
- Schools
- Hospital
- Other Destinations
- City Easements
- Other City/County Property

Existing Infrastructure

- Roadway
- Railroad

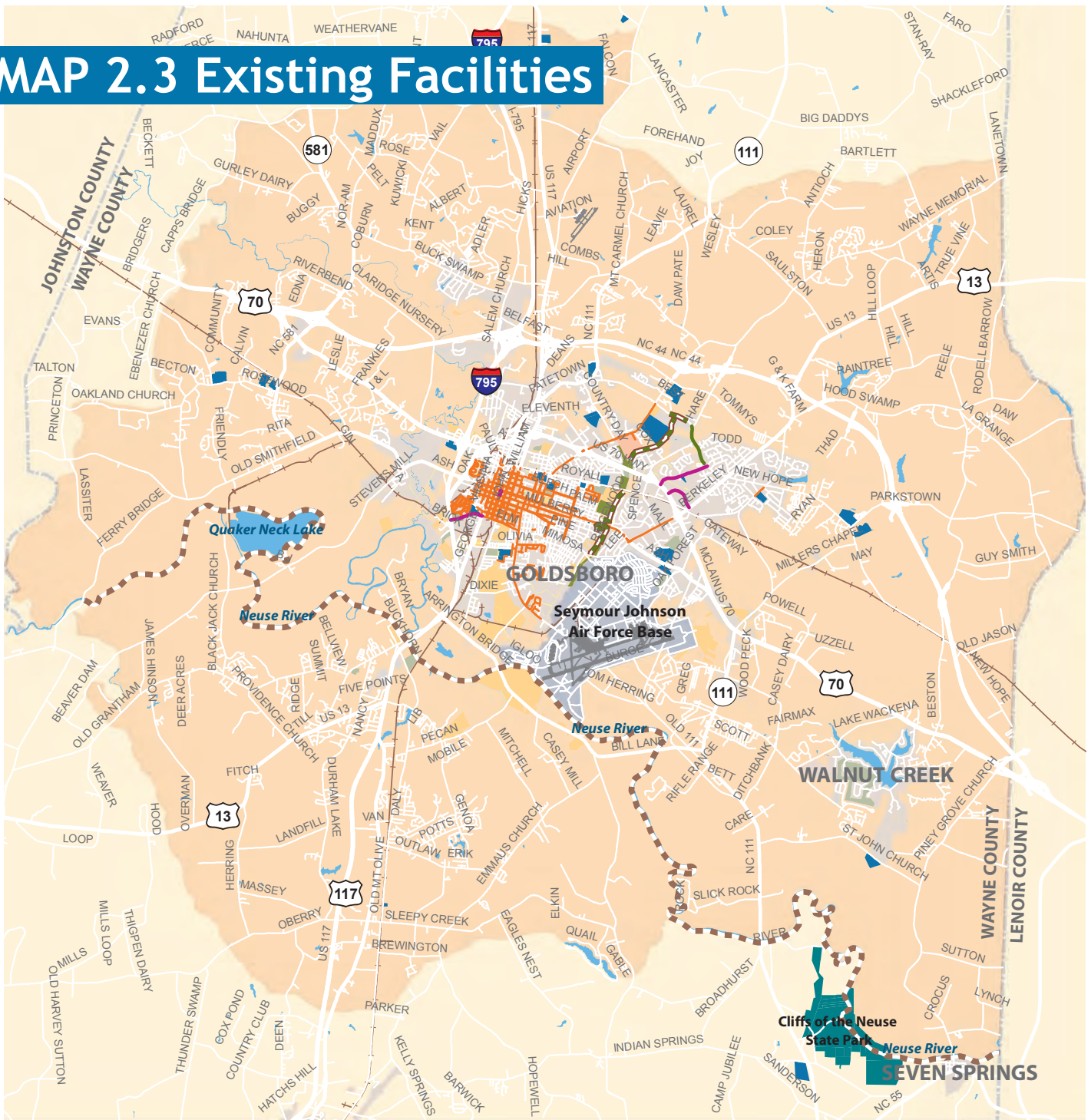
Additional Context

- Water Features
- Seymour Johnson Air Force Base
- City Limits
- MPO Limits
- Wayne County Border





MAP 2.3 Existing Facilities



Existing Facilities



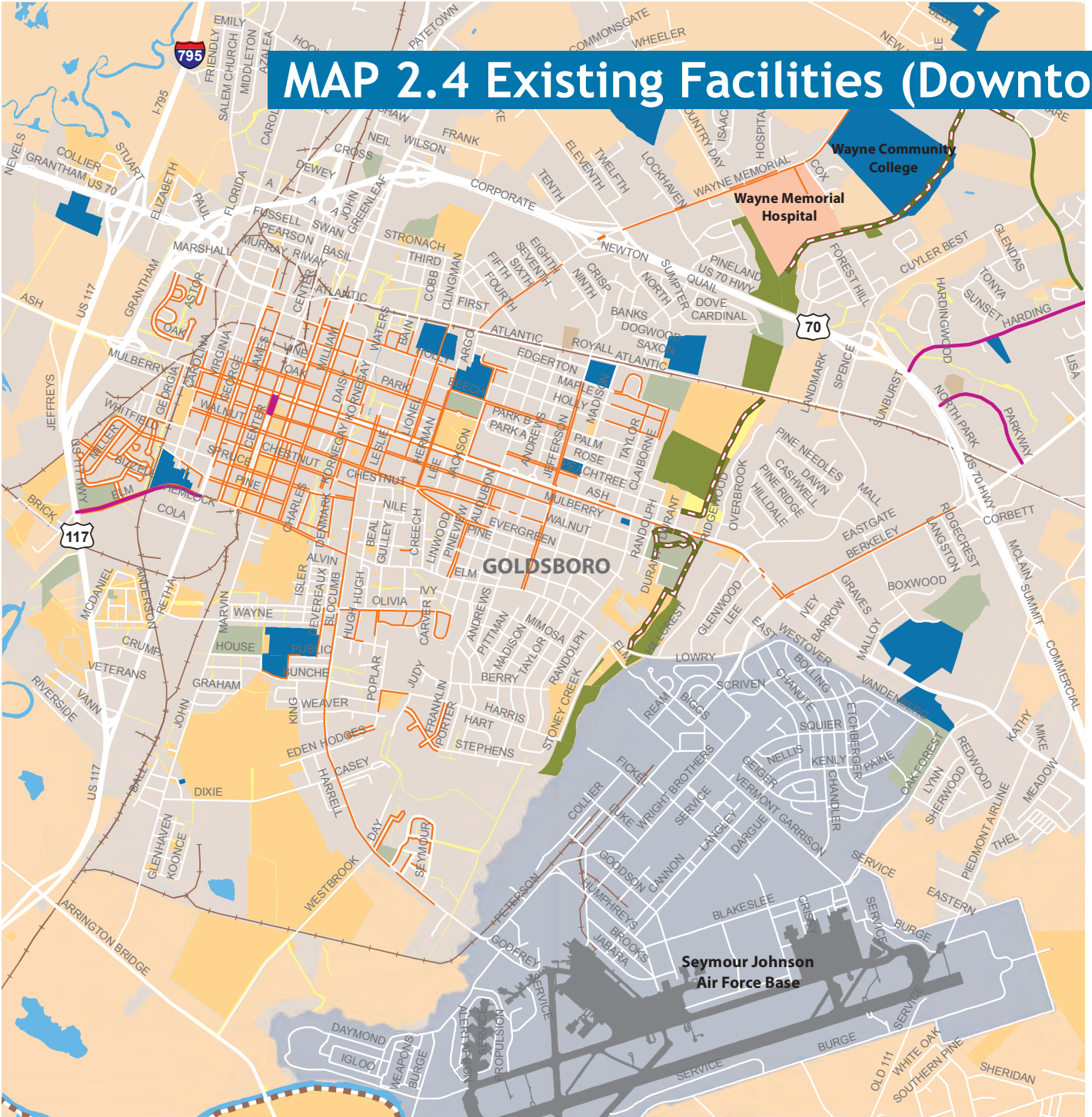
Legend

- | | | |
|--------------------------------|----------------------------|---|
| Existing Infrastructure | Lands of Interest | Additional Context |
| Existing Bike Lane | City Greenway Lands | Proposed Mountains-to-Sea Trail Alignment |
| Existing Shared-Use Path | Park | Water Features |
| Funded Shared-Use Path | State Park | Seymour Johnson Air Force Base |
| Existing Sidewalk | Schools | City Limits |
| Roadway | Hospital | MPO Limits |
| Railroad | City Easements | Wayne County Border |
| | Other City/County Property | |





MAP 2.4 Existing Facilities (Downtown)



Existing Facilities - Downtown



Legend

Existing Infrastructure

- Existing Bike Lane
- Existing Shared-Use Path
- Funded Shared-Use Path
- Existing Sidewalk
- Roadway
- Railroad

Lands of Interest

- City Greenway Lands
- Park
- Schools
- Hospital
- Other Destinations
- City Easements
- Other City/County Property

Additional Context

- Proposed Mountains-to-Sea Trail Alignment
- Water Features
- Seymour Johnson Air Force Base
- City Limits
- MPO Limits



Low-Stress Streets for Bicycling (Level of Traffic Stress Analysis)

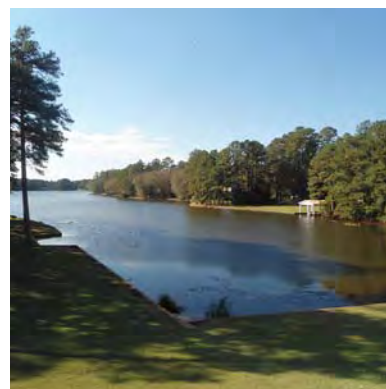
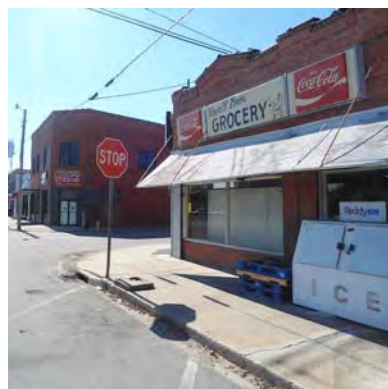
Bicyclists come in all ages, abilities, and comfort levels. Studies on the bicycling population show that most people, approximately 60% of the population, feel “Interested but Concerned” about bicycling opportunities. These people enjoy bicycling, but primarily feel comfortable doing so on trails, physically separated bikeways, or quiet neighborhood streets where they will experience a low level of stress with automobile traffic.

