



2017 Hoke County Comprehensive Transportation Plan



2017 Hoke County Comprehensive Transportation Plan

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In Cooperation with:

Hoke County
Lumber River Rural Planning Organization

Published: September 2017



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Table of Contents

Executive Summary	i
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Chapter 1: Analysis of the Existing and Future Transportation System

1.1 Analysis Methodology and Data Requirements	1-1
a) Roadway System Analysis	1-1
i. Traffic Crash Assessment	1-3
ii. Bridge Deficiency Assessment	1-3
b) Public Transportation and Rail	1-13
i. Public Transportation	1-13
ii. Rail	1-14
c) Bicycles and Pedestrians	1-14
d) Land Use	1-15
1.2 Consideration of the Natural and Human Environment	1-16
1.3 Public Involvement	1-17

Chapter 2: Recommendations

2.1 Implementation	2-1
2.2 Problem Statements	2-2
a) Highway	2-3
b) Public Transportation and Rail	2-4
c) Bicycle	2-4
d) Pedestrian	2-4

Appendices

Appendix A: Resources and Contacts	A-1
Appendix B: Comprehensive Transportation Plan Definitions	B-1
Appendix C: CTP Inventory and Recommendations	C-1
Appendix D: Typical Cross-Sections	D-1
Appendix E: Level of Service Definitions	E-1
Appendix F: Bridge Deficiency Assessment	F-1
Appendix G: Socio-Economic Data Forecasting Methodology	G-1
Appendix H: Public Involvement	H-1

List of Figures

Figure 1: Comprehensive Transportation Plan	iii
Figure 2: 2015 Volumes and Capacity Deficiencies	1-5
Figure 3: 2045 Volumes and Capacity Deficiencies	1-7
Figure 4: High Frequency Crash Locations	1-9
Figure 5: Deficient Bridges	1-11
Figure 6: Environmental Features	1-19
Figure 7: Typical Cross Sections	D-2
Figure 8: Level of Service Illustrations	E-2
Figure 9: Existing Land Development Plan	G-3
Figure 10: Future Land Development Plan	G-5

List of Tables

Table 1: Environmental Features	1-17
Table 2: CTP Inventory and Recommendations	C-3
Table 3: Deficient Bridges	F-2
Table 4: Population Data.....	G-1
Table 5: Employment Data.....	G-2

Executive Summary

In October of 2016, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and Hoke County initiated a study to cooperatively develop the Hoke County Comprehensive Transportation Plan (CTP). This is a long range multi-modal transportation plan that covers transportation needs through 2045. Modes of transportation evaluated as part of this plan include: highway, public transportation, rail, and bicycle. This plan does not cover routine maintenance or minor operations issues. Refer to Appendix A for contact information on these types of issues.

Findings of this CTP study were based on an analysis of the transportation system, environmental screening and public input, which are detailed in Chapter 1. Figure 1 shows the CTP maps, which were mutually adopted by NCDOT in 2017. Descriptive information and definitions for designations depicted on the CTP maps can be found in Appendix B. Implementation of the plan is the responsibility of the county and NCDOT. Refer to Chapter 2 for information on the implementation process.

This report documents the recommendations for improvements that are included in the Hoke County CTP. The major recommendations for improvements are listed below. More detailed information about these and other recommendations can be found in Chapter 2.

- **NC 211:** Widen to a four-lane boulevard from Fayetteville MPO Boundary to Moore County.
- **US 15:** Widen to a four-lane boulevard from Scotland County to Moore County.
- **US 401:** Widen to a four-lane boulevard from Scotland County to Fayetteville MPO Boundary.

Adopted by:

Hoke County
Date: May 1, 2017
NCDOT
Date: August 3, 2017

Endorsed by:

Lumber River RPO
Date: May 22, 2017

Recommended by:

Transportation Planning Branch
Date: June 16, 2017

Notes:

There are no existing pedestrian features within the CTP and it does not include any recommended improvements for this mode.

Hoke County

North Carolina



**Comprehensive
Transportation Plan**

Plan date: April 20, 2017

- Sheet 1 **Adoption Sheet**
- Sheet 2 **Highway Map**
- Sheet 3 **Public Transportation and Rail Map**
- Sheet 4 **Bicycle Map**
- Sheet 5 Pedestrian Map

Legend

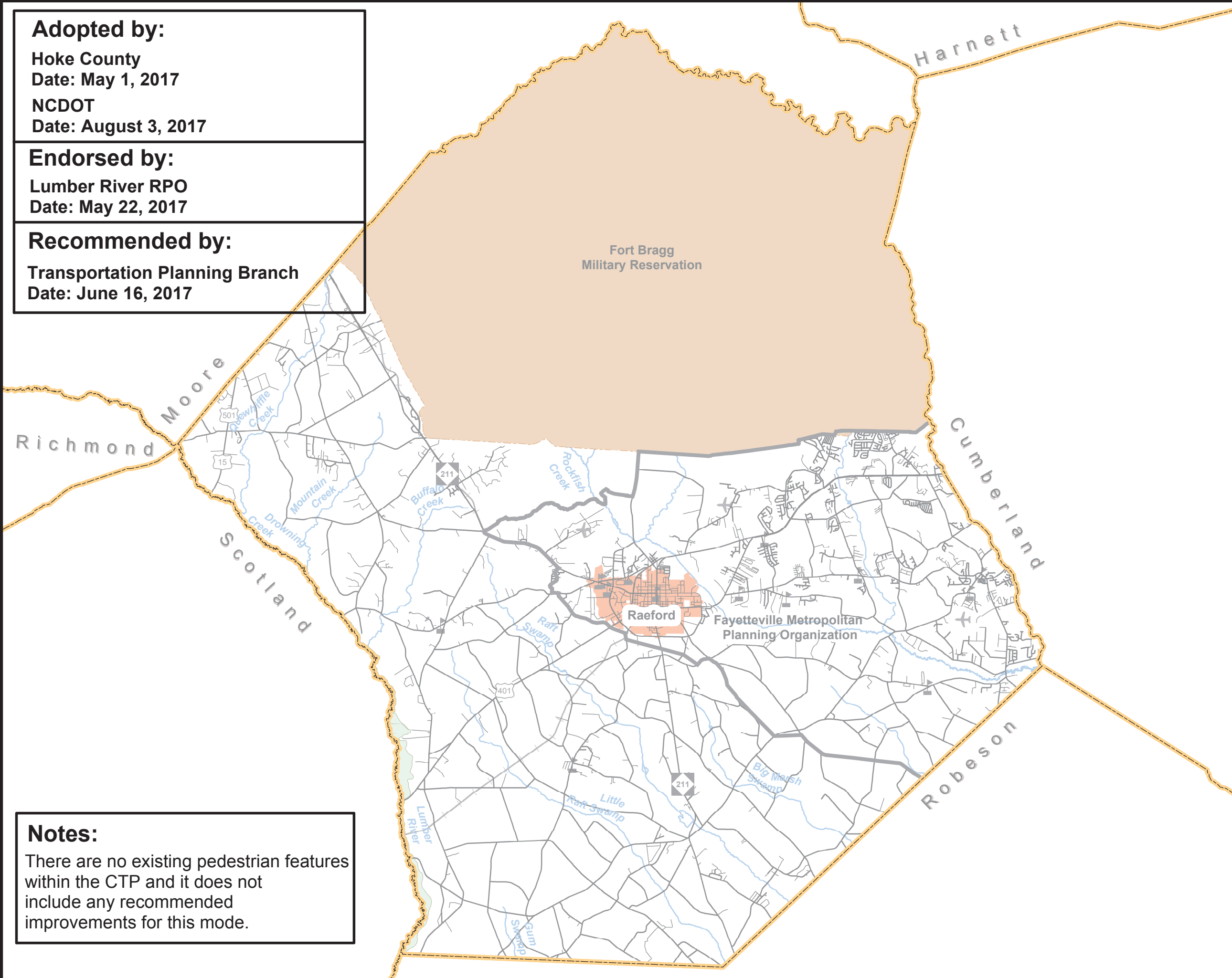
- Airports
- Schools
- Roads
- Railroads
- Rivers and Streams
- Water Bodies
- State Parks
- Fort Bragg
- MPO Boundary
- County Boundary



Figure 1

Sheet 1 of 4

Base map date: January 2015
Refer to CTP document for more details



Highway Map



Hoke County

Comprehensive Transportation Plan

Plan date: April 20, 2017

Freeways

- Existing
- Needs Improvement
- Recommended

Expressways

- Existing
- Needs Improvement
- Recommended

Boulevards

- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares

- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares

- Existing
- Needs Improvement
- Recommended

- Existing Interchange
- Proposed Interchange
- Interchange Needs Improvement
- Existing Grade Separation
- Proposed Grade Separation

0 0.5 1 2 3 Miles

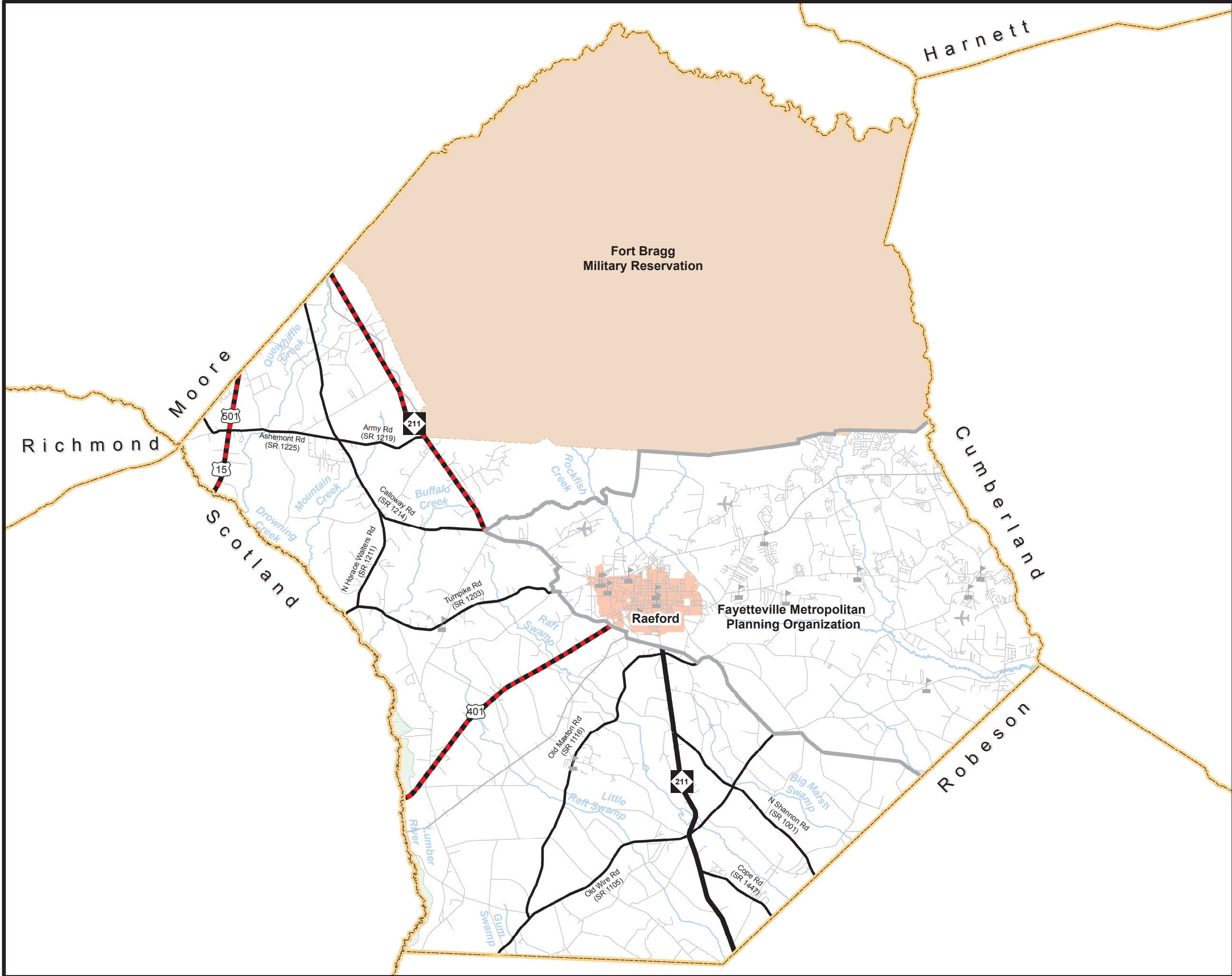


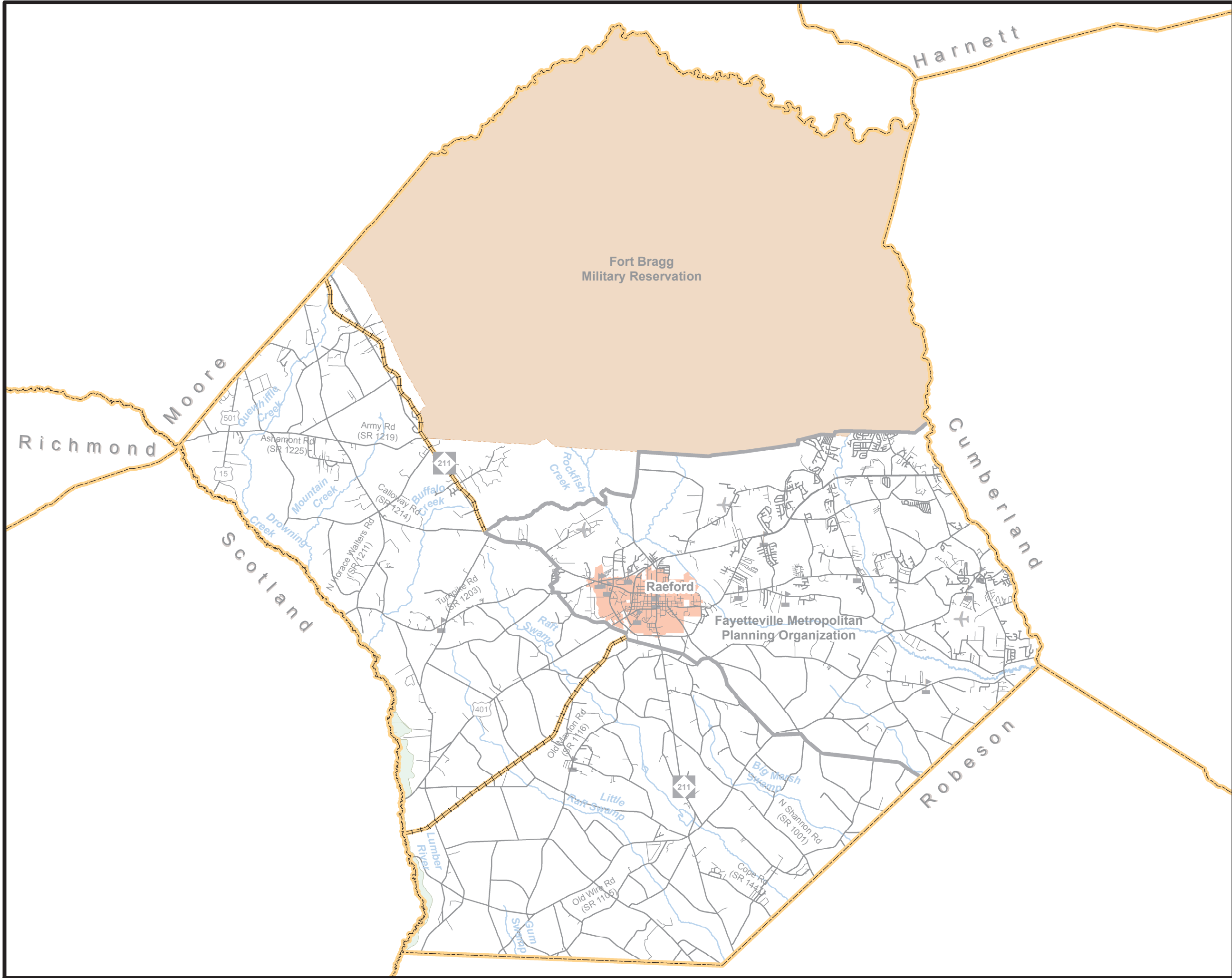
Figure 1

Sheet 2 of 4

Base map date: January 2015

Refer to CTP document for more details





Public Transportation
and Rail Map



**Hoke County
Comprehensive
Transportation Plan**

Plan date: April 20, 2017

- Bus Routes**
- Existing
 - Needs Improvement
 - Recommended

- Fixed Guideway**
- Existing
 - Needs Improvement
 - Recommended

- Operational Strategies**
- Existing
 - Needs Improvement
 - Recommended

- Rail Corridor**
- Active
 - Inactive
 - Recommended

- High Speed Rail Corridor**
- Existing
 - Recommended

- Multimodal Connector**
- Existing
 - Recommended

- Park and Ride Lot**
- Existing
 - Recommended

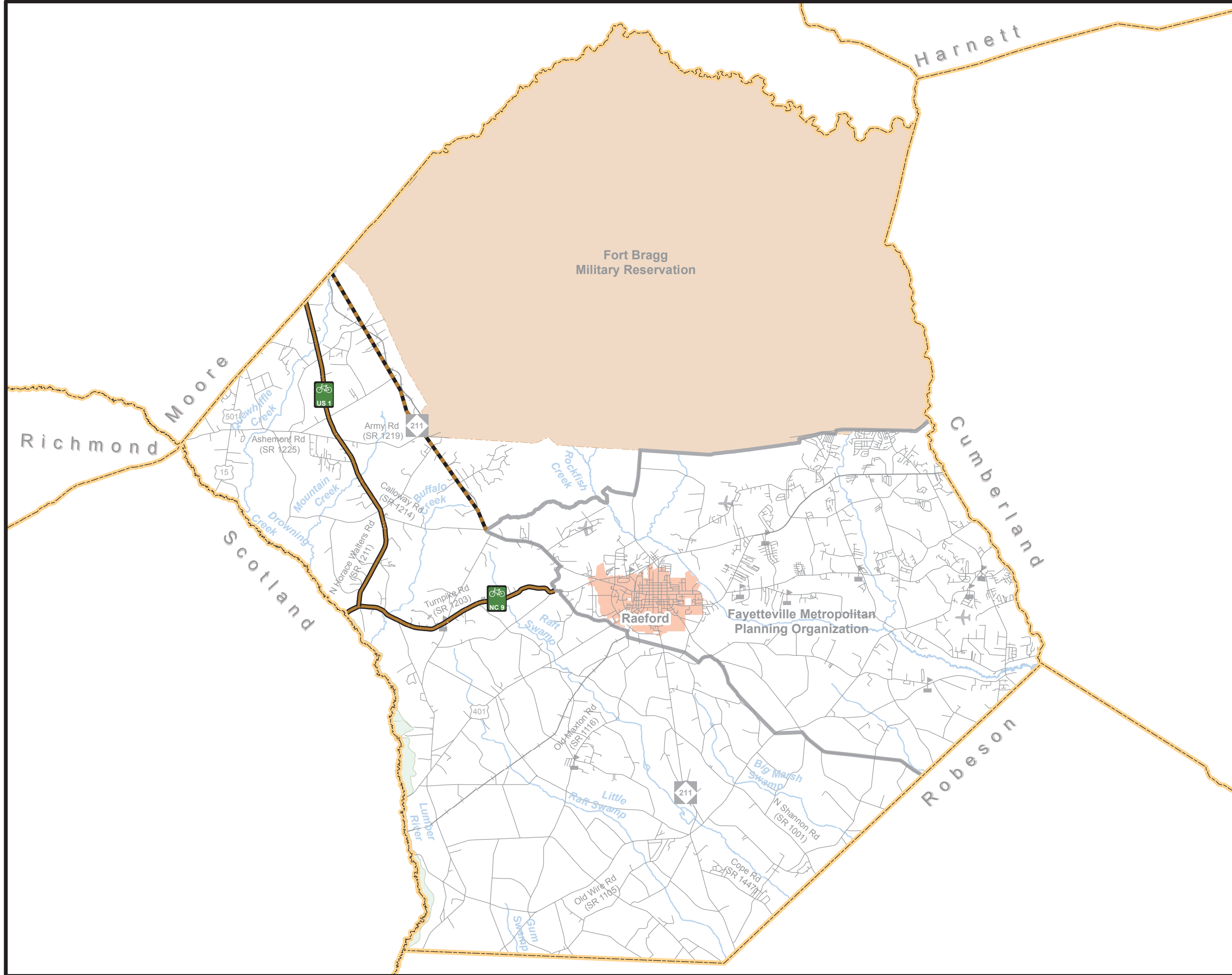
- Grade Separation**
- Existing Grade Separation
 - Proposed Grade Separation



Figure 1

Sheet 3 of 4

Base map date: January 2015
Refer to CTP document for more details



Bicycle Map



Hoke County Comprehensive Transportation Plan

Plan date: April 20, 2017

- On-road**
- Existing
 - Needs Improvement
 - Recommended
- Off-road**
- Existing
 - Needs Improvement
 - Recommended
- Multi-Use Paths**
- Existing
 - Needs Improvement
 - Recommended
- Existing Grade Separation
- Proposed Grade Separation



Figure 1

Sheet 4 of 4

Base map date: January 2015
Refer to CTP document for more details

1. Analysis of the Existing and Future Transportation System

A Comprehensive Transportation Plan (CTP) is developed to ensure that the transportation system will meet the needs of the region for the planning period. The CTP serves as an official guide to providing a well-coordinated, efficient, and economical transportation system for the future of the region. This document should be utilized by the local officials to ensure that planned transportation facilities reflect the needs of the public, while minimizing the disruption to local residents, businesses and environmental resources.