A Level of Traffic Stress (LTS) Analysis is one way of categorizing streets into different levels of bicycling “stress” based on roadway characteristics such as traffic speed and number of lanes. Map 2.5, right, shows low stress bicycle corridors in Goldsboro based on LTS analysis. Many neighborhood streets in Goldsboro are low stress and provide some connectivity, but many parts of town are cut off from one another because of a lack of low-stress bicycle connections. Seymour Johnson Air Force Base is completely isolated from the city due to a lack of low-stress links to the base, and very few corridors offer an uninterrupted, low-stress north-south or east-west route across town. Outside of central Goldsboro, low-stress bicycle routes are sparse and are limited to a few isolated neighborhood streets, making comfortable cross-city travel by bike impossible. For the full LTS Analysis report, please see Appendix H.

Bicycle and Pedestrian Facility Demand

Destinations

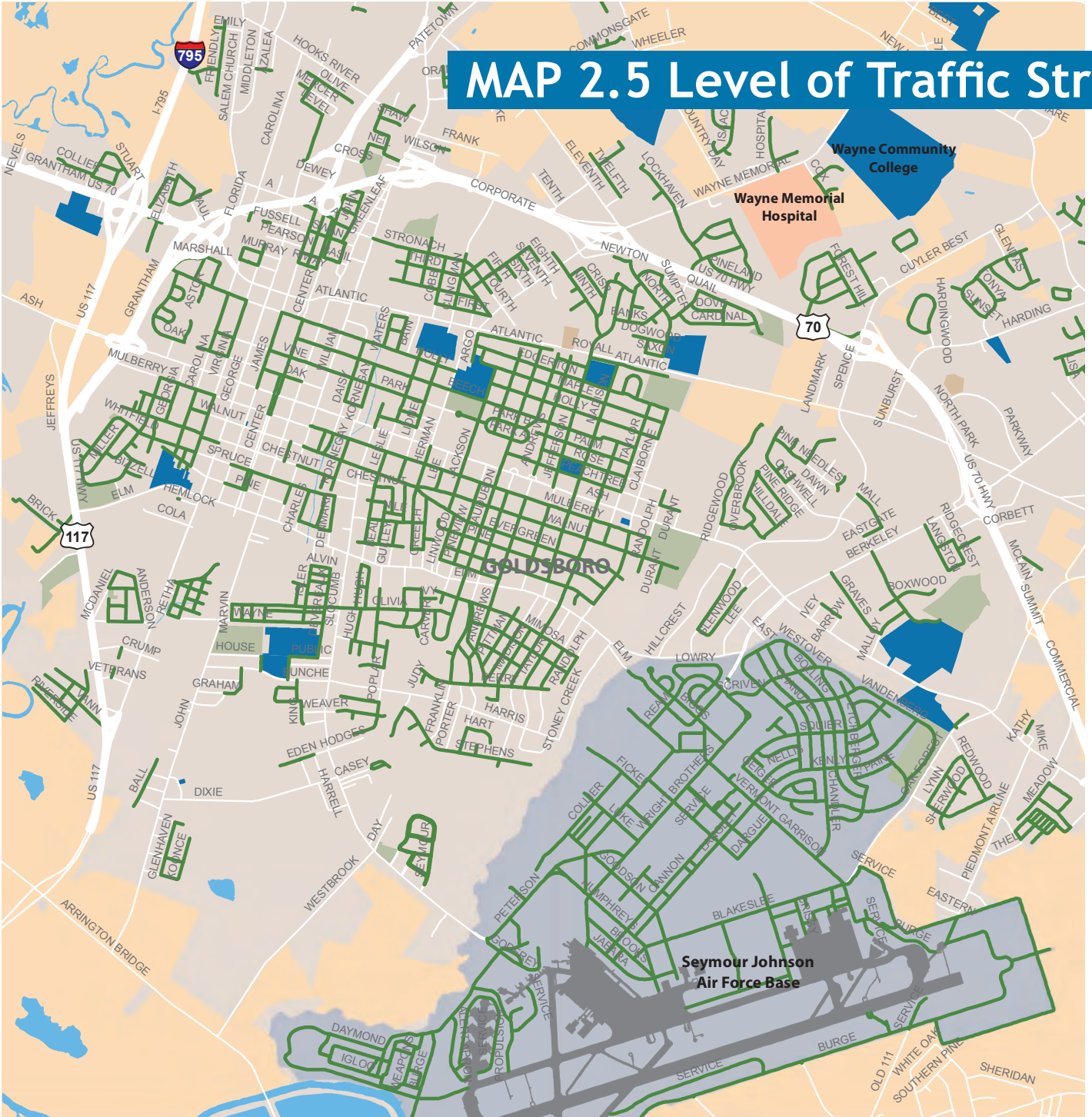
Map 2.6 shows the density of destinations in Goldsboro, including schools, parks, shops, medical facilities, banks, and other businesses and services. Downtown Goldsboro has the highest density of destinations, followed by the Berkeley, Spence, and Wayne Memorial corridors. Other clusters of destinations



Clockwise from top left: Eastern Wayne Middle School, tennis courts at Herman Park, Downtown Goldsboro, Spring Lake in Walnut Creek, Downtown Pikeville, and Stoney Creek Park



MAP 2.5 Level of Traffic Stress



Low Stress Bicycle Corridors - Downtown



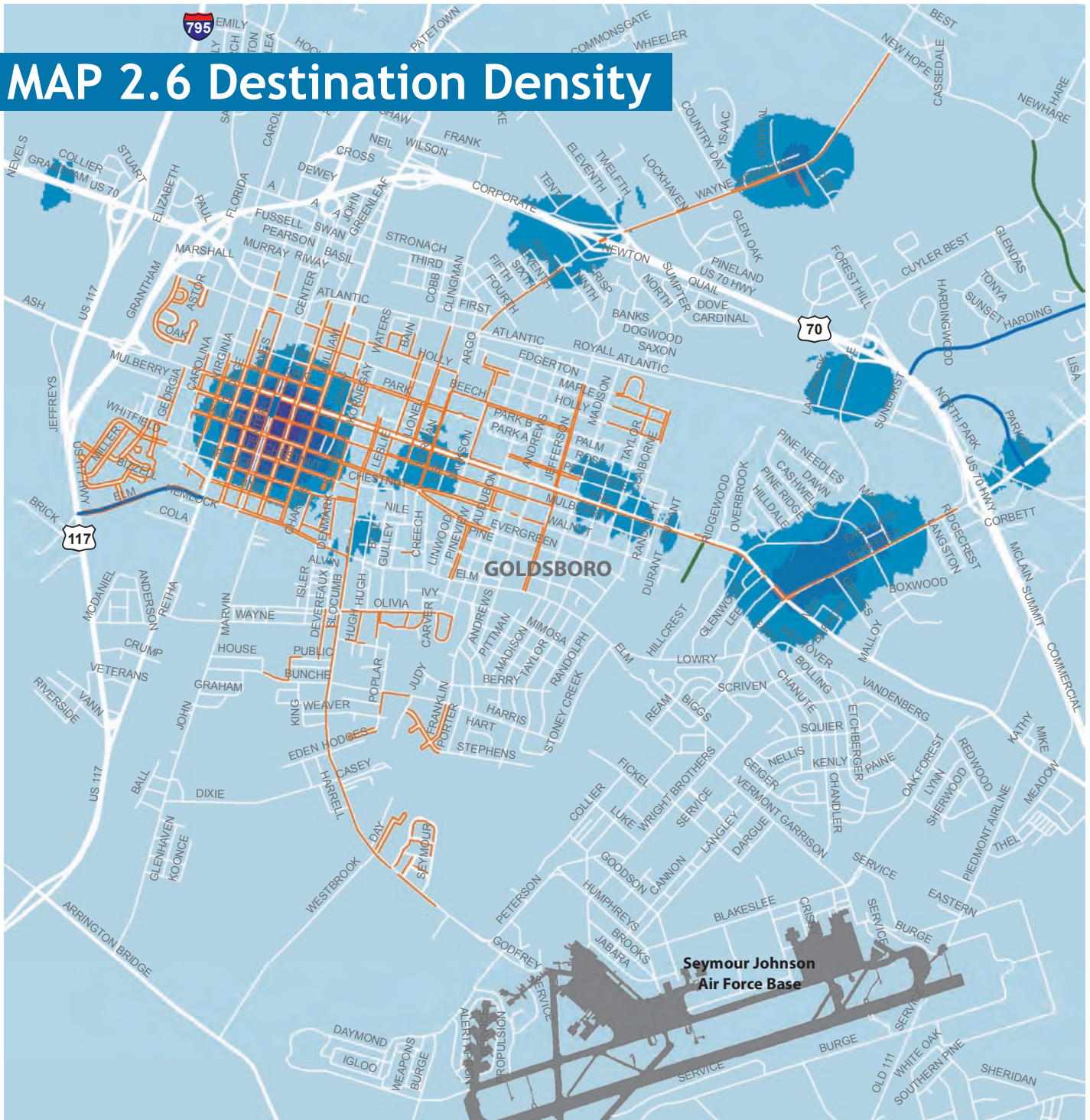
Legend

Level of Traffic Stress	Lands of Interest	Additional Context
— 1 - Low Stress	■ Park	■ Water Features
	■ Schools	■ Seymour Johnson Air Force Base
	■ Hospital	■ City Limits
		■ MPO Limits