In order to develop a CTP, the following are considered:

- ❖ Analysis of the transportation system, including any local and statewide initiatives;
- ❖ Impacts to the natural and human environment, including natural resources, historic resources, homes, and businesses;
- ❖ Public input, including community vision and goals and objectives.

1.1 Analysis Methodology and Data Requirements

Reliable forecasts of future travel patterns must be estimated in order to analyze the ability of the transportation system to meet future travel demand. These forecasts depend on careful analysis of the character and intensity of existing and future land use and travel patterns.

An analysis of the transportation system looks at both current and future travel patterns and identifies existing and anticipated deficiencies. This is usually accomplished through a capacity deficiency analysis, a traffic crash analysis, and a system deficiency analysis. This information, along with population growth, economic development potential, and land use trends, is used to determine the potential impacts on the future transportation system.

Roadway System Analysis

An important stage in the development of a CTP is the analysis of the existing transportation system and its ability to serve the area's travel demand. Emphasis is placed not only on detecting the existing deficiencies, but also on understanding the causes of these deficiencies. Roadway deficiencies may result from inadequacies in pavement widths, intersection geometry, or intersection controls. System deficiencies may result from missing travel links, bypass routes, loop facilities, or radial routes; or improvements needed to meet statewide initiatives.

One of those statewide initiatives is the Strategic Transportation Corridors (STC)¹ adopted by the Board of Transportation on March 4, 2015.

¹ For more information on the STC, go to:

<https://connect.ncdot.gov/projects/planning/Pages/NCTransportationNetwork.aspx>

The STC identify a network of critical multimodal transportation corridors considered the backbone of the state's transportation system. These 25 corridors move most of our freight and people, link critical centers of economic activity to international air and sea ports, and support interstate commerce. They must operate well to help North Carolina attract new businesses, grow jobs and catalyze economic development.

The primary purpose of the STC is to provide North Carolina with a network of high-priority, multimodal transportation corridors and facilities that connect statewide and regional activity centers to enhance economic development, promote highly-reliable, efficient mobility and connectivity, and support good decision-making. The primary goal to support this purpose is to create a greater consensus towards the development of a genuine vision for each corridor that establishes the statewide or regional importance of facilities and the need for maintaining high capacity and travel speed. During the development of CTPs, the STC network should be cross-referenced to ensure plan consistency. Incorporating the statewide and regional mobility goals set forth in the STC network should be done in a manner that fits with the character and vision for the community or county. If this cannot be achieved through the use of existing facilities, an alternative solution should be sought.

In the development of this plan, travel demand was projected from 2015 to 2045 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1993 to 2015. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. The established future growth rates were endorsed by the Hoke County Planning Board (November 10, 2016). Refer to Appendix H for more detailed information on growth expectations and the socio-economic data forecasting methodology.

Existing and future travel demand is compared to existing roadway capacities. Capacity deficiencies occur when the traffic volume of a roadway exceeds the roadway's capacity. Roadways are considered near capacity when the traffic volume is at least eighty percent of the capacity. Refer to Figures 2 and 3 for existing and future capacity deficiencies. The 2045 traffic volumes in Figure 3 are an estimate of the traffic volume in 2045 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in the 2016 – 2025 Transportation Improvement Program² (TIP).

Capacity is the maximum number of vehicles which have a "reasonable expectation" of passing over a given section of roadway, during a given time period under prevailing roadway and traffic conditions. Many factors contribute to the capacity of a roadway including the following:

- ❖ Geometry of the road (including number of lanes), horizontal and vertical alignment, and proximity of perceived obstructions to safe travel along the road;
- ❖ Typical users of the road, such as commuters, recreational travelers, and truck traffic;

² For more information on the TIP, go to: <https://connect.ncdot.gov/projects/planning/Pages/default.aspx>

- ❖ Access control, including streets and driveways, or lack thereof, along the roadway;
- ❖ Development along the road, including residential, commercial, agricultural, and industrial developments;
- ❖ Number of traffic signals along the route;
- ❖ Peaking characteristics of the traffic on the road;
- ❖ Characteristics of side-roads feeding into the road; and
- ❖ Directional split of traffic or the percentages of vehicles traveling in each direction along a road at any given time.

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

LOS D indicates “practical capacity” of a roadway, or the capacity at which the public begins to experience delay. The practical capacity for each roadway was developed based on the 2000 Highway Capacity Manual using the Transportation Planning Branch’s *LOS D Standards for Systems Level Planning*. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C for new facilities. Refer to Appendix E for detailed information on LOS.

Traffic Crash Assessment

Traffic crashes are often used as an indicator for locating congestion and roadway problems. Crash patterns obtained from an analysis of crash data can lead to the identification of improvements that will reduce the number of crashes. The Traffic Safety Unit of NCDOT’s Transportation Mobility and Safety Division identifies high frequency crashes at intersections and along roadway sections during a five year period. The high frequency crash locations examined during the development of the Hoke County CTP occurred between January 1, 2007 and December 31, 2011. During this period, a total of twelve intersections and forty-one roadway sections were identified as having a high frequency of crashes as illustrated in Figure 4. Contact information for the Transportation Mobility and Safety Division can be found in Appendix A.

The NCDOT is actively involved with investigating and improving many of these locations. To request a more detailed analysis for any of these locations, or other intersections of concern, contact the Division Traffic Engineer (see Appendix A).

Bridge Deficiency Assessment

Bridges are a vital element of a highway system. First, they represent the highest unit investment of all elements of the system. Second, any inadequacy or deficiency in a bridge reduces the value of the total investment. Third, a bridge presents the greatest

opportunity of all potential highway failures for disruption of community welfare. Finally, and most importantly, a bridge represents the greatest opportunity of all highway failures for loss of life. For these reasons, it is imperative that bridges be constructed to the same design standards as the system of which they are a part.

The NCDOT Structures Management Unit inspects all bridges in North Carolina at least once every two years. Bridges having the highest priority are replaced as federal and state funds become available. Five deficient bridges were identified on roads evaluated as part of the CTP and are illustrated in Figure 5. Of these, two are scheduled for replacement in the 2016 – 2025 TIP. None of the five deficient bridges occur along roadways recommended for improvement in the CTP. As deficient bridges are replaced, every consideration should be given to proposed CTP recommendation and cross section associated with the recommendation. Table 3 in Appendix F gives a listing of the deficient bridges identified in the CTP. Refer to Appendix F for more detailed bridge deficiency information.

Figure 2
2015 Volumes and
Capacity Deficiencies



Hoke County Comprehensive Transportation Plan

Plan date: April 20, 2017

XXXX 2015 Volumes (AADT)
XXXX 2015 Capacities

Study Roads
Near Capacity
Over Capacity

Airports
Schools
Railroads
Rivers and Streams
Water Bodies
State Park
Fort Bragg
MPO Boundary
County Boundary



0 0.5 1 2 3 Miles

Base map date: January 2015
Refer to CTP document for more details

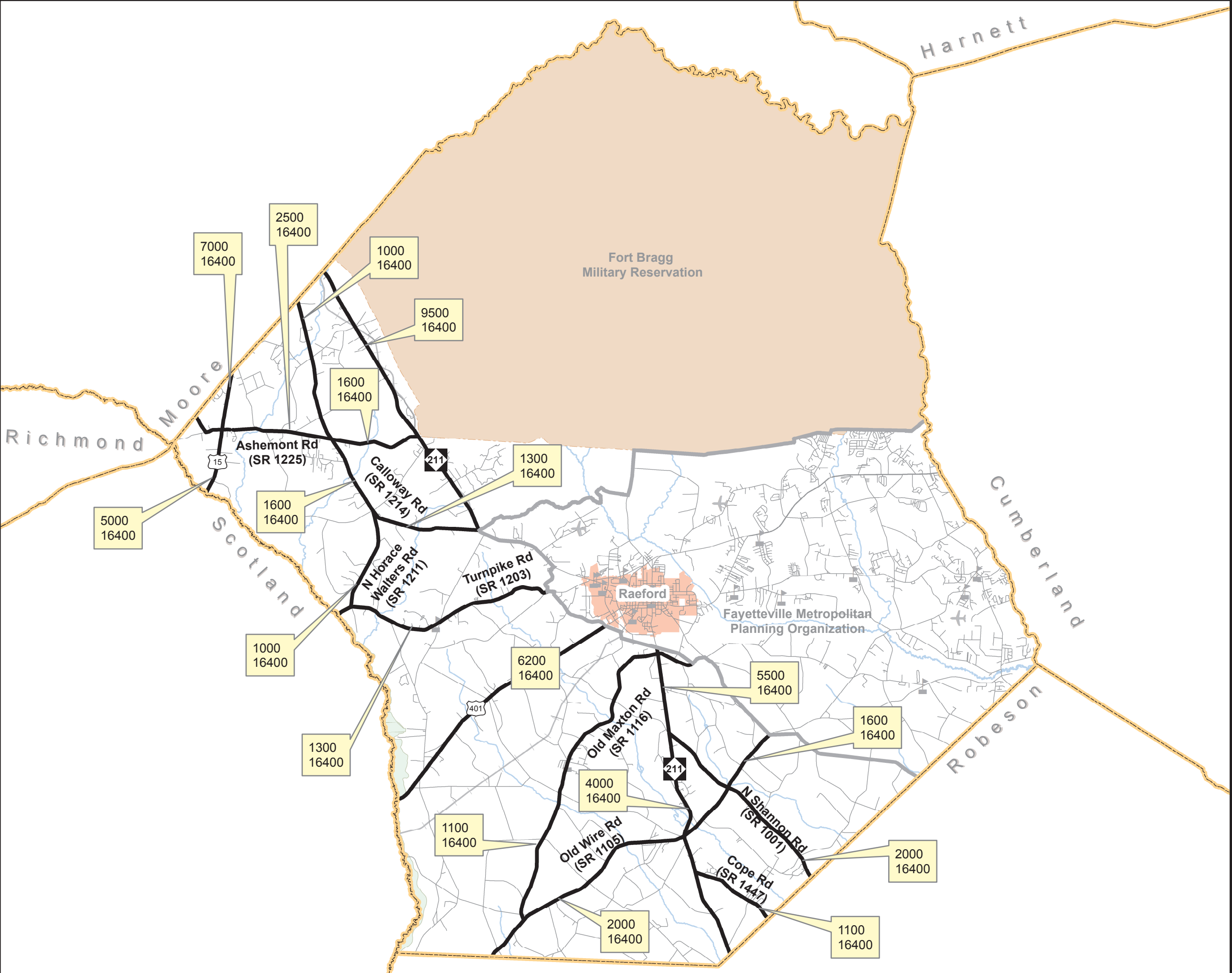


Figure 3
2045 Volumes and
Capacity Deficiencies



**Hoke County
Comprehensive
Transportation Plan**

Plan date: April 20, 2017

XXXX 2045 Volumes (AADT)
XXXX 2015 Capacities

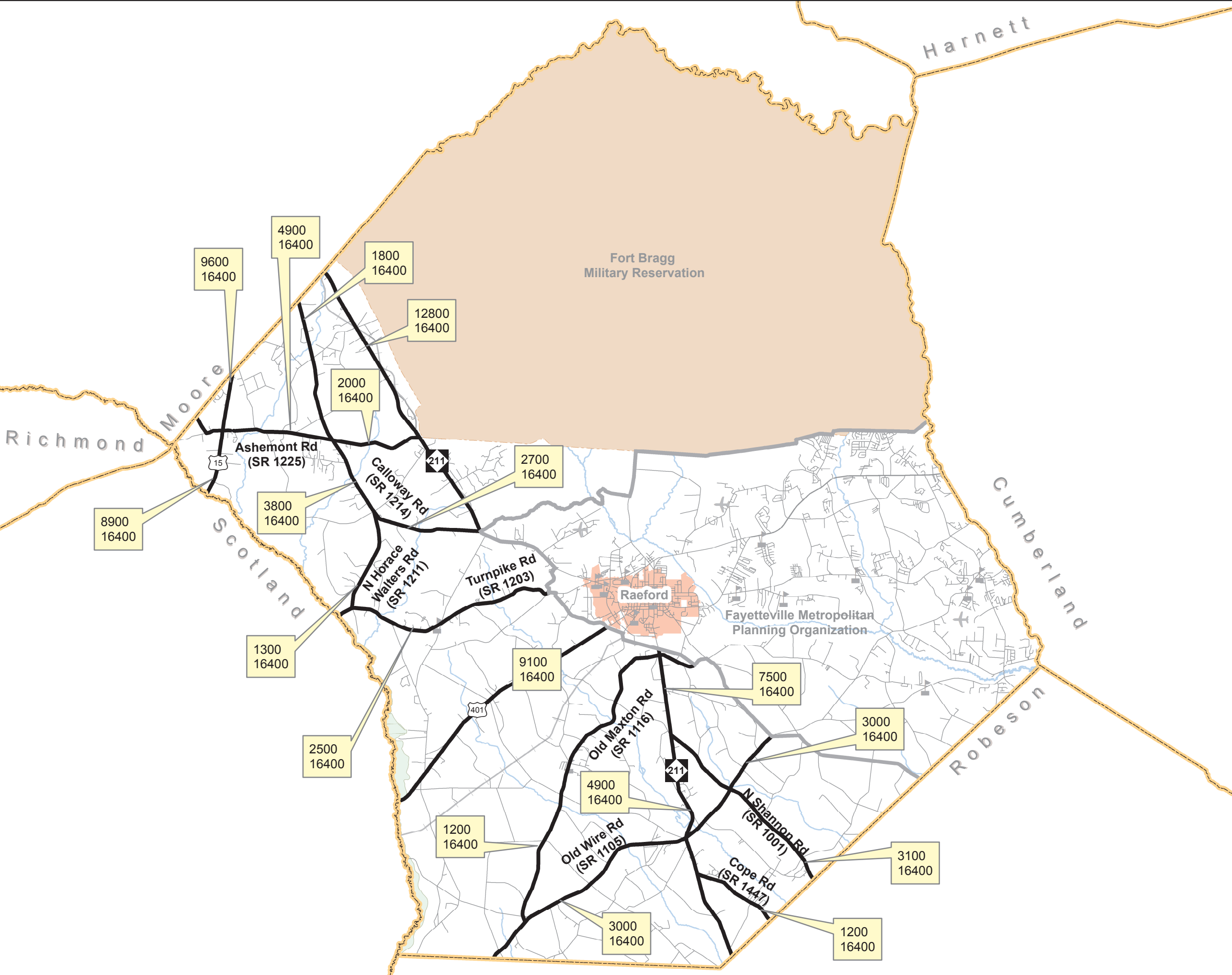
Study Roads
Near Capacity
Over Capacity

Airports
Schools
Railroads
Rivers and Streams
Water Bodies
State Park
Fort Bragg
MPO Boundary
County Boundary



0 0.5 1 2 3 Miles

Base map date: January 2015
Refer to CTP document for more details



**FIGURE 4
HIGH FREQUENCY
CRASH LOCATIONS**



**Hoke County
Comprehensive
Transportation Plan**

January 1, 2012 to
December 31, 2016

Crash Intersections

- 50 and above
- 40 to 49
- 30 to 39
- 20 to 29
- 10 to 19
- 4 to 9

Crash Sections

- 50 and above
- 40 to 49
- 30 to 39
- 20 to 29
- 10 to 19
- 4 to 9

- Airports
- Schools
- Roads
- Railroads
- Rivers and Streams
- Water Bodies
- State Parks
- Fort Bragg
- MPO Boundary
- County Boundary