MAP 2.6 Destination Density



Destination Density - Downtown



Legend

- | | |
|----------------------------|--------------------------------|
| Destination Density | Existing Infrastructure |
| High Density | Existing Bike Lane |
| Medium Density | Existing/Funded Multi-Use Path |
| Low Density | Existing Sidewalk |
| | Roadway |





exist along Ash Street and the US 70 Bypass. These “activity clusters” attract people traveling by foot or by bike, yet many of these areas are not safely or comfortably accessible by the existing pedestrian and bicycle infrastructure, particularly those clusters to the north and east of downtown.

Safety Challenges

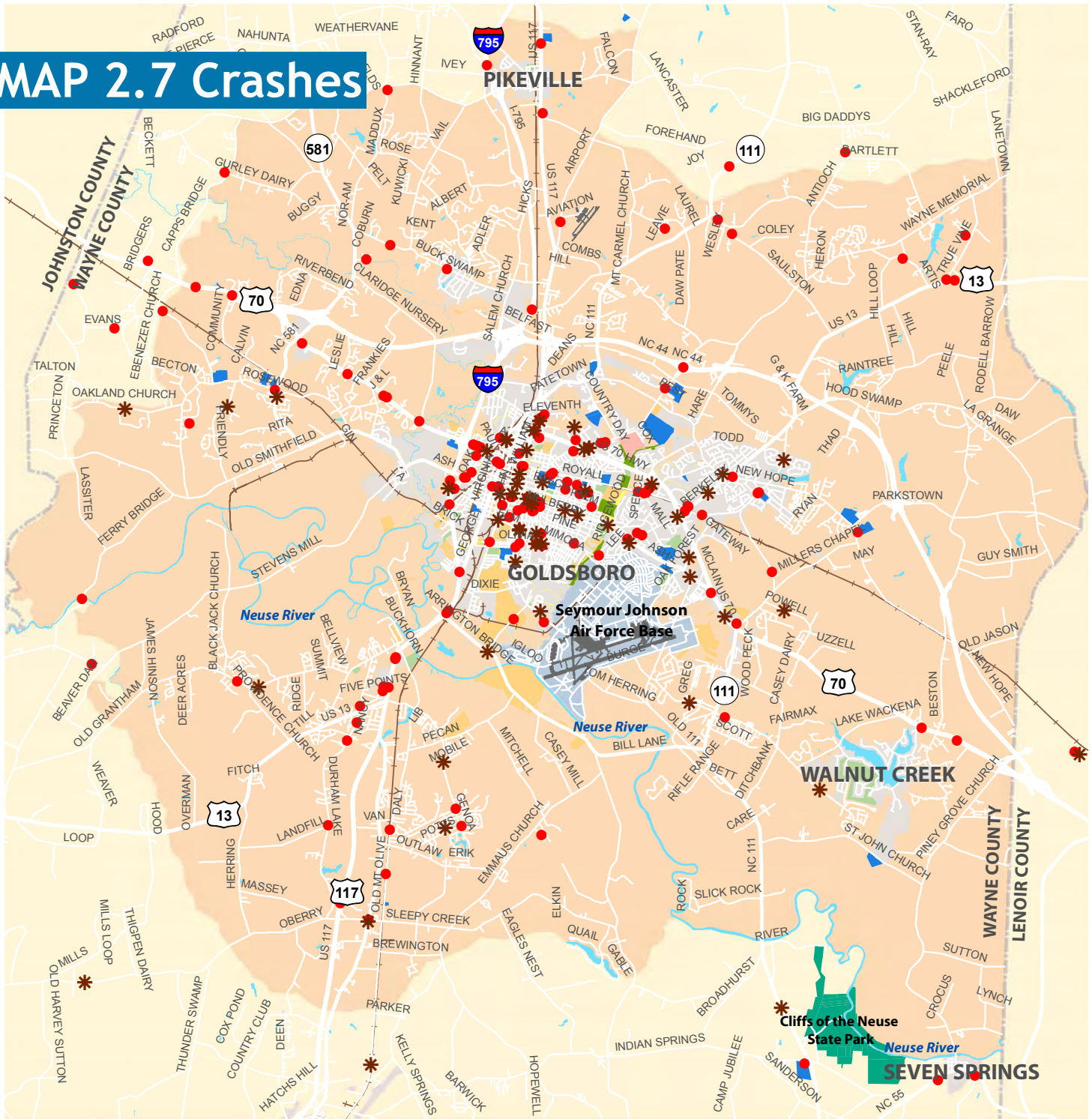
From 2007-2011, NCDOT and its partners recorded 188 crashes involving a bicyclist or pedestrian in the Goldsboro MPO. Of these, 51 were bicycle-automobile crashes, including 1 fatality, and 137 were pedestrian-automobile crashes with 11 fatalities. Maps 2.7 and 2.8 show the locations of these crashes. The tables below list the corridors and intersections with the highest number of reported bicycle and pedestrian crashes. These are areas where there is likely a high level of walking and bicycling and a need for safety countermeasures, such as sidewalks, bike lanes, or crossing improvements.

<i>Corridor</i>	<i>Bike Crashes</i>	<i>Ped Crashes</i>	<i>Total</i>
US 70 Highway/Bypass	8	13	21
Ash Street	8	9	17
US 117 Highway/Bypass	2	12	14
William Street	6	8	14
Wayne Memorial Drive	2	8	10
Slocumb Street	4	4	8
Elm Street	4	4	8
Olivia Lane	2	5	7
Mulberry Street	2	3	5
Berkeley Blvd	3	2	5
Royall Avenue	0	5	5

<i>Location</i>	<i>Bike Crashes</i>	<i>Ped Crashes</i>	<i>Total</i>
Pinewood Square Shopping Ctr Parking Lot	1	6	7
William St and East Hooks River Road	1	3	4
Olivia Lane and Poplar Street	1	3	4
US 70 Bypass and Wayne Memorial Drive	2	1	3
Wayne Memorial Drive and Lockhaven Drive	0	3	3
S Slocumb Street and E Elm Street	2	1	3