0 0.5 1 2 3 Miles

Base map date: January 2015

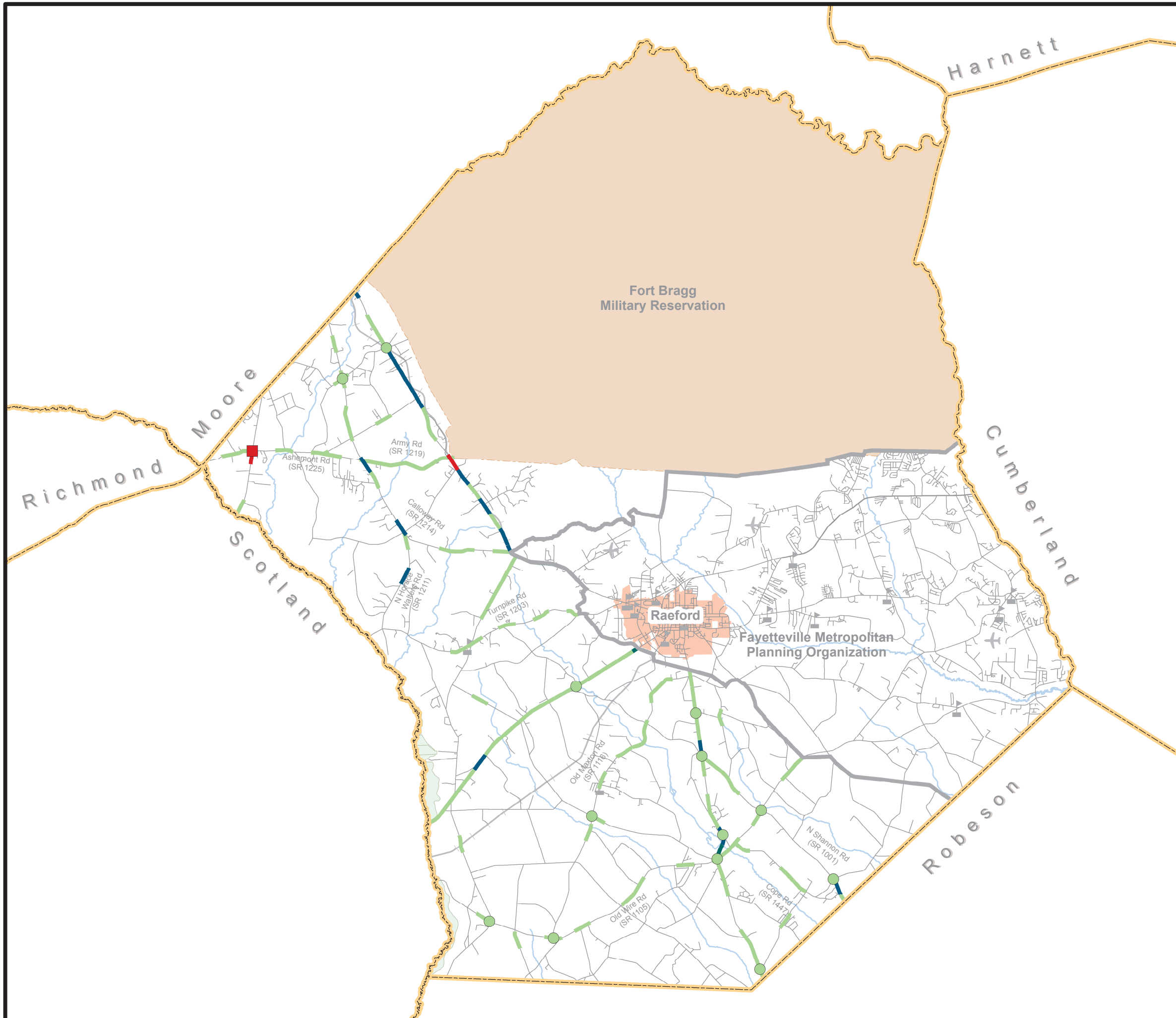
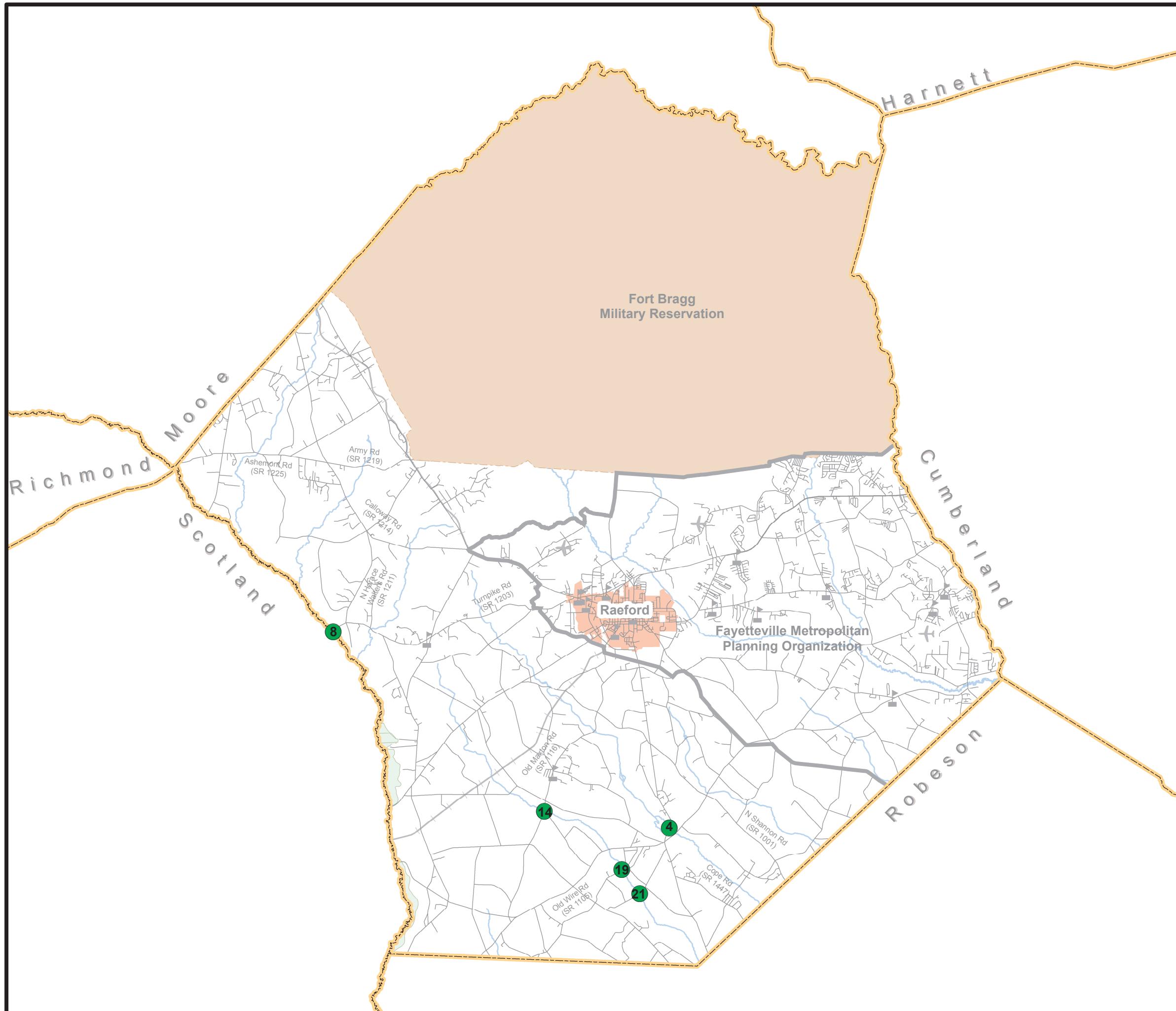


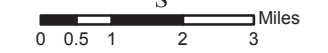
FIGURE 5
Deficient Bridges



Hoke County
Comprehensive
Transportation Plan



- Deficient Bridge (# Bridge Number)
- Schools
- Airports
- Roads
- Railroads
- Rivers and Streams
- Water Bodies
- State Park
- Fort Bragg
- MPO Boundary
- County Boundary



Base map date: January 2015

Public Transportation and Rail

Public transportation and rail are vital modes of transportation that give alternatives for transporting people and goods from one place to another.

Public Transportation

North Carolina's public transportation systems serve more than 50 million passengers each year. Five categories define North Carolina's public transportation system: community, regional community, urban, regional urban and intercity.

- ❖ Community Transportation - Local transportation efforts formerly centered on assisting clients of human service agencies. Today, the vast majority of rural systems serve the general public as well as those clients.
- ❖ Regional Community Transportation - Regional community transportation systems are composed of two or more contiguous counties providing coordinated / consolidated service. Although such systems are not new, single-county systems are encouraged to consider mergers to form more regional systems.
- ❖ Urban Transportation – There are currently nineteen urban transit systems operating in North Carolina, from locations such as Asheville and Hendersonville in the west to Jacksonville and Wilmington in the east. In addition, small urban systems provide service in three areas of the state. Consolidated urban-community transportation exists in five areas of the state. In those systems, one transportation system provides both urban and rural transportation within the county.
- ❖ Regional Urban Transportation - Regional urban transit systems currently operate in three areas of the state. These systems connect multiple municipalities and counties.
- ❖ Intercity Transportation - Intercity bus service is one of a few remaining examples of privately owned and operated public transportation in North Carolina. Intercity buses serve many cities and towns throughout the state and provide connections to locations in neighboring states, Amtrak passenger station and throughout the United States and Canada. Greyhound and Amtrak Thruway service operate in North Carolina. However, community, urban and regional transportation systems are providing increasing intercity service in North Carolina.

An inventory of existing and planned fixed public transportation routes for the planning area is presented on Sheet 3 of Figure 1. Hoke County is served by an on-demand, community transportation system that provides a variety of transportation needs for citizens of Hoke County—Hoke Area Transit Service (HATS). Therefore, there are no existing or proposed fixed routes for public transportation. Refer to Appendix A for contact information for the Public Transportation Division.

Rail

Today North Carolina has 3,245 miles of railroad tracks throughout the state. There are two types of trains that operate in the state, passenger trains and freight trains.

Intercity passenger service is provided by Amtrak which currently operates six passenger services daily in or through North Carolina serving 16 cities across the state. Five of the services are interstate (Crescent, Palmetto, Silver Meteor, Silver Star, and Carolinian passenger trains) and one service (Piedmont passenger train) operates exclusively within North Carolina. In addition to the six passenger services mentioned, Amtrak also operates its Auto Train service which passes through North Carolina but does not make any stops. Amtrak ridership demand has been on a rise in the state. In 2010 ridership was 840,000 and increased to 975,645 passengers in 2013.

The North Carolina Department of Transportation sponsors two passenger trains, the Carolinian and Piedmont. The Carolinian runs between Charlotte and New York City, while the Piedmont train carries passengers from Raleigh to Charlotte and back every day. However, no passenger trains operate over the rail line from High Point that dead ends at Asheboro or over the rail line that runs from Gulf, NC to Greensboro. Combined, the Carolinian and Piedmont carry more than 300,000 passengers each year.

There are two major freight railroad companies that operate in North Carolina, CSX Transportation and Norfolk Southern Corporation. Also, there are more than 17 smaller freight railroads, known as shortlines.

An inventory of existing and planned rail facilities for the planning area is presented on Sheet 3 of Figure 1. This displays the existing Aberdeen and Rockfish line, as well as the Laurinburg and Southern line running through Hoke County. All recommendations for rail were coordinated with the local governments and the Rail Division of NCDOT. Refer to Appendix A for contact information for the Rail Division.

Bicycles & Pedestrians

Bicyclists and pedestrians are a growing part of the transportation system in North Carolina. Many communities are working to improve mobility for both cyclists and pedestrians.

NCDOT's Bicycle Policy, updated in 1991, clarifies responsibilities regarding the provision of bicycle facilities along the 77,000-mile state-maintained highway system. The policy details guidelines for planning, design, construction, maintenance, and operations pertaining to bicycle facilities and accommodations. All bicycle improvements undertaken by NCDOT are based upon this policy.

The 2000 NCDOT Pedestrian Policy Guidelines specifies that NCDOT will participate with localities in the construction of sidewalks as incidental features of highway improvement projects. At the request of a locality, state funds for a sidewalk are made

available if matched by the requesting locality, using a sliding scale based on population.

NCDOT's administrative guidelines, adopted in 1994, ensure that greenways and greenway crossings are considered during the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction.

Inventory of existing and planned bicycle facilities for the planning area is presented on Sheet 4 of Figure 1. Existing US Bicycle Route 1 and NC Bicycle Route 9 run through Hoke County. All recommendations for bicycle and pedestrian facilities were coordinated with the local governments and the NCDOT Division of Bicycle and Pedestrian Transportation. Refer to Appendix A for contact information for the Division of Bicycle and Pedestrian Transportation.

Land Use

G.S. §136-66.2 requires that local areas have a current (less than five years old) land development plan prior to adoption of the CTP. For this CTP, the still valid 2005 Hoke County Land Use Plan (refer to Appendix G) was used to meet this requirement.

Land use refers to the physical patterns of activities and functions within an area. Traffic demand in a given area is, in part, attributed to adjacent land use. For example, a large shopping center typically generates higher traffic volumes than a residential area. The spatial distribution of different types of land uses is a predominant determinant of when, where, and to what extent traffic congestion occurs. The travel demand between different land uses and the resulting impact on traffic conditions varies depending on the size, type, intensity, and spatial separation of development. Additionally, traffic volumes have different peaks based on the time of day and the day of the week. For transportation planning purposes, land use is divided into the following categories:

- ❖ Residential: Land devoted to the housing of people, with the exception of hotels and motels which are considered commercial.
- ❖ Commercial: Land devoted to retail trade including consumer and business services and their offices; this may be further stratified into retail and special retail classifications. Special retail would include high-traffic establishments, such as fast food restaurants and service stations; all other commercial establishments would be considered retail.
- ❖ Industrial: Land devoted to the manufacturing, storage, warehousing, and transportation of products.
- ❖ Public: Land devoted to social, religious, educational, cultural, and political activities; this would include the office and service employment establishments.
- ❖ Agricultural: Land devoted to the use of buildings or structures for the raising of non-domestic animals and/or growing of plants for food and other production.

- ❖ Mixed Use: Land devoted to a combination of any of the categories above.

Anticipated future land development is, in general, a logical extension of the present spatial land use distribution. Locations and types of expected growth within the planning area help to determine the location and type of proposed transportation improvements.

The area of Hoke County covered in this CTP mostly includes rural agricultural and rural residential areas. Raeford, the only municipality in Hoke County, is not included in this CTP because it is located in the Fayetteville MPO.

For detailed information on how land use and growth projections were developed for and applied in the CTP, refer to Appendix G.

1.2 Consideration of Natural and Human Environment

Environmental features are a key consideration in the transportation planning process. Section 102 of the National Environmental Policy Act³ (NEPA) requires consideration of impacts on wetlands, wildlife, water quality, historic properties, and public lands. While a full NEPA evaluation was not conducted as part of the CTP, every effort was made to minimize potential impacts to these features utilizing the best available data. Any potential impacts to these resources were identified as a part of the project recommendations in Chapter 2 of this report. Prior to implementing transportation recommendations of the CTP, a more detailed environmental study would need to be completed in cooperation with the appropriate environmental resource agencies.

A full listing of environmental features that are typically examined as a part of a CTP study is shown in the following tables. Environmental features occurring within Hoke County are shown in Figure 6 and are shown in bold text in Table 1.

³ For more information on NEPA, go to: <https://ceq.doe.gov/>.

Table 1 – Environmental Features

- | | |
|--|--|
| <ul style="list-style-type: none"> • 24k Hydro Lines • 303D Streams • Airport Boundaries • Anadromous Fish Spawning Areas • APNEP - Submerged Aquatic Vegetation • Beach and Waterfront Access • Benthic Habitat • Bicycle Routes • Boating Access • Churches and Cemeteries • Colleges and Universities (Points) • Conservation Tax Credit Properties • Critical Habitat for Threatened and Endangered Species • Emergency Operation Centers • Fish Nursery Areas • Hazard Substance Disposal Sites (points & polygons) • Hazardous Waste Facilities • High Quality Waters and Outstanding Resource Water Management • Historic Resources – National Register and Determined Eligible (points and polygons) • Hospitals | <ul style="list-style-type: none"> • Hydrography - 1:24,000-scale (polygons) • Landscape Habitat Indicator Guilds (LHIGs) • Managed Areas • National Wetlands Inventory (polygons) • Natural Heritage Element Occurrences • NC-CREWS: N.C. Coastal Region Evaluation of Wetland Significance • NCDOT Maintained Mitigation Sites • Railroads (1:24,000) • Recreation Projects - Land and Water Conservation Fund • Regional Trails • Sanitary Sewer Systems - Treatment Plants • Schools (Public & Non-Public) • Significant Natural Heritage Areas • State Natural and Scenic Rivers • State Parks • Target Local Watersheds - EEP • Trout Streams (DWQ) • Trout Waters WRC (arcs & polygons) • Unique Wetlands • Water Distribution Systems – Tanks & Treatment Plants • Water Supply Watersheds |
|--|--|

Archaeological sites were also considered but are not mapped due to restrictions associated with the sensitivity of the data.

1.3 Public Involvement

Public involvement is a key element in the transportation planning process. Adequate documentation of this process is essential for a seamless transfer of information from systems planning to project planning and design.

A meeting was held with the Hoke County Planning Board in October 2016 to formally initiate the study, provide an overview of the transportation planning process, and to gather input on area transportation needs.

Throughout the course of the study, the NCDOT Transportation Planning Branch cooperatively worked with the Hoke County CTP Steering Committee, which included the Hoke County Planning Board. The committee provided information on current local plans, developed transportation vision and goals, discussed population and employment projections, and developed proposed CTP recommendations. Refer to Appendix H for detailed information on the vision statement, the goals and objectives survey and a listing of committee members.

The public involvement process included holding one public drop-in session in Hoke County to present the proposed CTP to the public and solicit comments. The meeting was held on April 19, 2017 at the Pratt Building in Raeford. The session was publicized in the local newspaper and was held from 5:00 PM to 7:00 PM. One person attended to voice their concerns about the FAMPO area. No comment forms were submitted during the session.

A public hearing was held on May 1, 2017 during the Hoke County Commissioners meeting. The purpose of this meeting was to discuss the plan recommendations and to solicit further input from the public. The CTP was adopted during this meeting.

The Lumber River RPO endorsed the CTP on May 22, 2017. The North Carolina Department of Transportation mutually adopted the Hoke County CTP on August 3, 2017.

**Figure 6
Environmental
Features**



**Hoke County
Comprehensive
Transportation Plan**

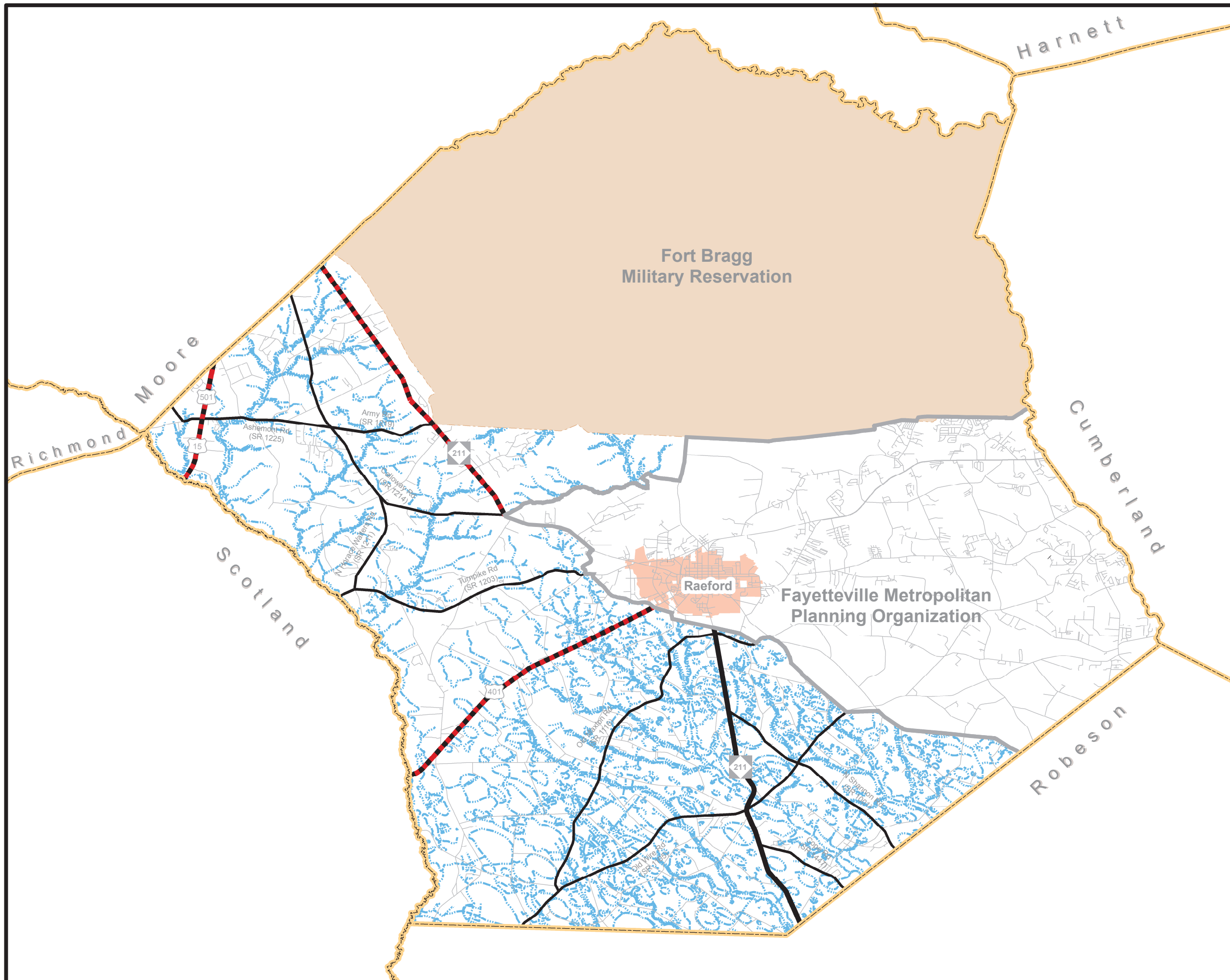
- 24k Hydro Lines
- Roads
- Fort Bragg
- MPO Boundary
- County Boundary