MAP 2.7 Crashes



Bicycle and Pedestrian Collisions



Legend

Collisions 2007-2011

- Bicycle Collision
- Pedestrian Collision

Existing Infrastructure

- Roadway
- Railroad

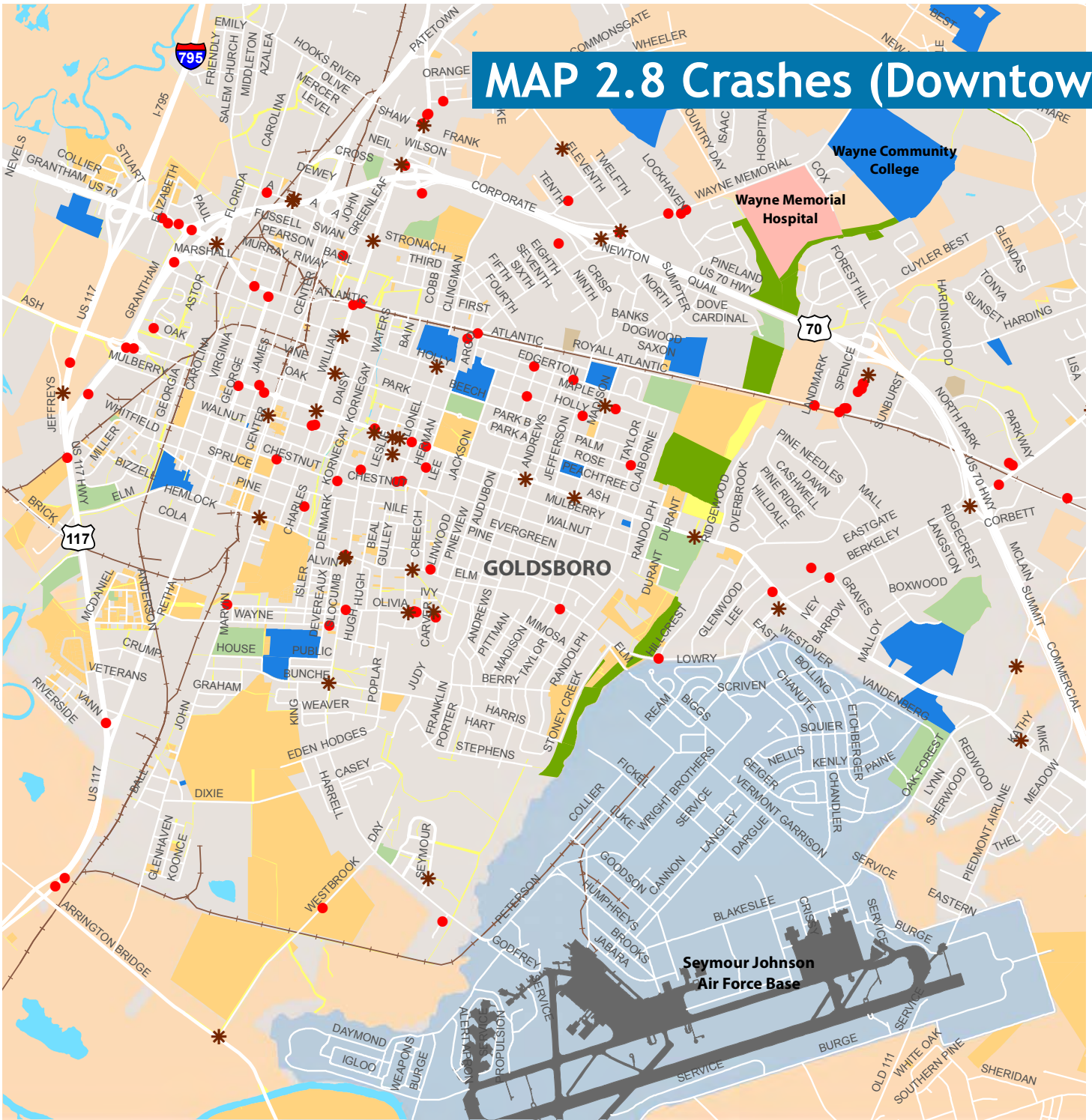
Lands of Interest

- City Greenway Lands
- Park
- State Park
- Schools
- Hospital
- City Easements
- Other City/County Property

Additional Context

- Water Bodies
- Seymour Johnson Air Force Base
- City Limits
- MPO Limits
- Wayne County Border





MAP 2.8 Crashes (Downtown)

Bicycle and Pedestrian Collisions - Downtown



Legend

- | | | |
|--|--|--|
| <p>Collisions 2007-2011</p> <ul style="list-style-type: none"> * Bicycle Collision • Pedestrian Collision <p>Existing Infrastructure</p> <ul style="list-style-type: none"> Roadway Railroad | <p>Lands of Interest</p> <ul style="list-style-type: none"> City Greenway Lands Park State Park Schools Hospital Other Destinations City Easements Other City/County Property | <p>Additional Context</p> <ul style="list-style-type: none"> Water Features Seymour Johnson Air Force Base City Limits MPO Limits Wayne County Border |
|--|--|--|





Crash Type

The tables to the right show a breakdown of pedestrian and bicycle crashes by crash type, count, and percentage of total crashes for the Goldsboro MPO, 2007-2011. These frequencies are compared to the statewide percentages for each crash type, which were gathered from NCDOT 2008-2012 statewide crash reports. **The most common pedestrian crash type, "Pedestrian Failed to Yield," includes instances where a pedestrian was crossing the street and did not yield the right-of-way to a motorist traveling straight (not turning). Of these cases, 88% occurred when the pedestrian was crossing mid-block.** This may occur when a pedestrian is not near an intersection or marked crosswalk and is trying to cross in between heavy traffic, does not see an oncoming vehicle, or misjudges a vehicle's speed (which may be speeding).

The most common bicycle crash type, "Motorist Overtaking - Other/Unknown," applies when a crash occurs as a motorist is passing a bicyclist traveling the same direction. "Other/Unknown" means that it was not clear whether the motorist misjudged the space needed to pass, the bicyclist swerved, or the motorist did not see the bicyclist. Of all of the "Motorist Overtaking Bicyclist" crashes (12 total), 91.7% occurred in a travel lane, as opposed to a bike lane or shoulder. Improved street lighting and better separation between bicyclists and motor vehicles with bike lanes and paved shoulders could help to reduce the frequency of this type of crash. Where there is not roadway space for a bicycle facility, lower posted speed limits and traffic calming measures can help to reduce motor vehicle speeds and the frequency and severity of crashes.

Age Distribution

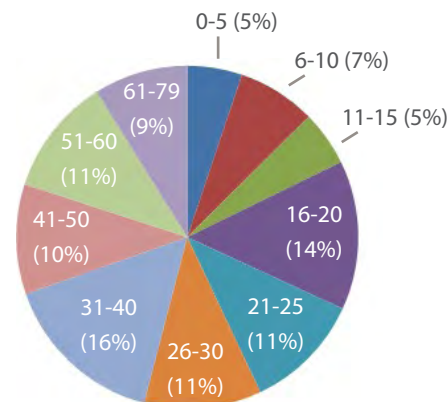
Bicyclists involved in a collision from 2007-2011 ranged from 8 to 66 years old, and pedestrians ranged from 1 to over 70 years old. The top two charts to the right show crashes by age group. **The 16 to 19 age group accounted for the greatest proportion of bicycle crashes (20%),** though the majority of crashes involved adults age 25 or older (58%). Pedestrian crashes were similarly spread across age groups, with 44% of crashes involving a child, teen, or young adult up through age 25, and 56% of crashes involving a pedestrian age 26 or older.

Bicyclist Position

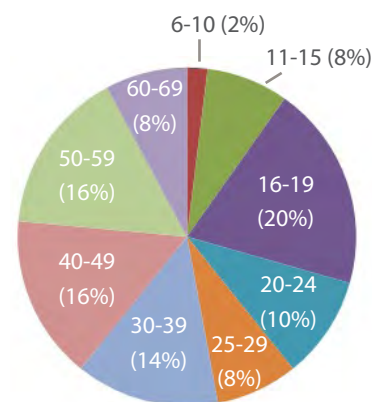
At the time of the crash, 60.8% of bicyclists were in the travel lane and 13.7% were on a sidewalk/crosswalk/driveway. Few roads in the Goldsboro MPO currently have a bike lane or other bicycle facility. Adding these facilities to roads would help to address the top two crash positions by increasing the separation between bicyclists and passing motorists, and by reducing the frequency of sidewalk riding.

Built Environment

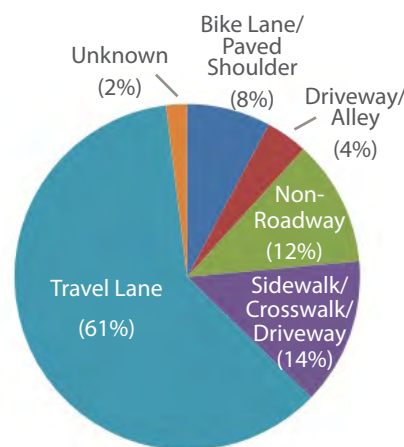
Bicycle and pedestrian crashes in the Goldsboro MPO primarily occur in urban environments where population densities and traffic volumes are higher: **From 2007-2011, 78% of all bicycle crashes and 62% of all pedestrian crashes were in urban areas.** However, a relatively high percentage of pedestrian crashes were also in rural areas, accounting for 23% of the total. This suggests that a number of people are also walking in rural environments in the MPO, where pedestrian facilities such as sidewalks, wide shoulders, and crosswalks are typically lacking.



Pedestrian crash age distribution



Bicycle crash age distribution



Bicyclist position at time of crash



Rank	Pedestrian Crash Type	Count	Percentage	% Statewide
1	Pedestrian Failed to Yield	26	19.0%	14.8%
2	Walking Along Roadway with Traffic - From Behind	13	9.5%	6.8%
3	Dash	12	8.8%	5.6%
4	Backing Vehicle - Parking Lot	10	7.3%	7.4%
5	Off Roadway - Parking Lot	9	6.6%	9.4%
5	Walking in Roadway	9	6.6%	3.9%
7	Off Roadway - Other/Unknown	7	5.1%	3.7%
8	Motorist Left Turn - Parallel Paths	6	4.4%	4.8%
9	Motor Vehicle Loss of Control	5	3.6%	4.4%
9	Standing in Roadway	5	3.6%	2.1%
11	Motorist Failed to Yield	4	2.9%	3.0%
Subtotal for Top 11 Types		106	77.4%	65.9%