Sheet 1 of 6

0 0.5 1 2 3 Miles

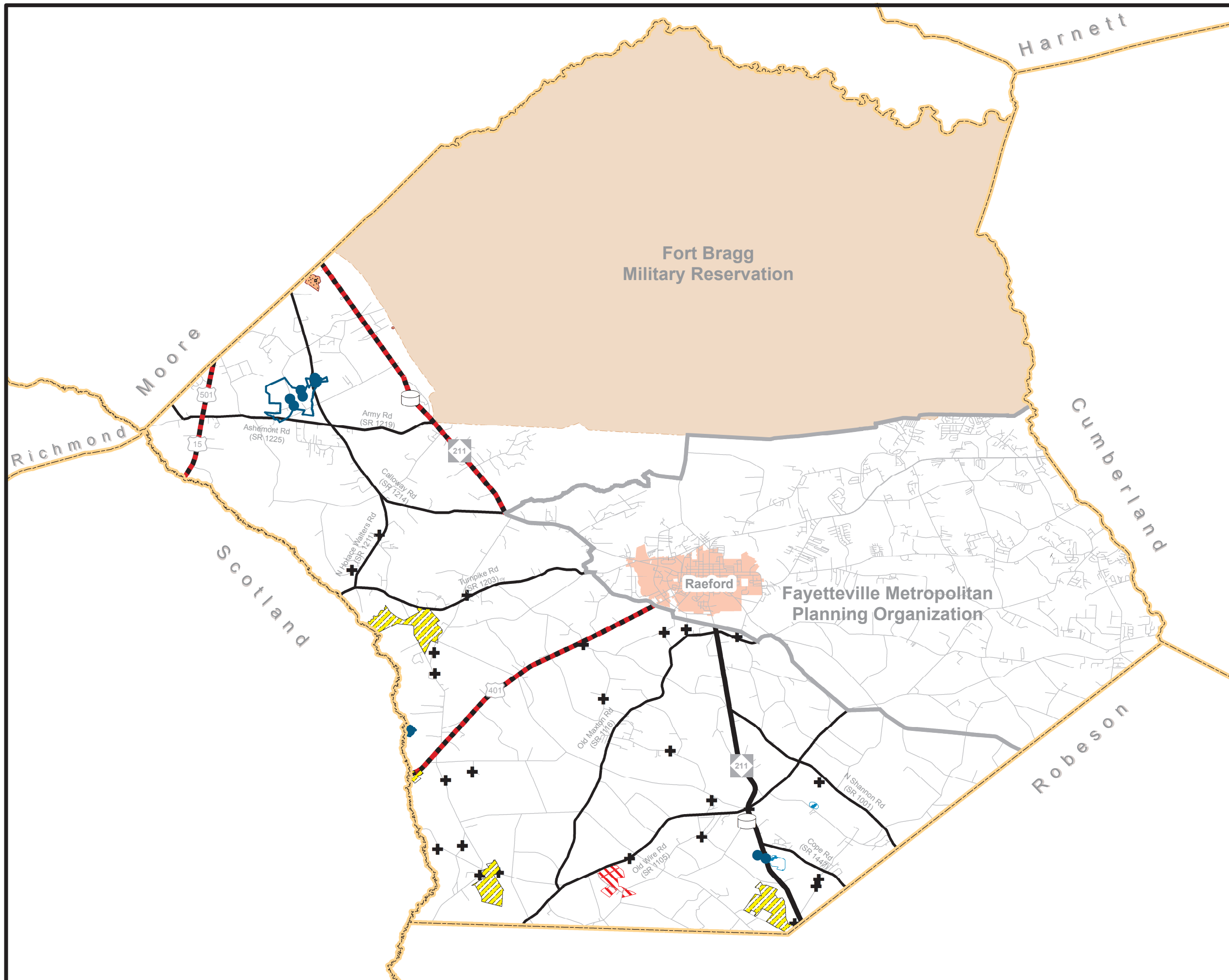
Base map date: January 2015



**Figure 6
Environmental
Features**



Hoke County Comprehensive Transportation Plan



- Roads
- Churches and Cemeteries
- Water Distribution Tanks
- Historic Resources Sites
- Historic Resources Areas
- Conservation Tax Credit Properties
- Unique Wetlands
- Hazardous Substance Disposal Sites
- NCDOT Maintained Mitigation Sites
- Fort Bragg
- MPO Boundary
- County Boundary



Sheet 2 of 6

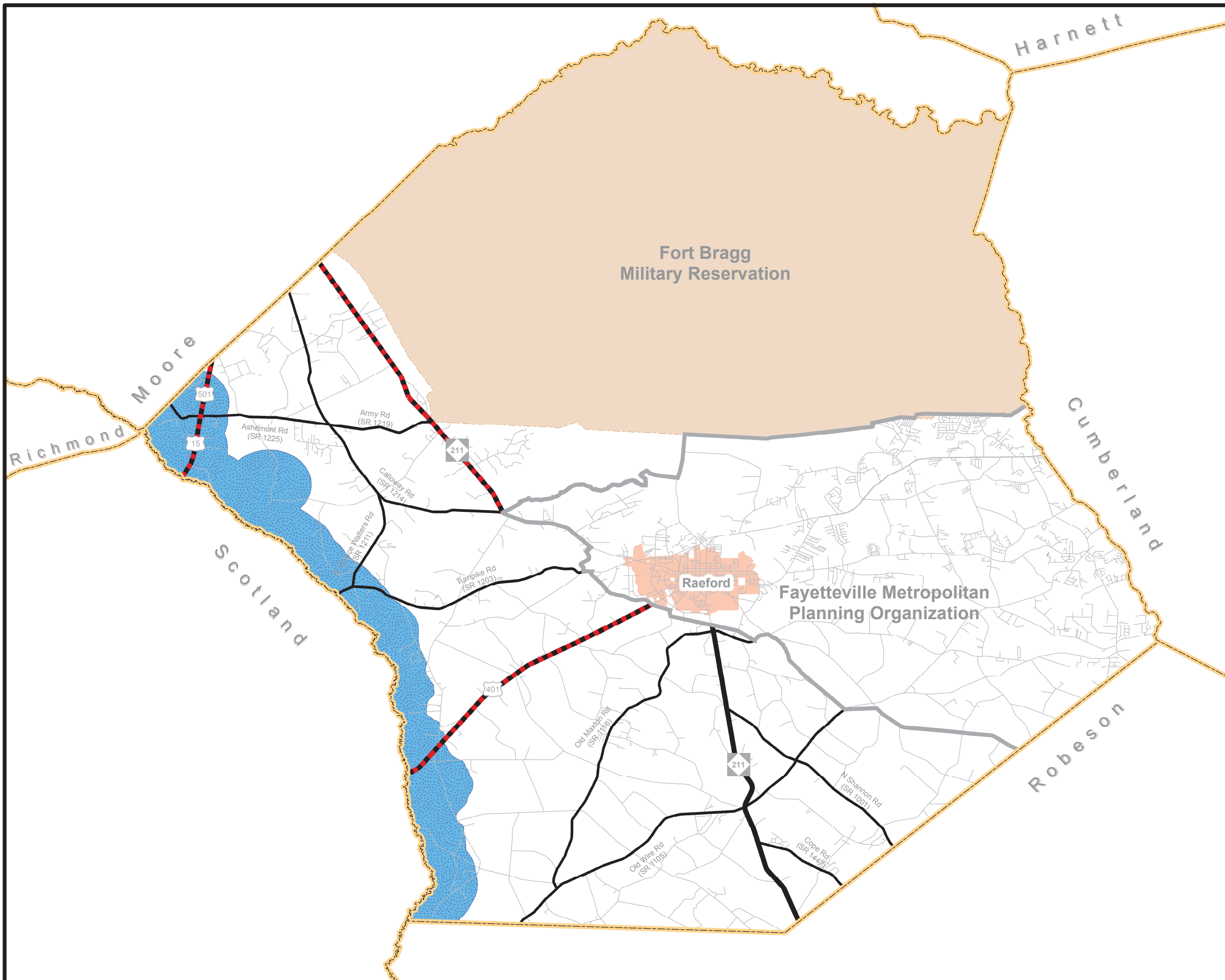
0 0.5 1 2 3 Miles

Base map date: January 2015

Figure 6
Environmental
Features



Hoke County Comprehensive Transportation Plan



- Roads
- High Quality Water Resources
- Fort Bragg
- MPO Boundary
- County Boundary



Sheet 3 of 6

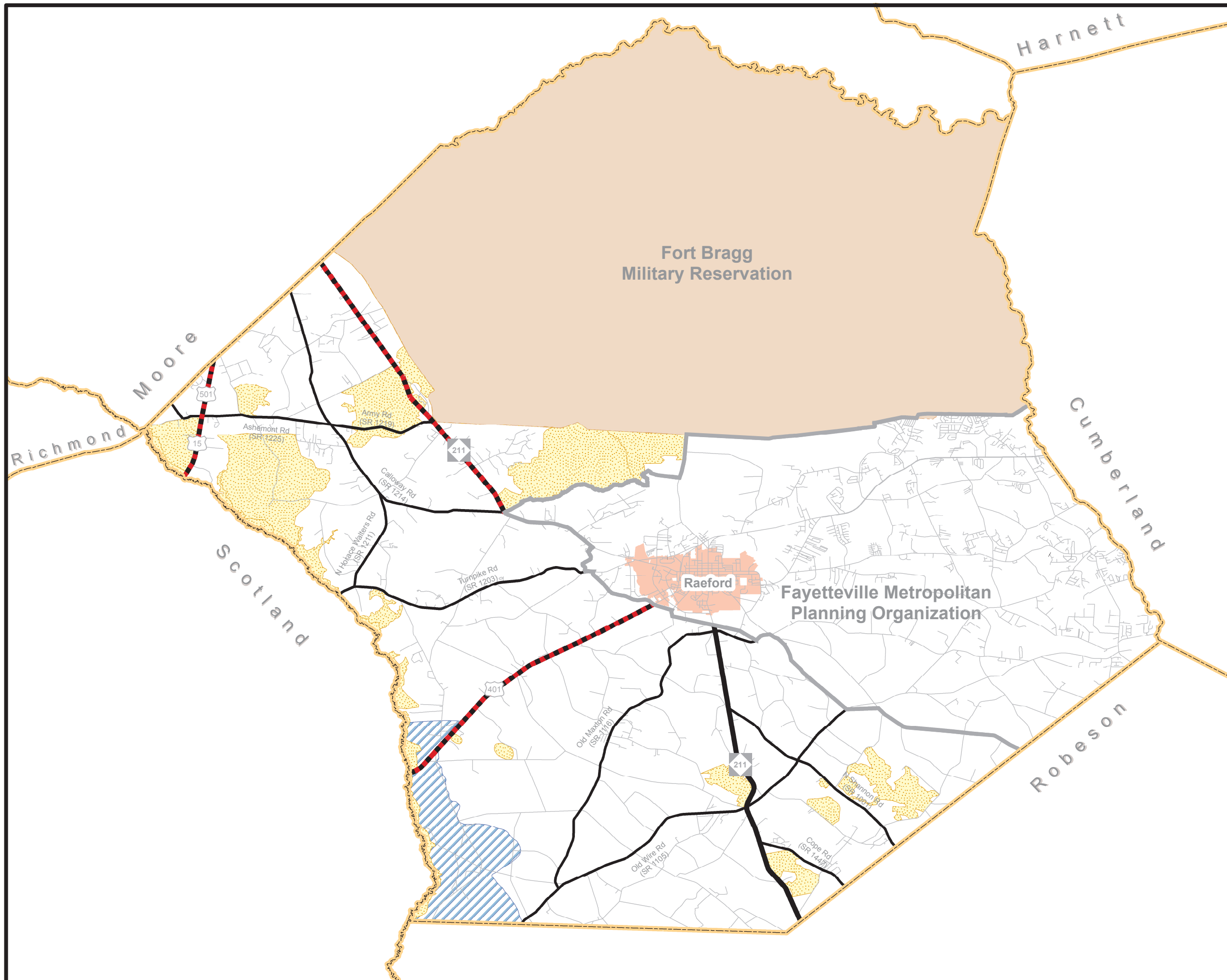
0 0.5 1 2 3 Miles

Base map date: January 2015

Figure 6
Environmental
Features



Hoke County Comprehensive Transportation Plan



- Roads
- Significant Natural Heritage Areas
- Water Supply Watershe...
- Fort Bragg
- MPO Boundary
- County Boundary



Sheet 4 of 6

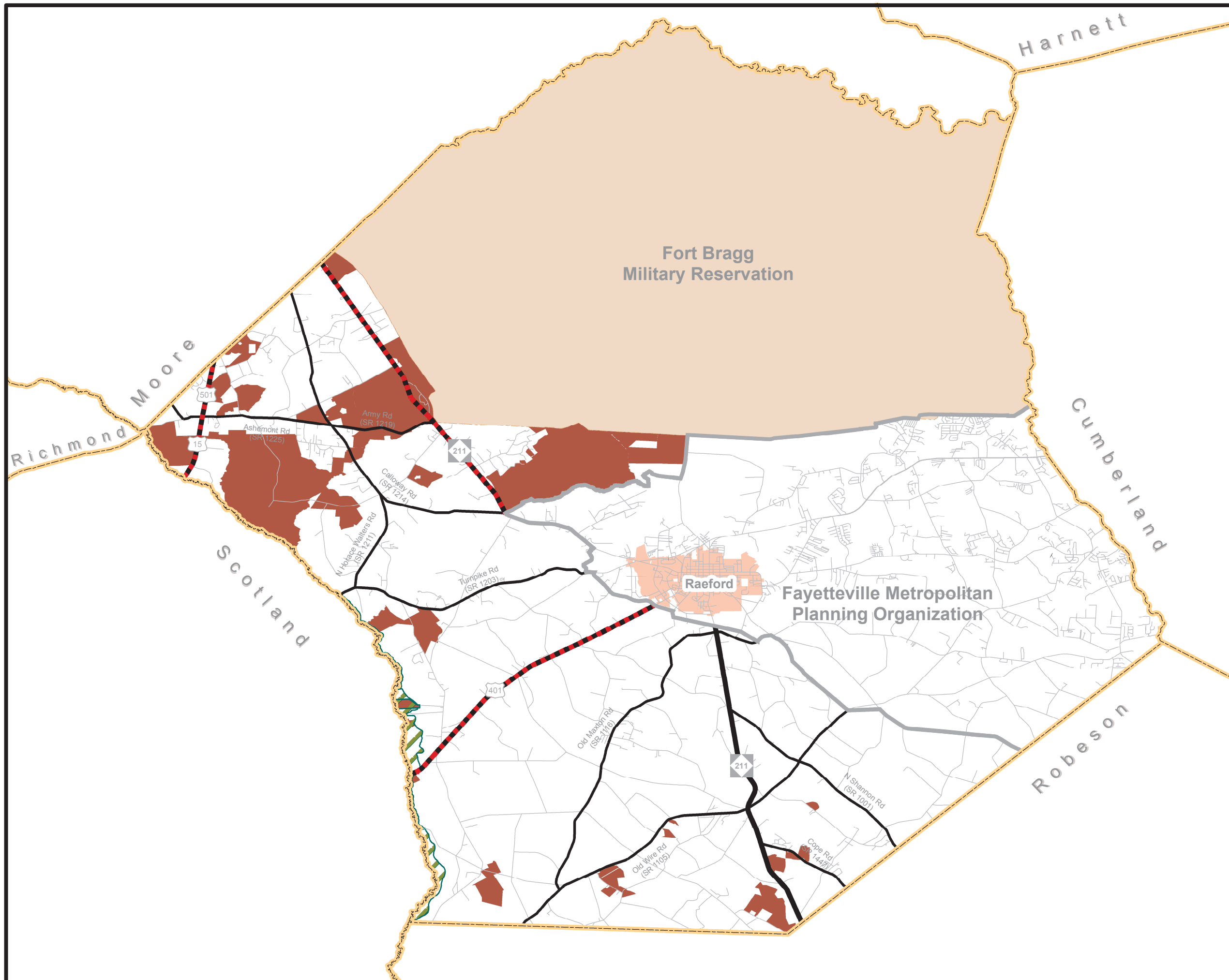
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Base map date: January 2015

Figure 6
Environmental
Features



Hoke County Comprehensive Transportation Plan



- Roads
- Managed Areas
- State Parks
- Fort Bragg
- MPO Boundary
- County Boundary



Sheet 5 of 6

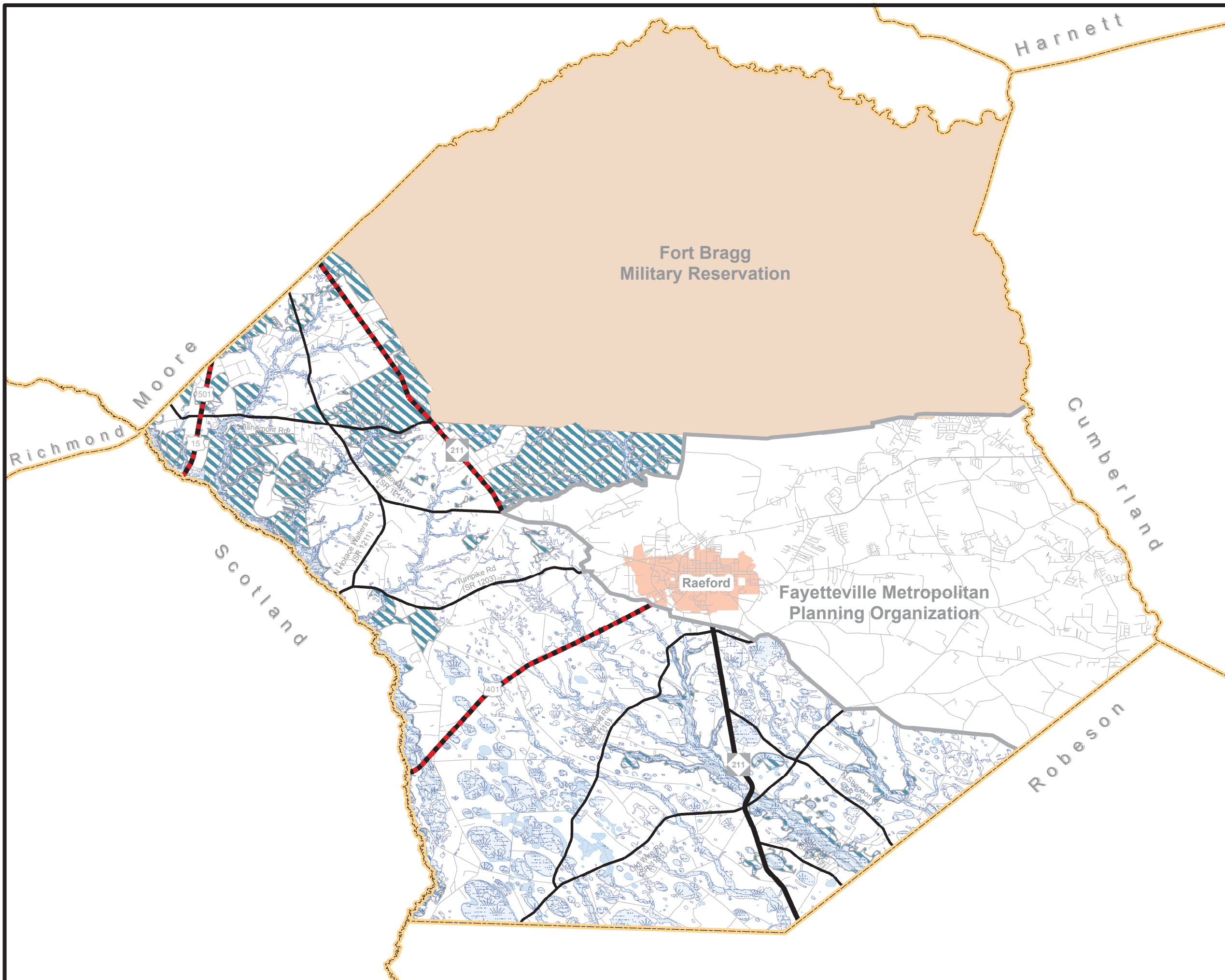
0 0.5 1 2 3 Miles

Base map date: January 2015

Figure 6
Environmental
Features



Hoke County Comprehensive Transportation Plan



- Roads
- Hydrogra...
Areas
- Landscape
Habitat
Indicator
Guilds
- National
Wetlands
Inventory
- Fort Bragg
- MPO
Boundary
- County
Boundary



Sheet 6 of 6
0 0.5 1 2 3 Miles

Base map date: January 2015

2. Recommendations

This chapter presents recommendations for each mode of transportation in the 2017 Hoke County Comprehensive Transportation Plan, as shown in Figure 1. More detailed information on each recommendation is tabulated in Appendix C.

NCDOT adopted a "Complete Streets¹" policy in July 2009. The policy directs the Department to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure. Under this policy, the Department will collaborate with cities, towns and communities during the planning and design phases of projects. Together, they will decide how to provide the transportation options needed to serve the community and complement the context of the area. The benefits of this approach include:

- making it easier for travelers to get where they need to go;
- encouraging the use of alternative forms of transportation;
- building more sustainable communities;
- increasing connectivity between neighborhoods, streets, and transit systems;
- improving safety for pedestrians, cyclists, and motorists.