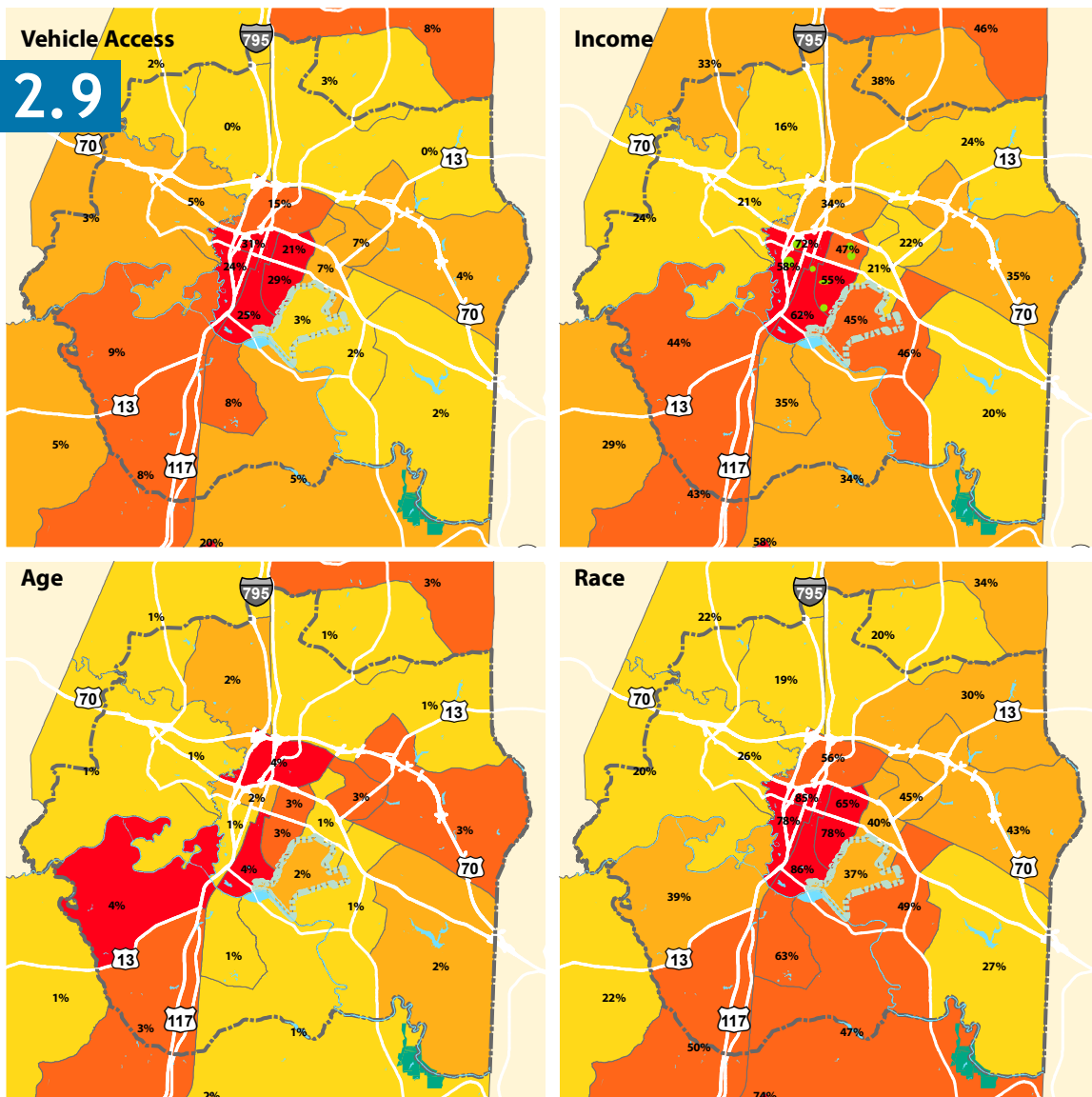
Rank	Bicyclist Crash Type	Count	Percentage	% Statewide
1	Motorist Overtaking - Other/Unknown	6	11.8%	9.0%
2	Non-Roadway	4	7.8%	4.2%
3	Bicyclist Ride Out - Commercial Driveway/Alley	3	5.9%	0.8%
3	Bicyclist Ride Through - Signalized Intersection	3	5.9%	2.2%
3	Motorist Overtaking - Undetected Bicyclist	3	5.9%	2.9%
4	Bicyclist Left Turn - Same Direction	2	3.9%	4.8%
4	Bicyclist Ride Out - Midblock - Unknown	2	3.9%	1.4%
4	Bicyclist Ride Out - Parallel Path	2	3.9%	1.0%
4	Motorist Drive Out - Commercial Driveway/Alley	2	3.9%	5.0%
4	Motorist Drive Out - Sign-Controlled Intersection	2	3.9%	9.8%
4	Motorist Overtaking - Bicyclist Swerved	2	3.9%	2.5%
4	Motorist Turning Error - Left Turn	2	3.9%	0.5%
4	Signalized Intersection - Other/Unknown	2	3.9%	2.5%
Subtotal for Top 13 Types		35	68.6%	46.6%



Equity Analysis Maps

An important goal of this plan is to recommend bicycle and pedestrian improvements in the Goldsboro MPO that will benefit all residents, including those who are typically underserved or underrepresented. An equity analysis was completed during the planning process to identify the locations where such residents are located in order to target public outreach to those areas and ensure that recommendations meet the needs of those residents. Maps 2.9 and 2.10 show the areas of the Goldsboro MPO that have the greatest need for bicycle and pedestrian facilities based on a high concentration of the following demographics: populations of color, households with no vehicle, populations

MAP 2.9



Composite Equity Analysis Inputs

Vehicle Access

Percent of occupied households with no vehicle available

Age

Percent of the population below age 15 or above age 65

Income

Percent of families with an income below 200% of the poverty line

Race

Percent of the population that identifies with a race other than white alone

Equity Tier

- Highest
- High
- Medium
- Low

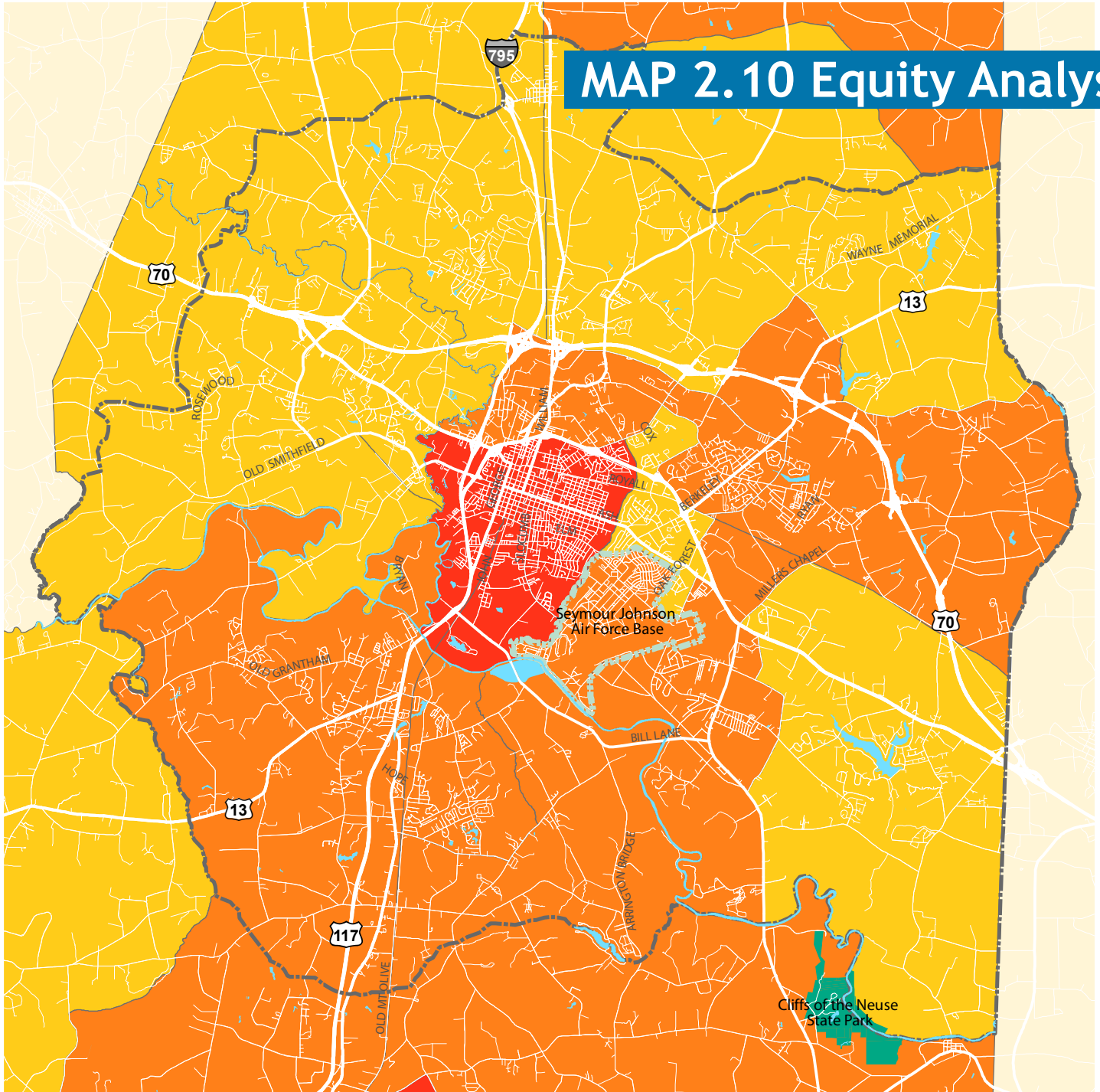
Legend

- MPO Boundary
- SJ Air Force Base
- State Park
- Public Housing Areas





MAP 2.10 Equity Analysis



Composite Equity Analysis

The Composite Social Equity Tiers reflect the average of four social groups with higher concentrations of:

- 1) Families living below or near the poverty line
- 2) Households with no vehicle available
- 3) Households with a limitation on English speaking ability
- 4) Population below age of 15 or above age 65

A higher tier represents a higher relative concentration of these groups.

Equity Tier

- Low
- Medium
- High

Legend

- MPO Boundary
- Seymour Johnson Air Force Base
- State Park





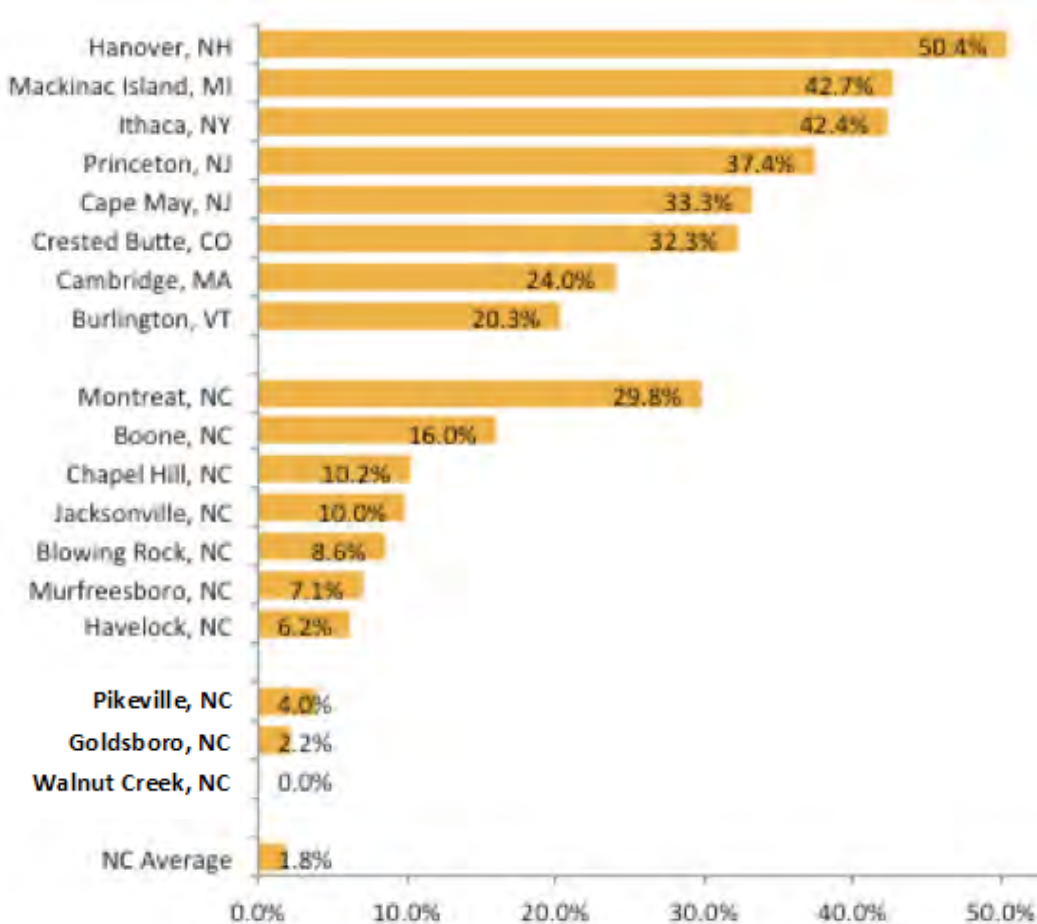
below 200% of the poverty line, populations in public housing, and populations below age 15 or above age 65. **All of central Goldsboro received a high equity score, indicating that this area likely has the highest dependence on walking and bicycling and therefore the highest need for safe and accessible facilities.** To read the full Equity Analysis Report for Goldsboro, please see the plan appendix.

Bike and Walk Commute Rates

Maps 2.11 and 2.12 show the proportion of working commuters in each block group who walk or bike to work. Overall, Goldsboro has a walk to work rate of 2.2% and a bike to work rate of 0.6%, Pikeville has a walk to work rate of 4.0% and a bike to work rate of 0.0%, and Walnut Creek has a 0.0% rate for both. The charts below show how walk and bike to work rates for the Goldsboro

WALK to WORK RATES

Model cities in the US and NC, as compared to the Goldsboro MPO



Source: US Census 5-year ACS (2008-2012).

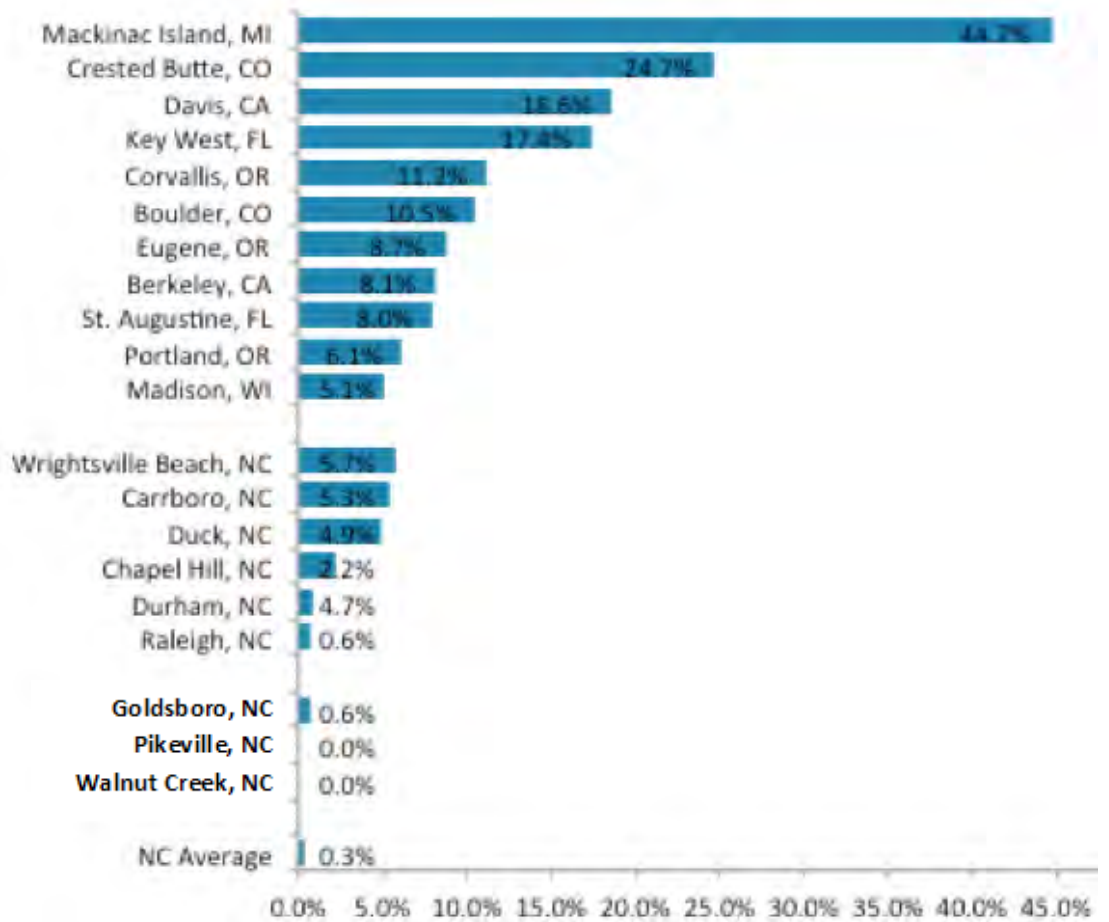


Commuter rates under-represent the total amount of walk and bike trips but give an order of magnitude for the area; the goal is to increase all walking and biking trips, not just the commute to work trips (which only account for 20% of all trips).

MPO compare to model cities across the country and in North Carolina. Maps 2.8 and 2.9 show how the proportion of workers biking and walking to work varies greatly across Goldsboro and the MPO. The highest share of pedestrian commuters is located on Seymour Johnson Air Force Base (8.5%) and in west and northwest Goldsboro along US 117 and US 70 (5.3% and 6.2%, respectively), all of which have rates far above the city average. Areas with a high share of bicycle commuters include west Goldsboro along US 117 (6.6%), south-central and downtown Goldsboro (2.9%), and Seymour Johnson Air Force Base (1.5%). These rates are important for understanding where people are already walking and biking, the conditions that they face on their commute, and how conditions can be improved to encourage more people to walk and bike, particularly in dense, mixed-use portions of town.