Complete streets are streets designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists and individuals of all ages and capabilities. These streets generally include sidewalks, appropriate bicycle facilities, transit stops, right-sized street widths, context-based traffic speeds, and are well-integrated with surrounding land uses. The complete street policy and concepts were utilized in the development of the CTP. The CTP proposes projects that include multi-modal project recommendations as documented in the problem statements within this chapter. Refer to Appendix C for recommended cross sections for all project proposals and Appendix D for more detailed information on the typical cross sections.

2.1 Implementation

The CTP is based on the projected growth for the planning area. It is possible that actual growth patterns will differ from those logically anticipated. As a result, it may be necessary to accelerate or delay the implementation of some recommendations found within this plan. Some portions of the plan may require revisions in order to accommodate unexpected changes in development. Therefore, any changes made to one element of the CTP should be consistent with the other elements.

Initiative for implementing the CTP rests predominately with the policy boards and citizens of Hoke County. As transportation needs throughout the state exceed available funding, it is imperative that the local planning area aggressively pursue funding for priority projects. Projects should be prioritized locally and submitted to the Lumber River RPO for regional prioritization and submittal to NCDOT. Refer to Appendix A for contact information on regional prioritization and funding. Local governments may use

¹ For more information on Complete Streets, go to: <http://www.completestreetsnc.org/>

the CTP to guide development and protect corridors for the recommended projects. It is critical that NCDOT and local governments coordinate on relevant land development reviews and all transportation projects to ensure proper implementation of the CTP. Local governments and NCDOT share the responsibility for access management and the planning, design and construction of the recommended projects.

Recommended improvements shown on the CTP map represents an agreement of identified transportation deficiencies and potential solutions to address the deficiencies. While the CTP does propose recommended solutions, it may not represent the final location or cross section associated with the improvement. All CTP recommendations are based on high level systems analyses that seek to minimize impacts to the natural and human environment. Prior to implementing projects from the CTP, additional analysis will be necessary to meet the National Environmental Policy Act (NEPA) or the North Carolina (or State) Environmental Policy Act² (SEPA). During the NEPA/SEPA process, the specific project location and cross section will be determined based on environmental analysis and public input. This CTP may be used to support transportation decision making and provide transportation planning data in the NEPA/SEPA process.

2.2 Problem Statements

The following pages contain problem statements for each recommendation, organized by CTP modal element. The information provided in the problem statement is intended to help support decisions made in the NEPA/SEPA process. A minimum or reference problem statement is presented for each recommendation. Minimum problem statements are more concise and less detailed, but include all known or readily available information. Reference problem statements are developed for Transportation Improvement Program (TIP) projects where the purpose and need for the project has already been established.

²For more information on SEPA, go to: <http://www.doa.nc.gov/clearing/faq.aspx>.

HIGHWAY

US 15/501, TIP No. R-5827

The North Carolina Department of Transportation (NCDOT) TIP project R-5827 proposes to widen the existing two-lane roadway to a four-lane divided boulevard. The proposed project begins in Moore County and extends into Scotland County to the South Carolina state line. The purpose of the project is to improve mobility and reduce travel time along the US 15/501 corridor. Right of way acquisition is tentatively scheduled to begin in 2024 with construction starting in 2027.

US 401, TIP No. R-3333

The North Carolina Department of Transportation (NCDOT) TIP project R-3333 proposes to widen the existing two-lane roadway to a four-lane divided boulevard. The proposed 20.7 mile project extends from Raeford in Hoke County to Laurinburg in Scotland County. The project route is generally rural in nature with scattered farms and undeveloped woodlands. The purpose of the project is to improve traffic carrying capacity and safety along the US 401 corridor between Laurinburg and Fayetteville. Additional right of way and the relocation of homes and businesses will be required for this project. US 401 is part of North Carolina's Strategic Transportation Corridors (STC), a statewide initiative adopted by the Board of Transportation on March 4, 2015. The STC identify a network of critical multimodal transportation corridors considered the backbone of the state's transportation system. These 25 corridors move most of our freight and people, link critical centers of economic activity to international air and sea ports, and support interstate commerce. They must operate well to help North Carolina attract new businesses, grow jobs and catalyze economic development.

NC 211, TIP No. R-5709

The North Carolina Department of Transportation (NCDOT) TIP project R-5709 proposes to widen the existing two-lane roadway to a four-lane divided boulevard with 46-foot grass median and 4-foot paved shoulders on both sides of NC 211 to accommodate bicycles. The proposed 15.4 mile project extends from Aberdeen in Moore County to Raeford in Hoke County. The purpose of the project is to address traffic congestion, roadway deficiencies, and safety. Potential safety improvements may include limiting left-turn movements, adding turn lanes and limiting the number of driveways onto NC 211. Additional right of way and the relocation of homes and businesses will be required for this project. This project is currently in the project development and environmental analysis process. The project's environmental document will be complete before the end of 2017 with the record of decision planned for Spring 2019. Right of way acquisition is scheduled to begin in 2020 with construction starting in 2022. For additional information about this project, including the Purpose and Need, contact NCDOT's Project Development and Environmental Analysis Branch.

PUBLIC TRANSPORTATION & RAIL

A public transportation and rail assessment was completed during the development of the CTP. There is an on-demand public transportation service available to residents in the county by Hoke Area Transit Services (HATS). There are no recommended improvements associated with the public transportation mode. There are existing freight rail lines through Hoke County, but no passenger trains. There are no recommended improvements associated with the rail transportation mode.

BICYCLE

A bicycle route assessment was completed during the development of the CTP. Currently, there are two adequate bicycle routes (US 1 and NC 9) in Hoke County, as shown in Sheet 4 of Figure 1. It is recommended to add a bicycle route, consisting of four-foot wide paved shoulders, from the county line to the MPO Boundary. This is being reviewed as part of R-5709.

NC 211, TIP No. R-5709

The recommended improvement proposed is in conjunction with the NC 211 highway recommendation. A four-foot wide paved shoulder on both sides of NC 211 is proposed in Hoke County to accommodate bicyclists from Aberdeen in Moore County to Raeford in Hoke County.

APPENDICES

Appendix A Resources and Contacts

Local Planning Organization

Lumber River Rural Planning Organization (www.lumberriverrpo.lrcog.org)

Contact the RPO for information on long-range multi-modal planning services.

30 CJ Walker Road Pembroke, NC 28372 (910) 775-9749

North Carolina Department of Transportation

Customer Service Office

Contact information for other units within the NCDOT that are not listed in this appendix is available by calling the Customer Service Office or by visiting the NCDOT directory:

1-877-DOT-4YOU (1-877-368-4968) <http://www.ncdot.gov/contact/>

Secretary of Transportation (<http://www.ncdot.org/about/leadership/secretary.html>)

1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2800

Board of Transportation (<http://www.ncdot.gov/about/board/>)

1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2820

Highway Division 8 (<https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx>)

902 N Sandhills Boulevard Aberdeen, NC 28315 (910) 944-5623

Contact the Highway Division with questions concerning NCDOT activities within each Division.

Contact the following NCDOT divisions and units¹ for:

<u>Transportation Planning Branch (TPB)</u>	<i>Information on long-range multi-modal planning services.</i> 1554 Mail Service Center Raleigh, NC 27699 (919) 707-0900
<u>Strategic Planning Office</u>	<i>Information concerning prioritization of transportation projects.</i> 1501 Mail Service Center Raleigh, NC 27699 (919) 707-4740
<u>Project Development & Environmental Analysis (PDEA)</u>	<i>Information on environmental studies for projects that are included in the TIP.</i> 1548 Mail Service Center Raleigh, NC 27699 (919) 707-6000
<u>State Asset Management Unit</u>	<i>Information regarding the status for unpaved roads to be paved, additions and deletions of roads to the State maintained system and the Industrial Access Funds program.</i> 1535 Mail Service Center Raleigh, NC 27699 (919) 707-2500

¹ Unit websites are hyperlinked and can also be accessed at <https://connect.ncdot.gov/Pages/default.aspx>.

<u><i>Program Development Branch</i></u>	<i>Information concerning Roadway Official Corridor Maps, Feasibility Studies and the Transportation Improvement Program (TIP).</i> 1542 Mail Service Center Raleigh, NC 27699 (919) 707-4610
<u><i>Public Transportation Division</i></u>	<i>Information on public transit systems.</i> 1550 Mail Service Center Raleigh, NC 27699 (919) 707-4670
<u><i>Rail Division</i></u>	<i>Rail information throughout the state.</i> 1553 Mail Service Center Raleigh, NC 27699 (919) 707-4700
<u><i>Division of Bicycle and Pedestrian Transportation</i></u>	<i>Bicycle and pedestrian transportation information throughout the state.</i> 1552 Mail Service Center Raleigh, NC 27699 (919) 707-2600
<u><i>Structures Management Unit</i></u>	<i>Information on bridge management throughout the state.</i> 1581 Mail Service Center Raleigh, NC 27699 (919) 707-6400
<u><i>Roadway Design Unit</i></u>	<i>Information regarding design plans and proposals for road and bridge projects throughout the state.</i> 1582 Mail Service Center Raleigh, NC 27699 (919) 707-6200
<u><i>Transportation Mobility and Safety Division</i></u>	<i>Information regarding crash data throughout the state.</i> 1561 Mail Service Center Raleigh, NC 27699 (919) 773-2800

Other State Government Offices

Department of Commerce – Division of Community Assistance

Contact the Department of Commerce for resources and services to help realize economic prosperity, plan for new growth and address community needs.

<http://www.nccommerce.com/cd>

Appendix B

Comprehensive Transportation Plan Definitions

This appendix contains descriptive information and definitions for the designations depicted on the CTP maps shown in Figure 1.

Highway Map

The “NCDOT Facility Type –Control of Access Definitions” document provides a visual depiction of facility types for the following CTP classification.

Facility Type Definitions

❖ Freeways

- Functional purpose – high mobility, high volume, high speed
- Posted speed – 55 mph or greater
- Cross section – minimum four lanes with continuous median
- Multi-modal elements – High Occupancy Vehicles (HOV)/High Occupancy Transit (HOT) lanes, busways, truck lanes, park-and-ride facilities at/near interchanges, adjacent shared use paths (separate from roadway and outside ROW)
- Type of access control – full control of access
- Access management – interchange spacing (urban – one mile; non-urban – three miles); at interchanges on the intersecting roadway, full control of access for 1,000ft or for 350ft plus 650ft island or median; use of frontage roads, rear service roads
- Intersecting facilities – interchange or grade separation (no signals or at-grade intersections)
- Driveways – not allowed

❖ Expressways

- Functional purpose – high mobility, high volume, medium-high speed
- Posted speed – 45 to 60 mph
- Cross section – minimum four lanes with median
- Multi-modal elements – HOV lanes, busways, very wide paved shoulders (rural), shared use paths (separate from roadway but within ROW)
- Type of access control – limited or partial control of access;
- Access management – minimum interchange/intersection spacing 2,000ft; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways limited in location and number; use of acceleration/deceleration or right turning lanes
- Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
- Driveways – right-in/right-out only; direct driveway access via service roads or other alternate connections

❖ **Boulevards**

- Functional purpose – moderate mobility; moderate access, moderate volume, medium speed
- Posted speed – 30 to 55 mph
- Cross section – two or more lanes with median (median breaks allowed for U-turns per current NCDOT *Driveway Manual*)
- Multi-modal elements – bus stops, bike lanes (urban) or wide paved shoulders (rural), sidewalks (urban - local government option)
- Type of access control – limited control of access, partial control of access, or no control of access
- Access management – two lane facilities may have medians with crossovers, medians with turning pockets or turning lanes; use of acceleration/deceleration or right turning lanes is optional; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – at grade intersections and driveways; interchanges at special locations with high volumes
- Driveways – primarily right-in/right-out, some right-in/right-out in combination with median leftovers; major driveways may be full movement when access is not possible using an alternate roadway

❖ **Other Major Thoroughfares**

- Functional purpose – balanced mobility and access, moderate volume, low to medium speed
- Posted speed – 25 to 55 mph
- Cross section – four or more lanes without median (*US and NC routes may have less than four lanes*)
- Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
- Type of access control – no control of access
- Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – intersections and driveways
- Driveways – full movement on two lane roadway with center turn lane as permitted by the current NCDOT *Driveway Manual*

❖ **Minor Thoroughfares**

- Functional purpose – balanced mobility and access, moderate volume, low to medium speed
- Posted speed – 25 to 55 mph
- Cross section – ultimately three lanes (no more than one lane per direction) or less without median
- Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
- ROW – no control of access

- Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – intersections and driveways
- Driveways – full movement on two lane with center turn lane as permitted by the current NCDOT *Driveway Manual*

Other Highway Map Definitions

- ❖ **Existing** – Roadway facilities that are not recommended to be improved.
- ❖ **Needs Improvement** – Roadway facilities that need to be improved for capacity, safety, operations, or system continuity. The improvement to the facility may be widening, increasing the level of access control along the facility, operational strategies (including but not limited to traffic control and enforcement, incident and emergency management, and deployment of Intelligent Transportation Systems (ITS) technologies), or a combination of improvements and strategies. “Needs improvement” does not refer to the maintenance needs of existing facilities or the replacement or rehab of structures.
- ❖ **Recommended** – Roadway facilities on new location that are needed in the future.
- ❖ **Interchange** – Through movement on intersecting roads is separated by a structure. Turning movement area accommodated by on/off ramps and loops.
- ❖ **Grade Separation** – Through movement on intersecting roads is separated by a structure. There is no direct access between the facilities.
- ❖ **Full Control of Access** – Connections to a facility provided only via ramps at interchanges. No private driveway connections allowed.
- ❖ **Limited Control of Access** – Connections to a facility provided only via ramps at interchanges (major crossings) and at-grade intersections (minor crossings and service roads). No private driveway connections allowed.
- ❖ **Partial Control of Access** – Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. Private driveway connections shall be defined as a maximum of one connection per parcel. One connection is defined as one ingress and one egress point. These may be combined to form a two-way driveway (most common) or separated to allow for better traffic flow through the parcel. The use of shared or consolidated connections is highly encouraged.
- ❖ **No Control of Access** – Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways.

Public Transportation and Rail Map

- ❖ **Bus Routes** – The primary fixed route bus system for the area. Does not include demand response systems.
- ❖ **Fixed Guideway** – Any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes heavy rail, commuter rail, light rail,

monorail, trolleybus, aerial tramway, included plane, cable car, automated guideway transit, and ferryboats.

- ❖ **Operational Strategies** – Plans geared toward the non-single occupant vehicle. This includes but is not limited to HOV lanes or express bus service.
- ❖ **Rail Corridor** – Locations of railroad tracks that are either active or inactive tracks. These tracks were used for either freight or passenger service.
 - Active – rail service is currently provided in the corridor; may include freight and/or passenger service
 - Inactive – right of way exists; however, there is no service currently provided; tracks may or may not exist
 - Recommended – It is desirable for future rail to be considered to serve an area.
- ❖ **High Speed Rail Corridor** – Corridor designated by the U.S. Department of Transportation as a potential high speed rail corridor.
 - Existing – Corridor where higher-speed rail service (over 79 mph) is provided or a corridor that is officially designated by FRA to run higher speed trains in the future. There is currently one federally designated high-speed rail corridor in North Carolina - The Southeast High Speed Rail Corridor.
 - Recommended – Proposed corridor for higher speed rail service.
- ❖ **Rail Stop** – A railroad station or stop along the railroad tracks.
- ❖ **Multimodal Connector** - A location where more than one mode of transportation meet such as where light rail and a bus route come together in one location. (NOTE- intermodal refers to two or more modes that transfer the same cargo unit-like 40' shipping container from ship to train or truck); multimodal is the transfer of people/cargo between two or more modes and in NC is used in public transit settings i.e. Charlotte Multimodal Station)
- ❖ **Park and Ride Lot** – A strategically located parking lot that provides commuters connections to transit or carpools.
- ❖ **Existing Grade Separation** – Locations where existing rail facilities are physically separated from existing highways or other transportation facilities. These may be bridges, culverts, or other structures.
- ❖ **Proposed Grade Separation** – Locations where rail facilities are recommended to be physically separated from existing or recommended highways or other transportation facilities. These may be bridges, culverts, or other structures.

Bicycle Map

- ❖ **On Road-Existing** – Conditions for bicycling on the highway facility are adequate to safely accommodate cyclists.
- ❖ **On Road-Needs Improvement** – At the systems level, it is desirable for **an existing** highway facility to accommodate bicycle transportation; however, highway improvements are necessary to create safe travel conditions for the cyclists.

- ❖ **On Road-Recommended** – At the systems level, it is desirable for a **recommended** highway facility to accommodate bicycle transportation. The highway should be designed and built to safely accommodate cyclists.
- ❖ **Off Road-Existing** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way.
- ❖ **Off Road-Needs Improvement** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way that will not adequately serve future bicycle needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment.
- ❖ **Off Road-Recommended** – A facility needed to accommodate only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way.
- ❖ **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- ❖ **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.
- ❖ **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- ❖ **Existing Grade Separation** – Locations where existing “Off Road” facilities and “Multi-use Paths” are physically separated from existing highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.
- ❖ **Proposed Grade Separation** – Locations where “Off Road” facilities and “Multi-use Paths” are recommended to be physically separated from existing or recommended highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

Pedestrian Map

- ❖ **Sidewalk-Existing** – Paved paths (including but not limited to concrete, asphalt, brick, stone, or wood) on both sides of a highway facility and within the highway right-of-way that are adequate to safely accommodate pedestrian traffic.
- ❖ **Sidewalk-Needs Improvement** – Improvements are needed to provide paved paths on both sides of a highway facility. The highway facility may or may not need improvements. Improvements do not include re-paving or other maintenance activities but may include: filling in gaps, widening sidewalks, or meeting ADA (Americans with Disabilities Act) requirements.
- ❖ **Sidewalk-Recommended** – At the systems level, it is desirable for a recommended highway facility to accommodate pedestrian transportation **or** to add sidewalks on an existing facility where no sidewalks currently exist. The highway should be designed and built to safely accommodate pedestrian traffic.
- ❖ **Off Road-Existing** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.
- ❖ **Off Road-Needs Improvement** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way that will not adequately serve future pedestrian needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), improved horizontal or vertical alignment, and meeting ADA requirements.
- ❖ **Off Road-Recommended** – A facility needed to accommodate only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.
- ❖ **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- ❖ **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.
- ❖ **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- ❖ **Existing Grade Separation** – Locations where existing “Off Road” facilities and “Multi-use Paths” are physically separated from existing highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.
- ❖ **Proposed Grade Separation** – Locations where “Off Road” facilities and “Multi-use Paths” are recommended to be physically separated from existing or recommended highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

Appendix C

CTP Inventory and Recommendations

Assumptions/ Notes:

- ❖ **Local ID:** This Local ID is the same as the one used for the Prioritization Project Submittal Tool. If a TIP project number exists it is listed as the ID. Otherwise, the following system is used to create a code for each recommended improvement: the first 4 letters of the county name is combined with a 4 digit unique numerical code followed by '-H' for highway, '-T' for public transportation, '-R' for rail, '-B' for bicycle, '-M' for multi-use paths, or '-P' for pedestrian modes. If a different code is used along a route it indicates separate projects will probably be requested. Also, upper case alphabetic characters (i.e. 'A', 'B', or 'C') are included after the numeric portion of the code if it is anticipated that project segmentation or phasing will be recommended.
- ❖ **Jurisdiction:** Jurisdictions listed are based on municipal limits, county boundaries, and MPO Metropolitan Planning Area Boundaries (MAB), as applicable.
- ❖ **Existing Cross-Section:** Listed under 'Total Width (ft)' is the approximate width of the roadway from edge of pavement to edge of pavement and under 'Lane Width (ft)' is the approximate width of a single lane based on centerline/ edge line markings. Listed under 'Lanes' is the total number of lanes, with 'D' if the facility is divided, and 'OW' if it is a one-way facility.
- ❖ **Existing ROW:** The estimated existing right-of-way is based on the NCDOT Roadway Characteristics shapefile. These right-of-way amounts are approximate and may vary.
- ❖ **Existing and Proposed Capacity:** The estimated capacities are given in vehicles per day (vpd) based on LOS D for existing facilities and LOS C for new facilities. These capacity estimates were developed based on the 2000 Highway Capacity Manual using the Transportation Planning Branch's LOS D Standards for Systems Level Planning, as documented in Chapter 1.
- ❖ **Existing and Proposed Volumes,** given in vehicles per day (vpd), are estimates only based on a systems-level analysis. The '2045 Volume E+C' is an estimate of the volume in 2045 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in the 2016 - 2025 Transportation Improvement Program (TIP). The '2045 Volume with CTP' is an estimate of the volume in 2045 with all proposed CTP improvements assumed to be in place. The '2045 Volume with CTP' is shown in bold if it exceeds the proposed capacity, indicating an unmet need. For additional information about the assumptions and techniques used to develop the AADT volume estimates, refer to Chapter 1.
- ❖ **Proposed Cross-section:** The CTP recommended cross-sections are listed by code; for depiction of the cross-section, refer to Appendix D. An entry of 'ADQ' indicates the existing facility is adequate and there are no improvements recommended for the given mode as part of the CTP.
- ❖ **CTP Classification:** The CTP classification is listed, as shown on the adopted CTP Maps (see Figure 1). Abbreviations are F= freeway, E= expressway, B= boulevard, Maj= other major thoroughfare, Min= minor thoroughfare.

- ❖ **Tier:** Tiers are defined as part of the North Carolina Multimodal Investment Network (NCMIN). Abbreviations are Sta= statewide tier, Reg= regional tier, Sub= subregional tier.
- ❖ **Proposals for Other Modes:** If there is an improvement recommended for another mode of transportation that relates to the given recommendation, it is indicated by an alphabetic code (H= highway, T= public transportation, R= rail, B= bicycle, P= pedestrian, and M= multi-use path).

CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																				
Local ID	Facility	Section		Jurisdiction	Dist. (mi)	2015 Existing System							2045 Proposed System					CTP Classification	Tier	Proposals for Other Modes
		From	To			Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)			
TIP R-5827	US 15-501	Scotland County Line	Ashemont Rd (SR 1225)	Hoke County	1.7	28	2	12	100	55	16400	5000	8900	8900	49000	4A	180	B	Reg	
TIP R-5827	US 15-501	Ashemont Rd (SR 1225)	Moore County Line	Hoke County	1.8	28	2	12	100	55	16400	7000	9600	9600	49000	4A	180	B	Reg	
TIP R-3333	US 401	Scotland County Line	Fayetteville MPO Limits	Hoke County	7.7	28	2	12	100	55	16400	6200	9100	9100	49000	4A	180	B	Sta	
	NC 211	Robeson County Line	Cope Rd (SR 1447)	Hoke County	2.5	22	2	10	60	55	16400	4000	5200	5200	16400	ADQ	ADQ	Maj	Reg	
	NC 211	Cope Rd (SR 1447)	Old Wire Rd (SR 1105)	Hoke County	1.1	22	2	10	60	55	16400	4200	5700	5700	16400	ADQ	ADQ	Maj	Reg	
	NC 211	Old Wire Rd (SR 1105)	N. Shannon Rd (SR 1001)	Hoke County	3.0	22	2	10	60	55	16400	4000	4900	4900	16400	ADQ	ADQ	Maj	Reg	
	NC 211	N. Shannon Rd (SR 1001)	Fayetteville MPO Limits	Hoke County	2.5	22	2	10	60	55	16400	5500	7500	7500	16400	ADQ	ADQ	Maj	Reg	
TIP R-5709	NC 211	Fayetteville MPO Limits	Army Rd (SR 1219)	Hoke County	3.1	22	2	10	60	55	16400	9400	12300	12300	49000	4A	180	B	Reg	B
TIP R-5709	NC 211	Army Rd (SR 1219)	Moore County Line	Hoke County	5.4	22	2	10	60-100	55	16400	9500	12800	12800	49000	4A	180	B	Reg	B
	Addor Rd (SR 1230)	Ashemont Rd (SR 1225)	Moore County Line	Hoke County	0.5	22	2	10	60	55	16400	2300	4900	4900	16400	ADQ	ADQ	Min	Sub	
	Army Rd (SR 1219)	Ashemont Rd (SR 1225)	NC 211	Hoke County	3.6	22	2	10	60	55	16400	1600	2000	2000	16400	ADQ	ADQ	Min	Sub	
	Ashemont Rd (SR 1225)	Addor Rd (SR 1230)	US 15	Hoke County	0.5	22	2	10	60	55	16400	2500	4900	4900	16400	ADQ	ADQ	Min	Sub	
	Ashemont Rd (SR 1225)	US 15	Army Rd (SR 1219)	Hoke County	3.1	22	2	10	60	55	16400	2500	4900	4900	16400	ADQ	ADQ	Min	Sub	
	Calloway Rd (SR 1214)	Fayetteville MPO Limits	N Horace Walters Rd (SR 1211)	Hoke County	3.1	22	2	9	60	55	16400	1300	2700	2700	16400	ADQ	ADQ	Min	Sub	
	Calloway Rd (SR 1214)	N Horace Walters Rd (SR 1211)	Army Rd (SR 1219)	Hoke County	2.3	22	2	9	60	55	16400	1600	3800	3800	16400	ADQ	ADQ	Min	Sub	

HIGHWAY																					
Local ID	Facility	Section		Jurisdiction	Dist. (mi)	2015 Existing System							2045 Proposed System						CTP Classification	Tier	Proposals for Other Modes
		From	To			Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
	Calloway Rd (SR 1214)	Army Rd (SR 1219)	Moore County Line	Hoke County	4.0	22	2	9	60	55	16400	1000	1800	1800	16400	ADQ	ADQ	Min	Sub		
	Cope Rd (SR 1447)	NC 211	Robeson County Line	Hoke County	2.5	18	2	9	60	55	16400	1100	1200	1200	16400	ADQ	ADQ	Min	Sub		
	N Horace Walters Rd (SR 1211)	Turnpike Rd (SR 1211)	Calloway Rd (SR 1214)	Hoke County	2.9	18	2	9	60	55	16400	1000	1300	1300	16400	ADQ	ADQ	Min	Sub		
	Old Maxton Rd (SR 1116)	Old Wire Rd (SR 1105)	NC 211	Hoke County	9.1	22	2	9	60	55	16400	1100	1200	1200	16400	ADQ	ADQ	Min	Sub		
	Old Wire Rd (SR 1105)	Robeson County Line	Old Maxton Rd (SR 1116)	Hoke County	1.4	24	2	10	60	55	16400	1400	2000	2000	16400	ADQ	ADQ	Min	Sub		
	Old Wire Rd (SR 1105)	Old Maxton Rd (SR 1116)	NC 211	Hoke County	5.3	24	2	10	60	55	16400	2000	3000	3000	16400	ADQ	ADQ	Min	Sub		
	Old Wire Rd (SR 1105)	NC 211	N Shannon Rd (SR 1001)	Hoke County	1.8	24	2	10	60	55	16400	1900	4100	4100	16400	ADQ	ADQ	Min	Sub		
	Old Wire Rd (SR 1105)	N Shannon Rd (SR 1001)	FAMPO Limits	Hoke County	1.9	24	2	10	60	55	16400	1600	3000	3000	16400	ADQ	ADQ	Min	Sub		
	N Shannon Rd (SR 1001)	Robeson County Line	Old Wire Rd (SR 1105)	Hoke County	3.5	22	2	9	60	55	16400	2000	3100	3100	16400	ADQ	ADQ	Min	Sub		
	N Shannon Rd (SR 1001)	Old Wire Rd (SR 1105)	NC 211	Hoke County	2.3	22	2	9	60	55	16400	1400	2100	2100	16400	ADQ	ADQ	Min	Sub		
	Scott Currie Rd (SR 1458)	NC 211	Fayetteville MPO Limits	Hoke County	1.0	22	2	9	60	55	16400	1000	1300	1300	16400	ADQ	ADQ	Min	Sub		
	Turnpike Rd (SR 1203)	Scotland County Line	N Horace Walters Rd (SR 1211)	Hoke County	0.5	18	2	9	60	55	16400	600	800	800	16400	ADQ	ADQ	Min	Sub		
	Turnpike Rd (SR 1203)	N Horace Walters Rd (SR 1211)	Fayetteville MPO Limits	Hoke County	5.8	18	2	9	60	55	16400	1300	2500	2500	16400	ADQ	ADQ	Min	Sub		

Footnotes:

(1) Undivided 4-lane with shoulder

(2) Raised median 2 lane with 8 ft on-street parking both sides

RAIL AND BICYCLE

RAIL												
Local ID	Facility/ Route	Section (From - To)	Class	Speed Limit (mph)	Distance (mi)	Existing System			Proposed System			Other Modes
						Type	ROW (ft)	Trains per week	Type	ROW (ft)	Trains per week	
	Aberdeen and Rockfish Company, Inc. (AR) ML Line	Moore County - Fayetteville MPO Limits	III	10	8.8	Freight	-	1	-	-	-	-
	Laurinburg & Southern Company, Inc. (LRS) ML Line	Scotland County - Fayetteville MPO Limits	III	10	8.6	Freight	-	1	-	-	-	-

BICYCLE									
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Existing System		Proposed System		Other Modes	
				Cross-Section		Type	Cross-Section		
				(ft)	lanes				
TIP R-5709	NC 211	Fayetteville MPO Limits - Moore County Line	8.5	Concurrent with NC 211 - see Highway Table					H
	US Bicycle Route 1	Turnpike Rd (SR 1203) - Moore County Line	12.3	18-22	2	-	-		
	NC Bicycle Route 9	Scotland County Line - Fayetteville MPO Limits	6.3	18	2	-	-		

Appendix D

Typical Cross Sections

Cross section requirements for roadways vary according to the capacity and level of service to be provided. Universal standards in the design of roadways are not practical. Each roadway section must be individually analyzed and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service, and available right-of-way. These cross sections are typical for facilities on new location and where right-of-way constraints are not critical. For widening projects and urban projects with limited right-of-way, special cross sections should be developed that meet the needs of the project.

The comprehensive planning and design "typical" highway cross sections, as depicted on the following pages, were updated on May 5, 2014 in response to the Strategic Transportation Investments¹ (STI) law (House Bill 817) and are also consistent with SPOTOnline (used for project prioritization²), NCDOT's GIS-based web application for providing automated, near real-time prioritization scores and project costs. This guidance establishes design elements that emphasize safety, mobility, complete streets³, and accessibility for multiple modes of travel. These "typical" highway cross sections should be used as guidelines for comprehensive transportation planning, project planning and project design activities. The specific and final cross section details and right of way limits for projects will be established through the preparation of the National Environmental Policy Act⁴ (NEPA) documentation and through final design preparation.

On all existing and proposed roadways delineated on the CTP, adequate right-of-way should be protected or acquired for the recommended cross sections. In addition to cross section and right-of-way recommendations for improvements, Appendix C may recommend ultimate needed right-of-way for the following situations:

- ❖ roadways which may require widening after the current planning period,
- ❖ roadways which are borderline adequate and accelerated traffic growth could render them deficient,
- ❖ roadways where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment, and
- ❖ roadways which may need to accommodate an additional transportation mode.

¹ For more information on STI, go to: <http://www.ncdot.gov/strategictransportationinvestments/>.

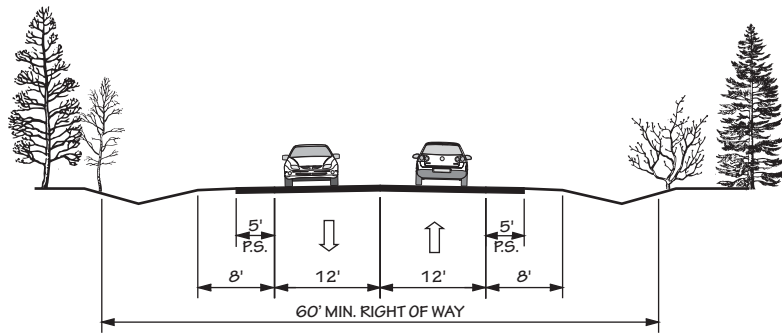
² For more information on prioritization, go to: <https://connect.ncdot.gov/projects/planning/Pages/StrategicPrioritization.aspx>.

³ For more information on Complete Streets, go to: <http://www.completestreetsnc.org/>.

⁴ For more information on NEPA, go to: <http://ceq.hss.doe.gov/>.

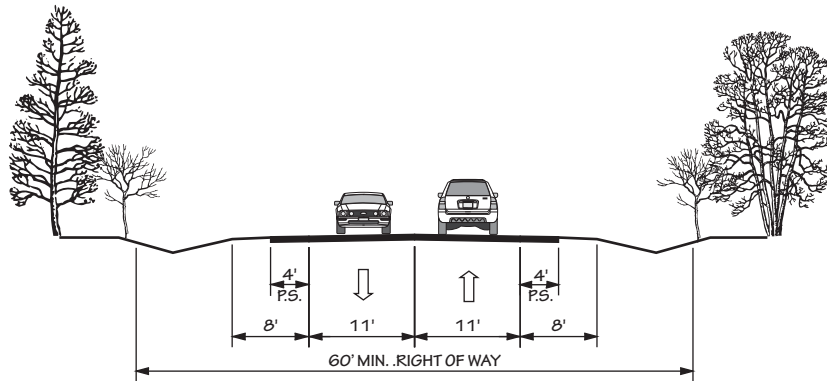
FIGURE 7 "TYPICAL" HIGHWAY CROSS SECTIONS

2A



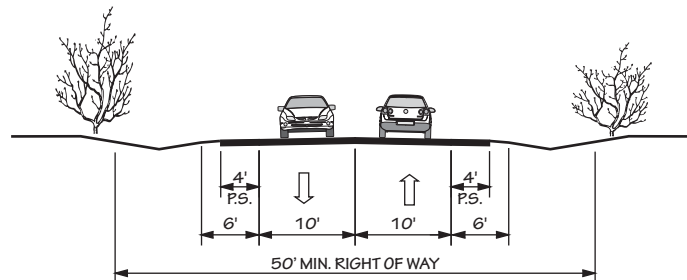
2 LANE UNDIVIDED WITH PAVED SHOULDERS
POSTED SPEED 55 MPH

2B



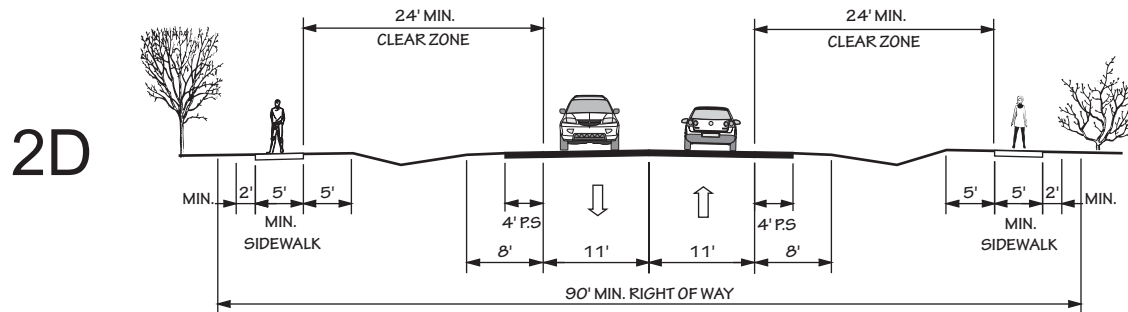
2 LANES UNDIVIDED
POSTED SPEED 45 MPH OR LESS

2C

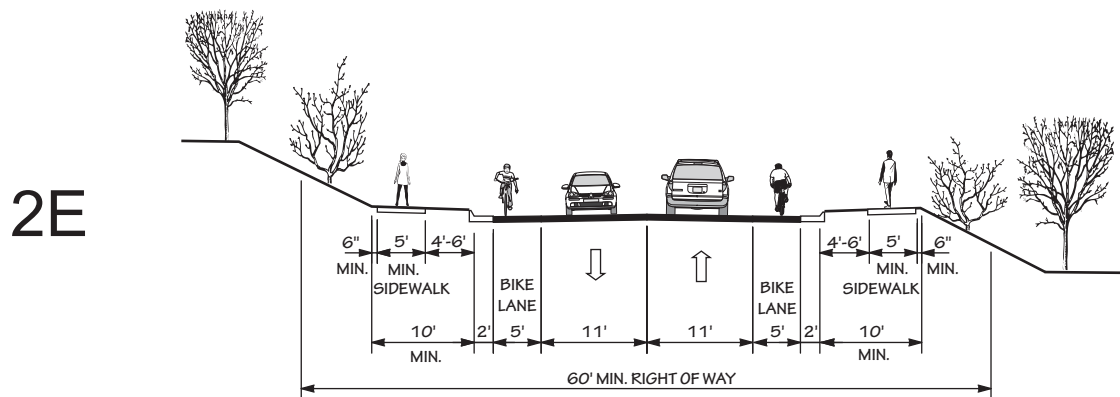


2 LANE UNDIVIDED WITH PAVED SHOULDERS
POSTED SPEED 25 - 35 MPH

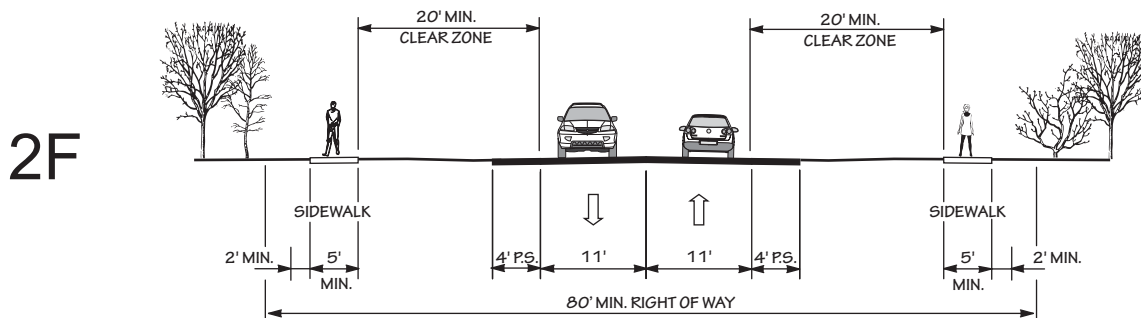
“TYPICAL” HIGHWAY CROSS SECTIONS



2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS
POSTED SPEED 25-45 MPH



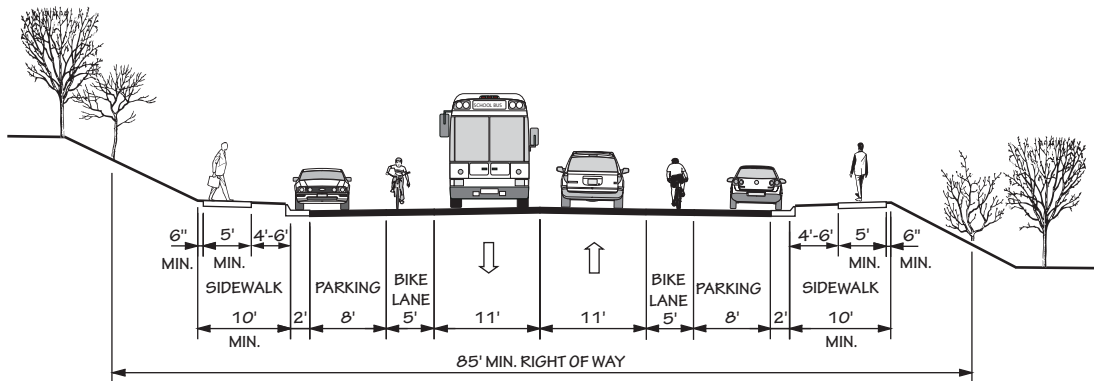
2 LANE UNDIVIDED WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH



2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS
IN CMAA COUNTIES
POSTED SPEED 25-45 MPH