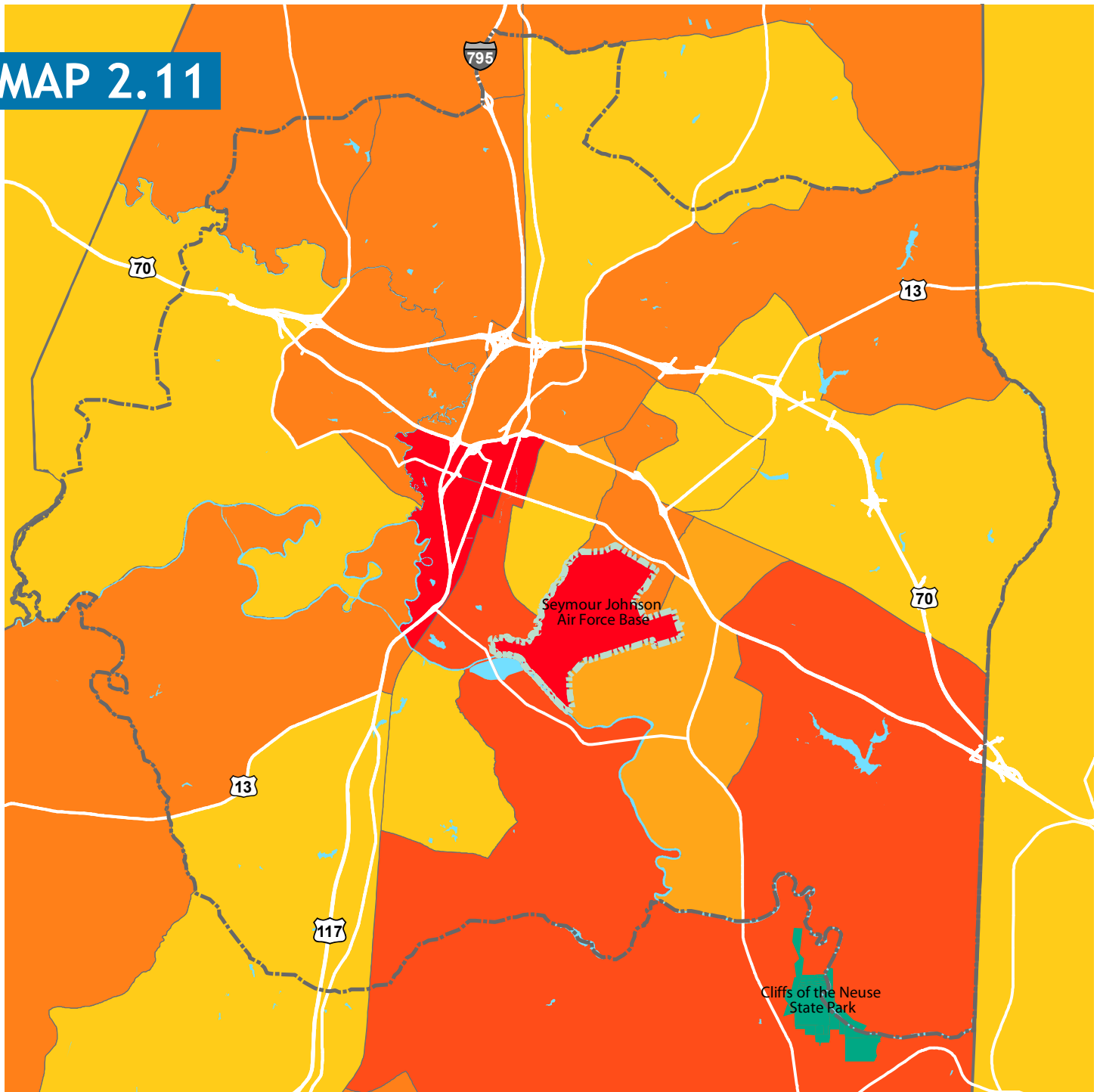
BIKE to WORK RATES

Model cities in the US and NC, as compared to the Goldsboro MPO

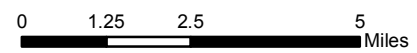


Source: US Census 5-year ACS (2008-2012).