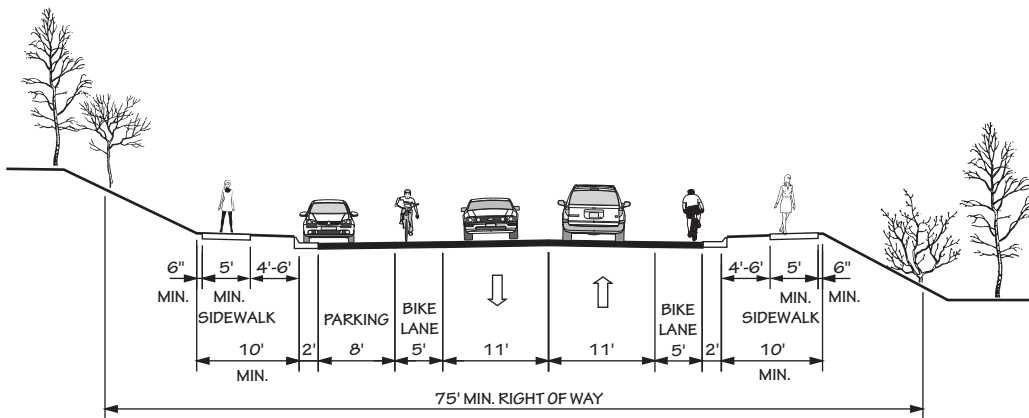
“TYPICAL” HIGHWAY CROSS SECTIONS

2G



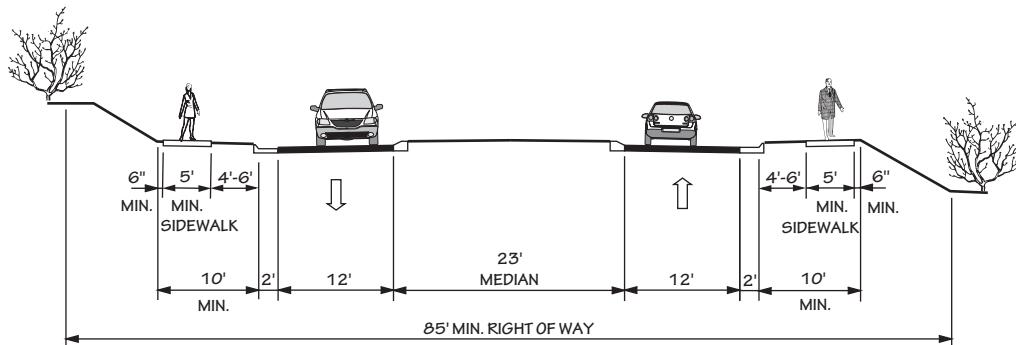
2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING BOTH SIDES,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH

2H



2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING ONE SIDE,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH

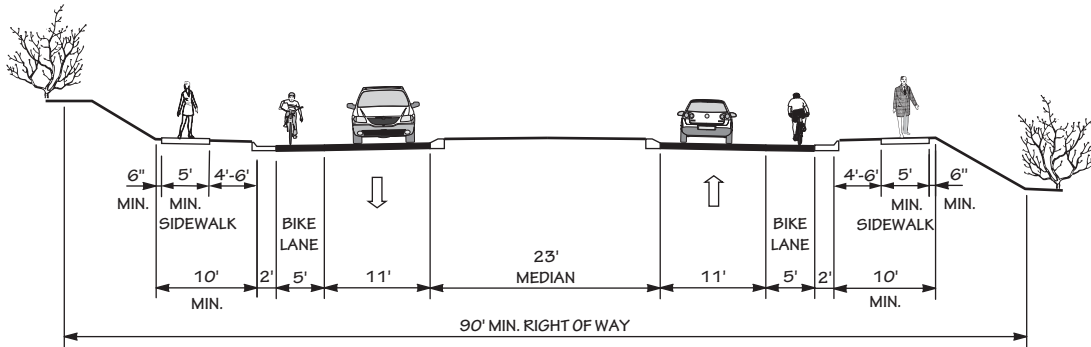
2I



2 LANE DIVIDED (23' RAISED MEDIAN)
WITH CURB & GUTTER AND SIDEWALKS
POSTED SPEED 25-45 MPH

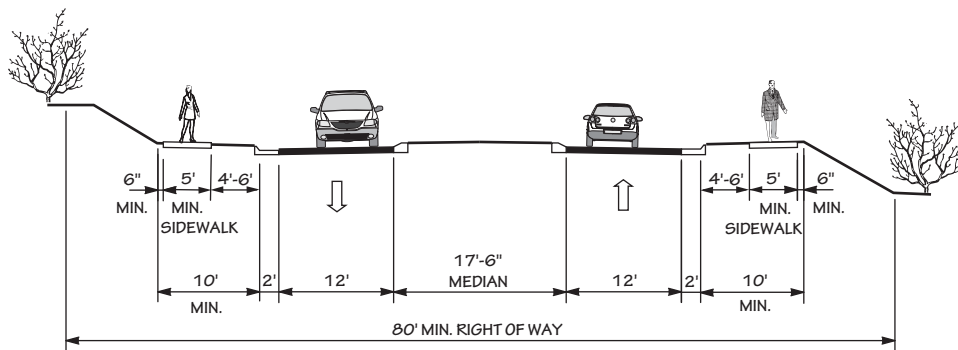
“TYPICAL” HIGHWAY CROSS SECTIONS

2J



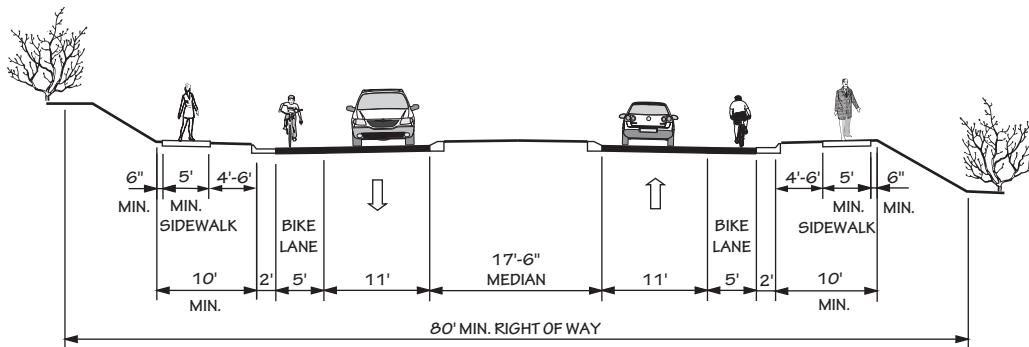
**2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER,
BIKE LANES, AND SIDEWALKS**
POSTED SPEED 25-45 MPH

2K



**2 LANE DIVIDED (17'-6" RAISED MEDIAN)
WITH CURB & GUTTER AND SIDEWALKS**
POSTED SPEED 25-45 MPH

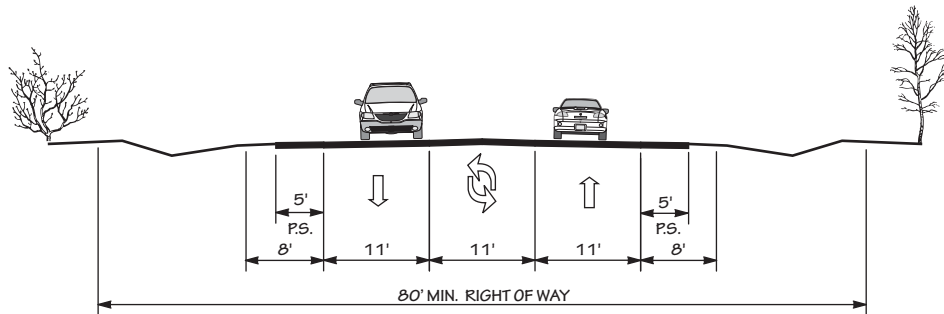
2L



**2 LANE DIVIDED (17'-6" RAISED MEDIAN)
WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS**
POSTED SPEED 25-45 MPH

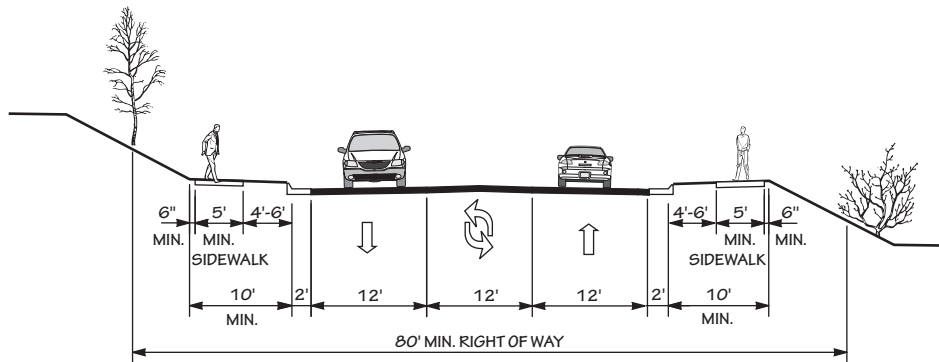
“TYPICAL” HIGHWAY CROSS SECTIONS

3A



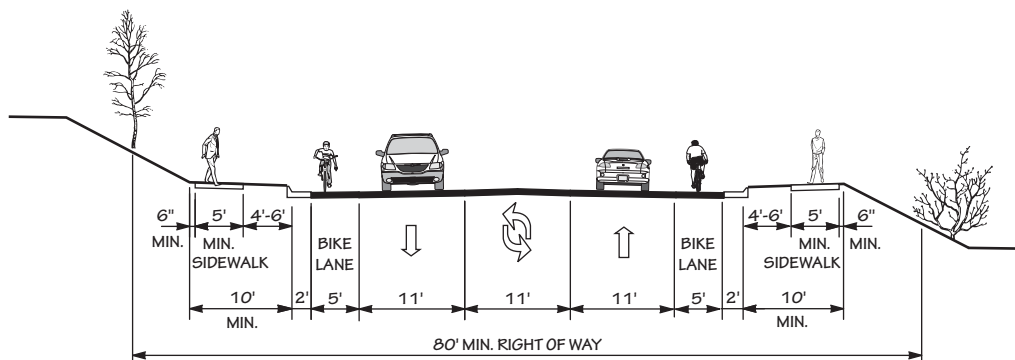
2 LANE WITH TWO WAY LEFT TURN LANE, AND PAVED SHOULDERS
POSTED SPEED 25-55 MPH

3B



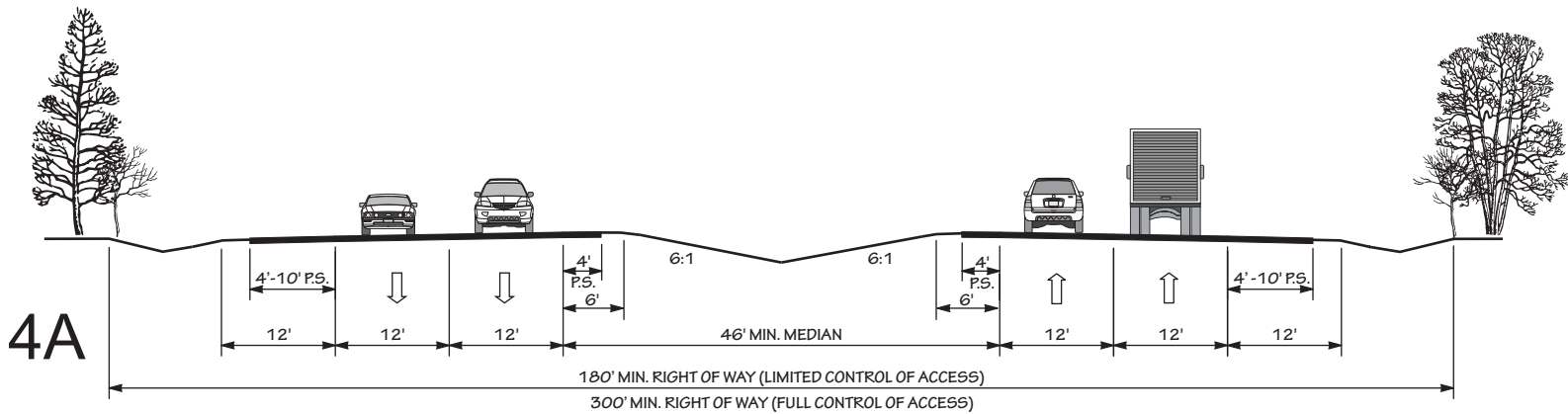
2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER,
AND SIDEWALKS
POSTED SPEED 25-45 MPH