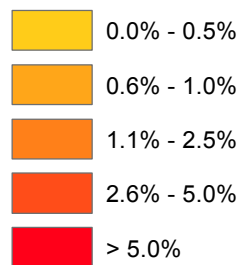
MAP 2.11



Walk to Work Mode Share



Percent Walk to Work

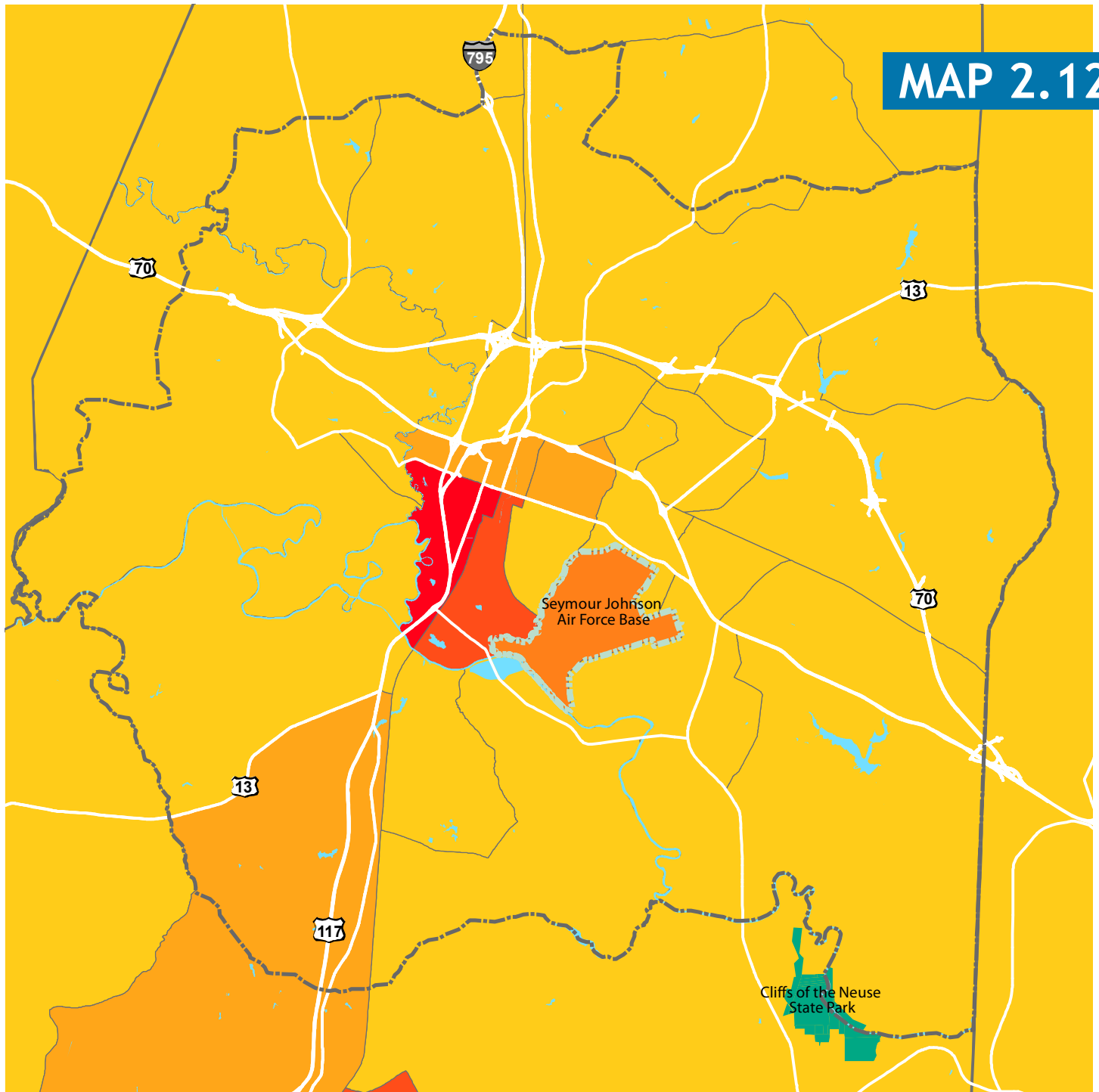


Legend





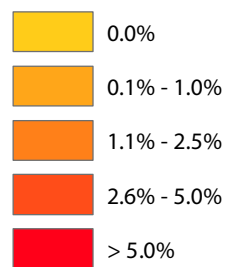
MAP 2.12



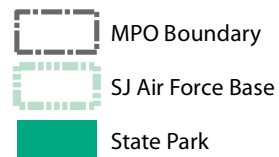
Bike to Work Mode Share



Percent Bike to Work



Legend



Live/Work/Play Analysis map

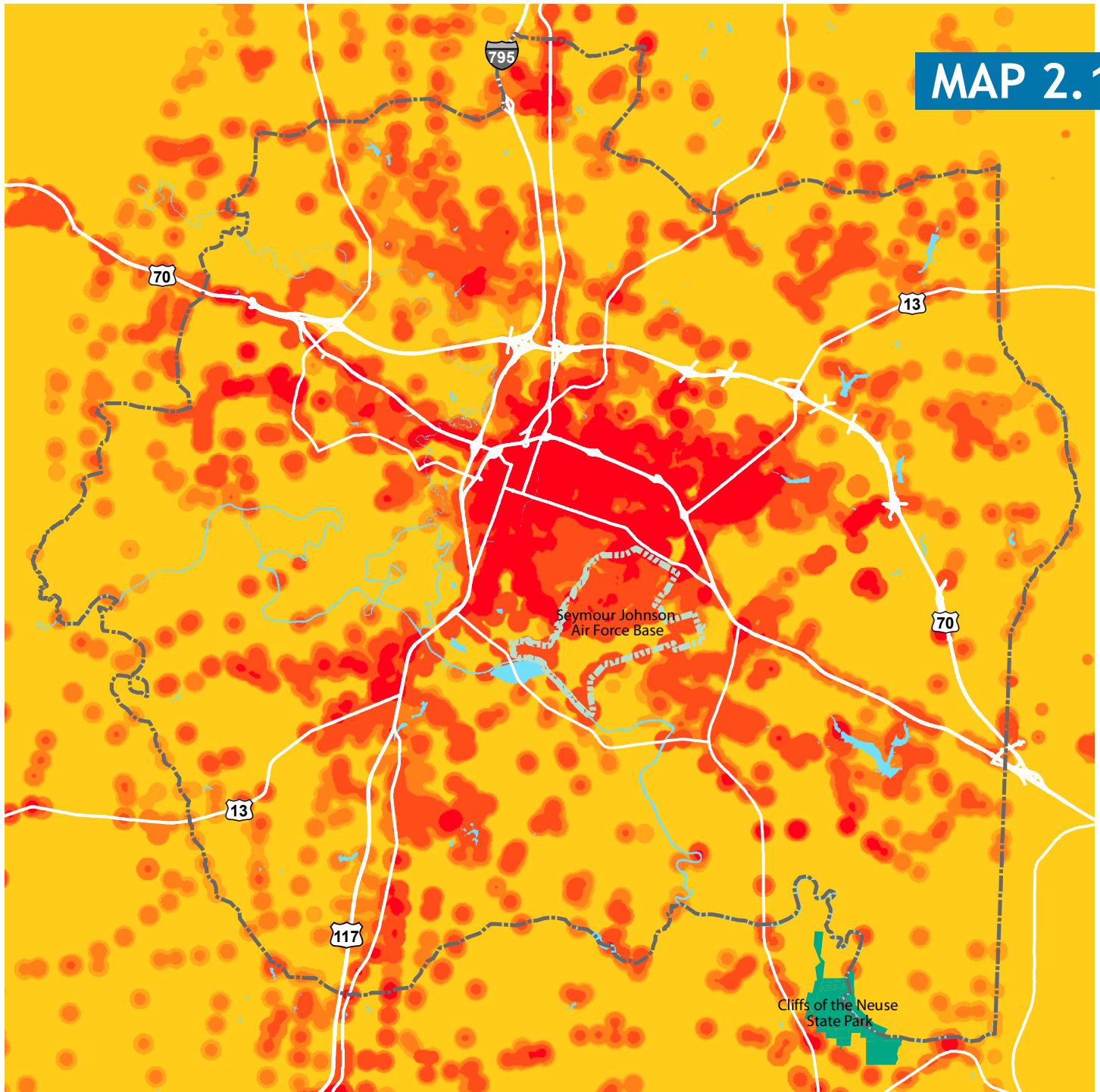
One way to evaluate pedestrian and bicycle demand in a given area is to examine the many places to which people travel and how they get there. A Live/Work/Play Analysis does just that by aggregating information on where people live (population density), work (employment density), access transit (location of bus stops), learn (location of schools and colleges), and play (location of popular destinations such as parks, shopping centers, restaurants, hotels, historic destinations, and others). Where there is a high density of all of these factors, we can expect that there will be a greater demand for walking and bicycling. The composite Live/Work/Play map (Map 2.13) shows where in the Goldsboro MPO bicycle and pedestrian demand is expected to be highest. **The greatest levels of demand for bicycling and walking are in central Goldsboro, including downtown, as well as northern Goldsboro, Pikeville, and along Highway 70 and Highway 13/Berkeley Boulevard.** To read the complete Live/Work/Play analysis report, please see Appendix H.



Children walking at intersection of Mulberry Street and Daisy Street. This is an area of high demand for walking and bicycling.



MAP 2.13



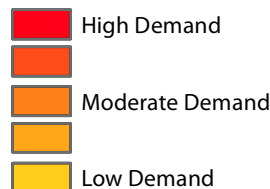
Composite Demand Analysis

The Composite Demand Map incorporates the following drivers of bicycle and pedestrian activity:

- 1) Where People Live
- 2) Where People Work
- 3) Where People Play
- 4) Where People Access Transit

Composite Demand

Live + Work + Learn + Play + Transit



Legend



Footpaths Map

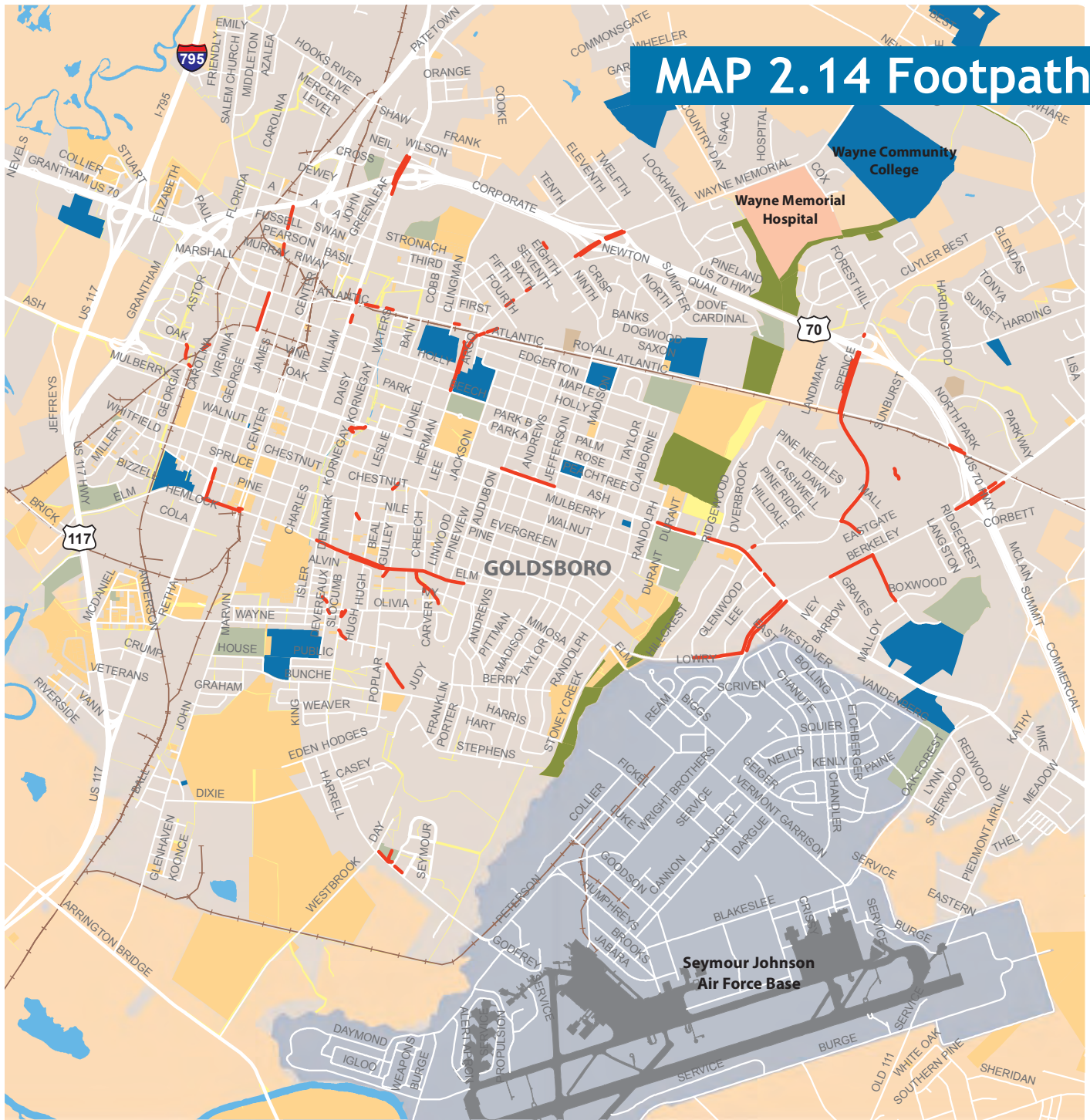
Footpaths provide an effective way to observe pedestrian demand because they are visible, on the ground indicators of where people walk on a regular basis. Footpaths exist in places where there is no sidewalk or trail, yet people walk frequently anyway, creating worn paths. During the fieldwork phase of this project, the fieldwork team took notes and pictures of visible footpaths throughout Goldsboro and then mapped the results to show where people are currently walking without a paved sidewalk or trail. Map 2.14 shows the locations of these footpaths. **Over 11 miles of footpaths were observed in Goldsboro during fieldwork and through remote analysis.** These dirt paths indicate that many people are likely walking out of necessity in these areas to reach important destinations. These gaps in the pedestrian network provide clues as to where safer and more comfortable pedestrian connections are needed throughout town.



From left to right: Wayne Memorial Drive at Royall Avenue, George Street, Royall Avenue at Carolina Street



Footpath being used at Slocumb and Olivia (courtesy: Google Streetview).



MAP 2.14 Footpaths

Footpaths - Downtown



Legend

- | | | |
|--------------------------------|------------------------------|----------------------------------|
| Observed Footpaths | Lands of Interest | Additional Context |
| — Footpaths | ■ City Greenway Lands | ■ Water Features |
| Existing Infrastructure | ■ Park | ■ Seymour Johnson Air Force Base |
| — Roadway | ■ State Park | ■ City Limits |
| — Railroad | ■ Schools | ■ MPO Limits |
| | ■ Hospital | ■ Wayne County Border |
| | ■ Other Destinations | |
| | ■ City Easements | |
| | ■ Other City/County Property | |