3C

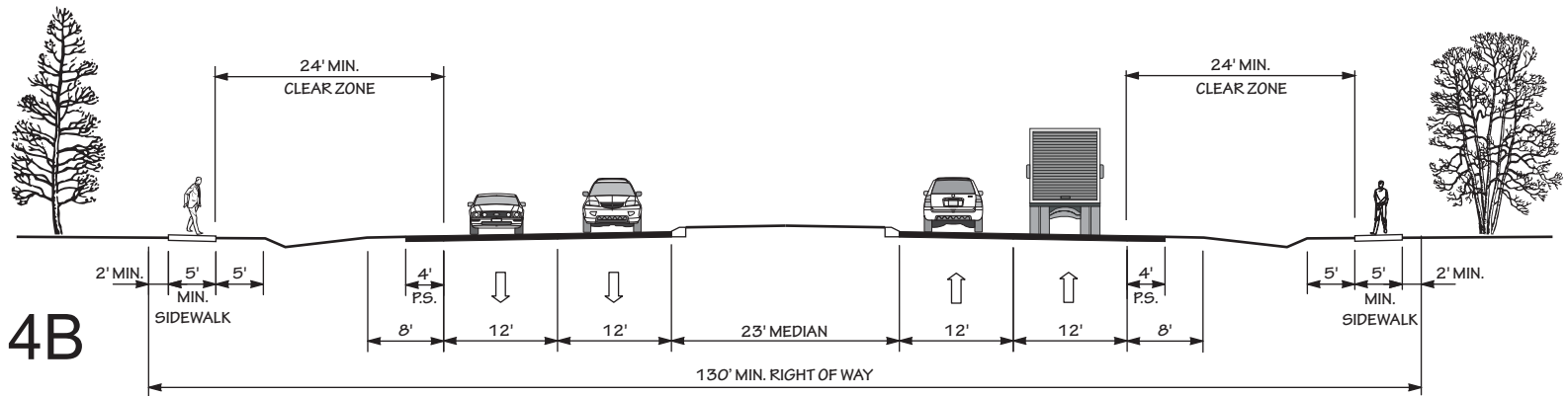


2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH

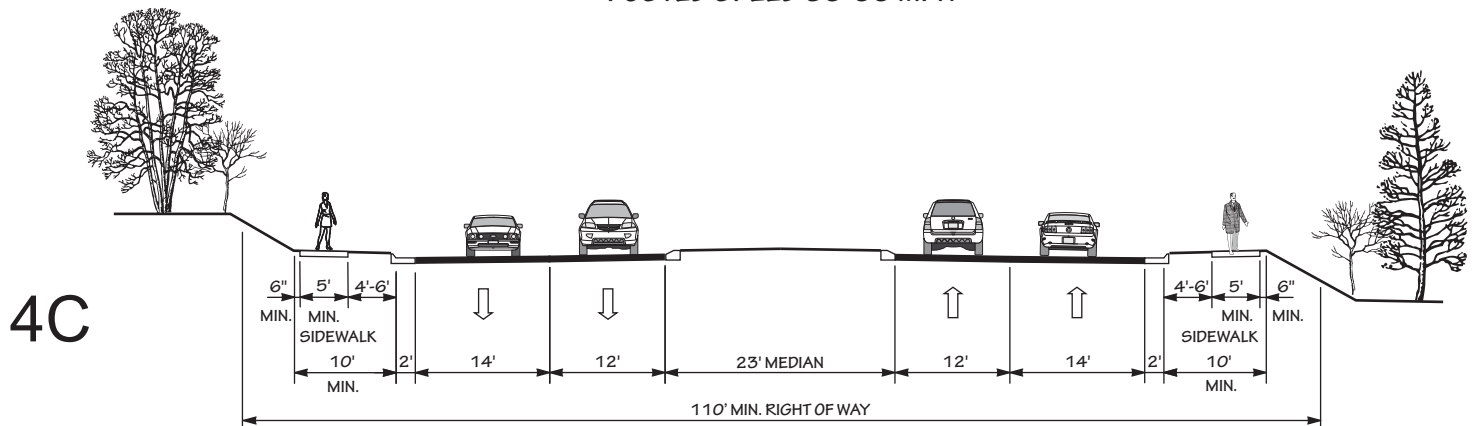
"TYPICAL" HIGHWAY CROSS SECTIONS



4 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS
POSTED SPEED 45-70 MPH

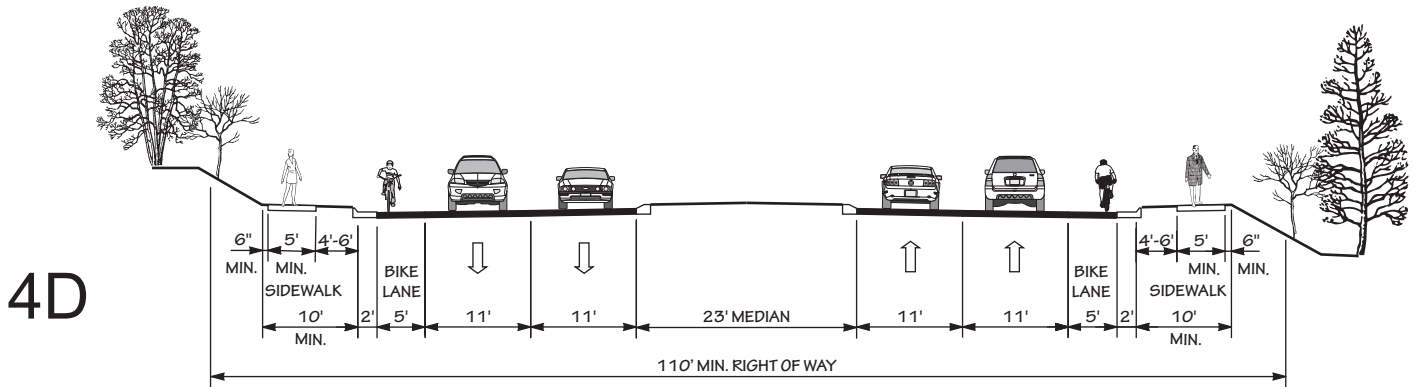


4 LANE DIVIDED (23' RAISED MEDIAN) WITH PAVED SHOULDERS AND SIDEWALKS
POSTED SPEED 35-55 MPH

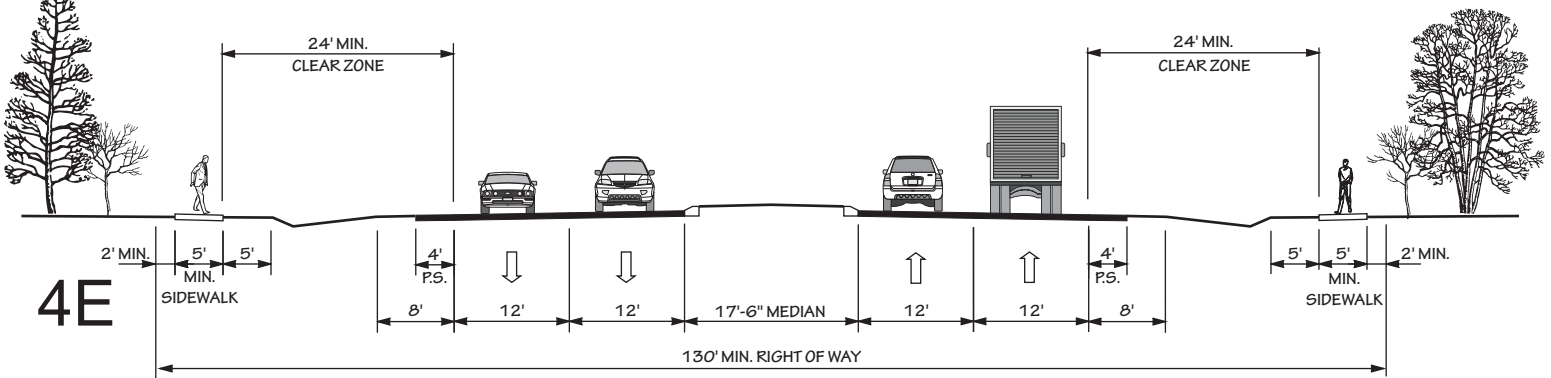


4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH

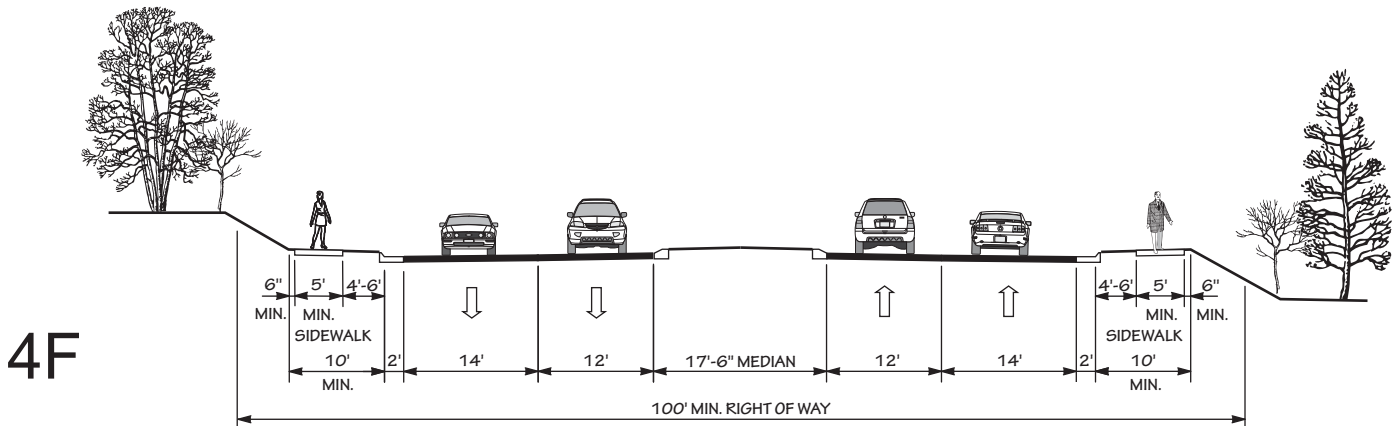
"TYPICAL" HIGHWAY CROSS SECTIONS



**4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER,
BIKE LANES AND SIDEWALKS**
POSTED SPEED 35-45 MPH

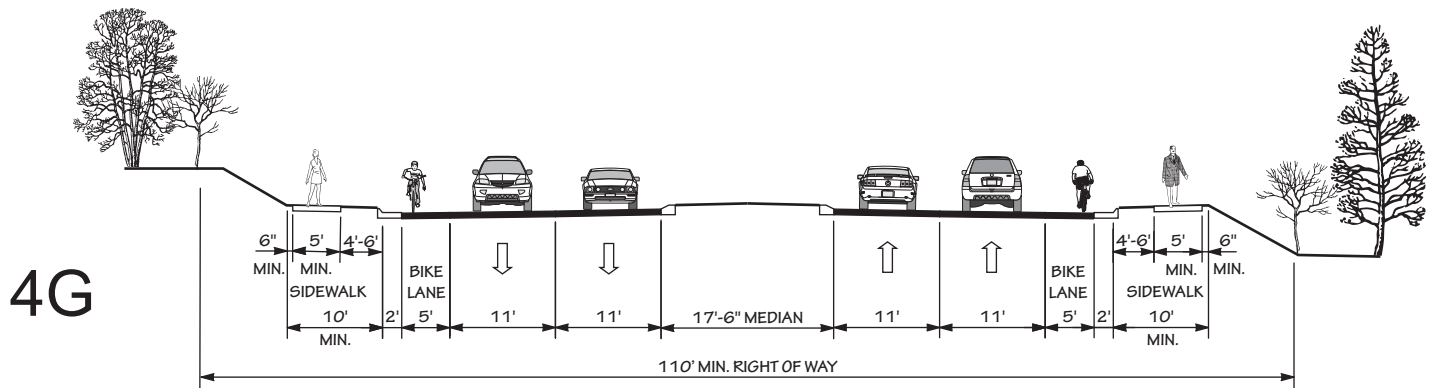


**4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH
PAVED SHOULDERS AND SIDEWALKS**
POSTED SPEED 35-55 MPH

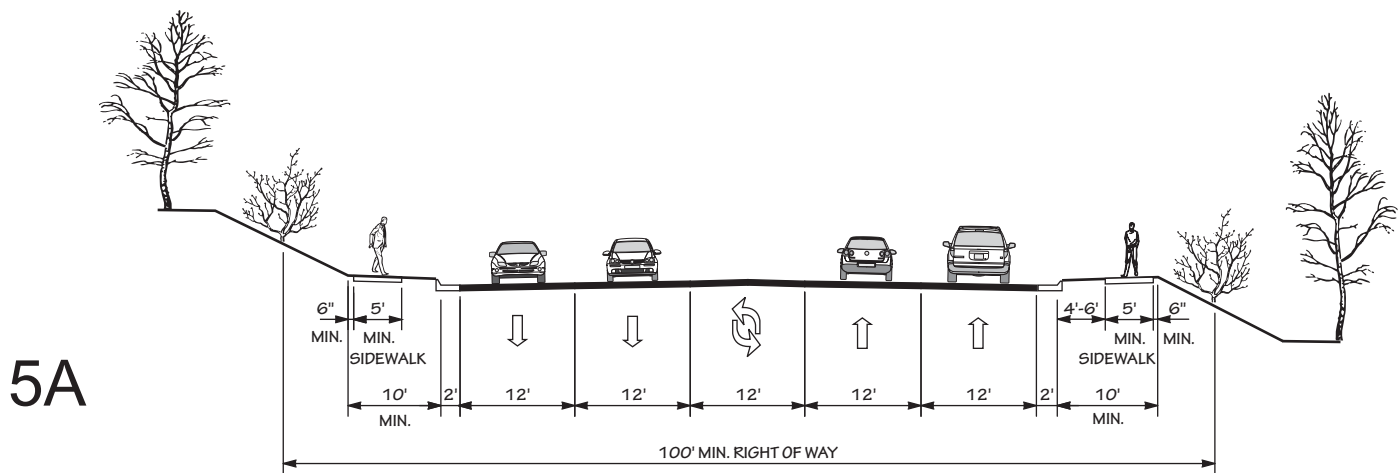


**4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER,
WIDE OUTSIDE LANES AND SIDEWALKS**
POSTED SPEED 35-45 MPH

“TYPICAL” HIGHWAY CROSS SECTIONS

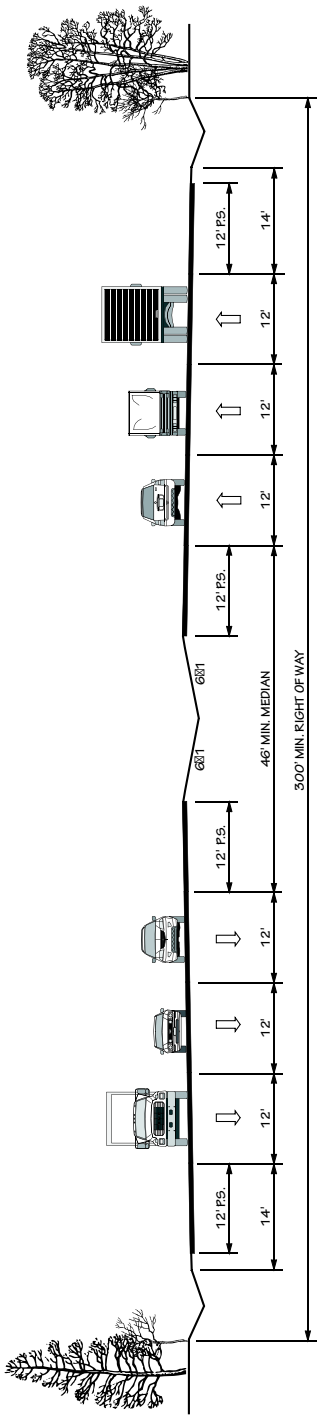


4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH

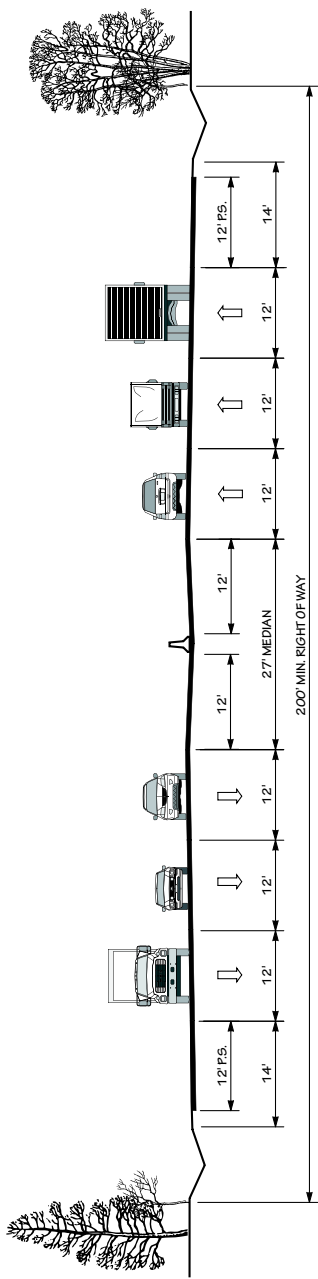


4 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER,
AND SIDEWALKS
POSTED SPEED 35-45 MPH

“TYPICAL” HIGHWAY CROSS SECTIONS



6A 6 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS
POSTED SPEED 45-70 MPH



6B 6 LANE DIVIDED (27' MEDIAN WITH JERSEY BARRIER)
WITH PAVED SHOULDERS
POSTED SPEED 55-70 MPH

Figure 10-10 illustrates a typical cross-section of a four-lane highway with a 27-foot median and 12-foot lanes. The diagram shows the following dimensions and components:

- Outer Shoulder:** 8' wide on both sides.
- Travel Lanes:** 12' wide on both sides.
- Median:** 27' wide in the center.
- Total Width (One Side):** 23' (8' shoulder + 12' lane + 12' lane).
- Right-of-Way:** 500' minimum on both sides.

The diagram also includes vehicle icons (car, truck, bus) positioned within the lanes to represent typical traffic.

6 LANE FREEWAY (27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS
AND 2 LANE ONE-WAY SERVICE ROADS EACH SIDE
POSTED SPEED 55-70 MPH

POSTED SPEED 55-70 MPH

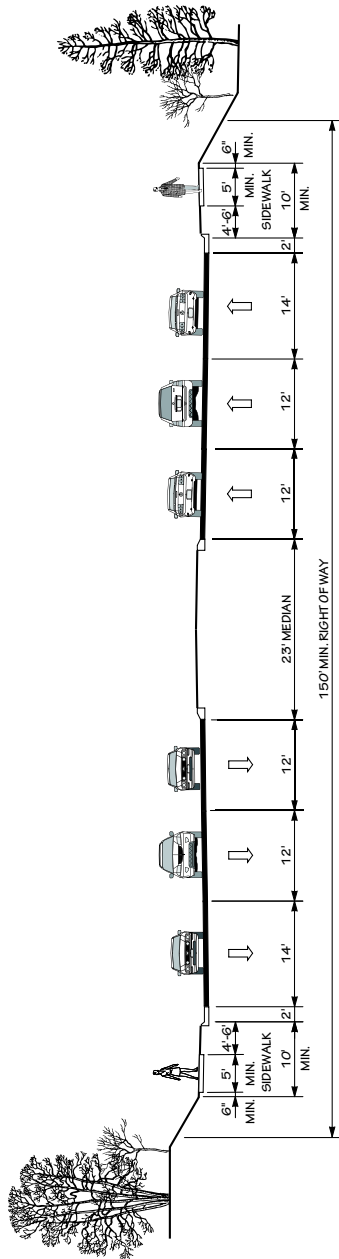
200' MIN. RIGHT OF WAY

12' PS, 14', 12', 4', 12', 27' MEDIAN, 12', 4', 12', 14', 12' PS, 14'

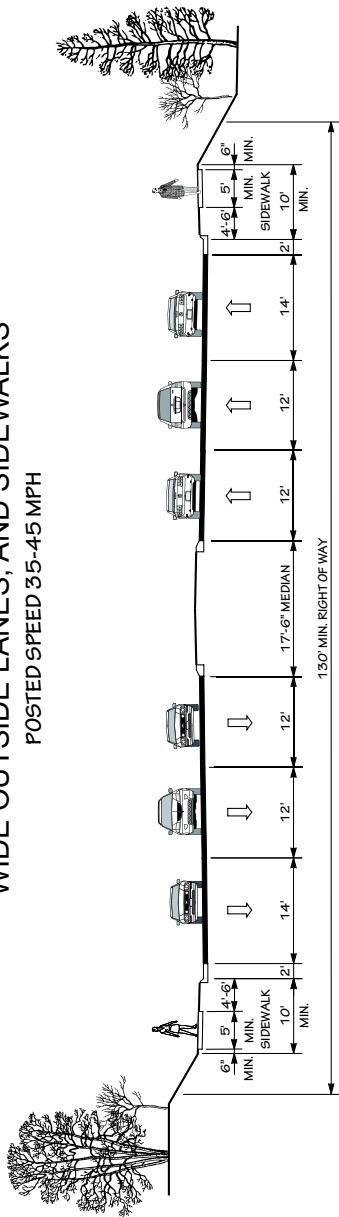
6 LANE FREEWAY (4 GENERAL PURPOSE LANES, 2 MANAGED LANES, AND 27' MEDIAN
WITH JERSEY BARRIER) WITH PAVED SHOULDERS
POSTED SPEED 55-70 MPH

Revised 05/05/2014

“TYPICAL” HIGHWAY CROSS SECTIONS

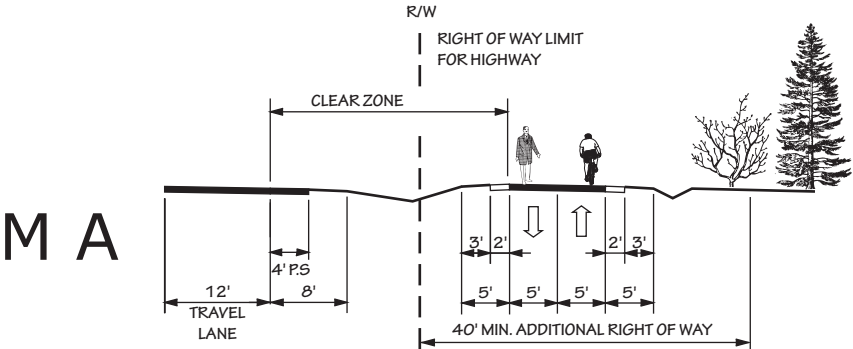


6E 6 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER,
WIDE OUTSIDE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH

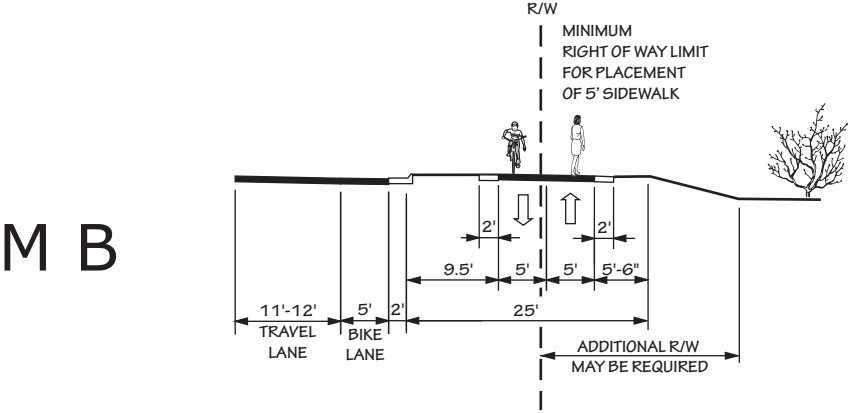


6F 6 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER,
WIDE OUTSIDE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH

“TYPICAL” HIGHWAY CROSS SECTIONS



MULTI - USE PATH
ADJACENT TO RIGHT OF WAY OR SEPARATE PATHWAY



MULTI - USE PATH ADJACENT TO CURB AND GUTTER

Appendix E

Level of Service Definitions

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

Design requirements for roadways vary according to the desired capacity and level of service. LOS D indicates “practical capacity” of a roadway, or the capacity at which the public begins to express dissatisfaction. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C on new facilities. The six levels of service are described below and illustrated in Figure 8.

- ❖ **LOS A:** Describes free-flow operations. Free Flow Speed (FFS) prevails and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.
- ❖ **LOS B:** Represents reasonably free-flow operations, and FFS is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents and point breakdowns are still easily absorbed.
- ❖ **LOS C:** Provides for flow with speeds near the FFS. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.
- ❖ **LOS D:** The level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
- ❖ **LOS E:** Describes operation at capacity. Operations at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.
- ❖ **LOS F:** Describes breakdown, or unstable flow. Such conditions exist within queues forming behind bottlenecks.

Figure 8 - Level of Service Illustrations



LOS A



LOS B



LOS C



LOS D



LOS E



LOS F

Source: 2010 Highway Capacity Manual, Exhibit 11-4

Appendix F

Bridge Deficiency Assessment

The Transportation Improvement Program (TIP) development process for bridge projects involves consideration of several evaluation methods in order to prioritize needed improvements. A sufficiency index is used to determine whether a bridge is sufficient to remain in service, or to what extent it is deficient. The index is a percentage in which 100 percent represents an entirely sufficient bridge and zero represents an entirely insufficient or deficient bridge. Factors evaluated in calculating the index are listed below.

- ❖ structural adequacy and safety
- ❖ serviceability and functional obsolescence
- ❖ essentiality for public use
- ❖ type of structure
- ❖ traffic safety features

The NCDOT Structures Management Unit inspects all bridges in North Carolina at least once every two years. A sufficiency rating for each bridge is calculated and establishes the eligibility and priority for replacement. Bridges having the highest priority are replaced as federal and state funds become available.

A bridge is considered deficient if it is either structurally deficient (SD) or functionally obsolete (FO). Structurally deficient means there are elements of the bridge that need to be monitored and/or repaired. The fact that a bridge is "structurally deficient" does not imply that it is likely to collapse or that it is unsafe. It means the bridge must be monitored, inspected and repaired/replaced at an appropriate time to maintain its structural integrity. A functionally obsolete bridge is one that was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand or to meet the current geometric standards, or those that may be occasionally flooded.

A bridge must be classified as deficient in order to qualify for federal replacement funds. Additionally, the sufficiency rating must be less than 50% to qualify for replacement or less than 80% to qualify for rehabilitation under federal funding. Deficient bridges located on roads evaluated as a part of the CTP are listed in Table 3. For more details on deficient bridges within the planning area, contact the Structures Management Unit using the information in Appendix A.

Table 3 - Deficient Bridges

Bridge Number	Facility	Feature	Condition	Local ID
4	NC 211	Raft Swamp	FO	B-5127
8	SR 1203 (Turnpike Road)	Lumber River	SD & FO	B-4967
14	SR 1116 (Old Maxton Road)	Little Raft Swamp	SD	
19	SR 1108 (Wilson Road)	Little Raft Swamp	FO	
21	SR 1130 (Goose Pond Road)	Little Raft Swamp	FO	

Appendix G

Socio-Economic Data Forecasting Methodology

In the development of the Hoke County CTP, existing and anticipated deficiencies were determined through an analysis of the transportation system looking at both current and future travel patterns.

Travel demand was projected from 2015 to 2045 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1993 to 2015. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. For this CTP, the 2005 Hoke County Land Use Plan was used and is illustrated in Figures 9 and 10, respectively.

The CTP Steering Committee worked with NCDOT to estimate population growth, economic development potential, and land use trends to determine the potential impacts on the future transportation system in 2045. This data was endorsed by the Hoke County Planning Board on Oct 13, 2016.

Below is a description of the methodology used in the analysis.

Population

Population trends were estimated using available data from the Office of State Budget and Management (OSBM) and simple exponential growth. Table 4 shows current and projected population through the year 2035, which were taken from the OSBM website. The 2040 and 2045 population was projected by applying the same growth rate as 2030 to 2035. For those years, an annual growth rate of 1.7% was used in Hoke County.

Table 4 – Population Data

Year	Population – Hoke County
1990	23,196
1995	28,321
2000	33,929
2005	39,929
2010	47,570
2015	51,776
2020	58,774

2025	65,004
2030	70,888
2035	77,246
2040*	84,050
2045*	91,450

* Extrapolated by NCDOT

Employment

Employment totals were based on the North Carolina Department of Commerce's Labor and Economic Division. Countywide 2045 employment totals were based on maintaining the same population-employment ratio as present in 2015.

Table 5 – Employment Data

Year	2015	2045*
Employment - Hoke County	18,070	31,916

* Estimated by NCDOT

Figure 9: Existing Land Use
COUNTY OF HOKE
ZONING

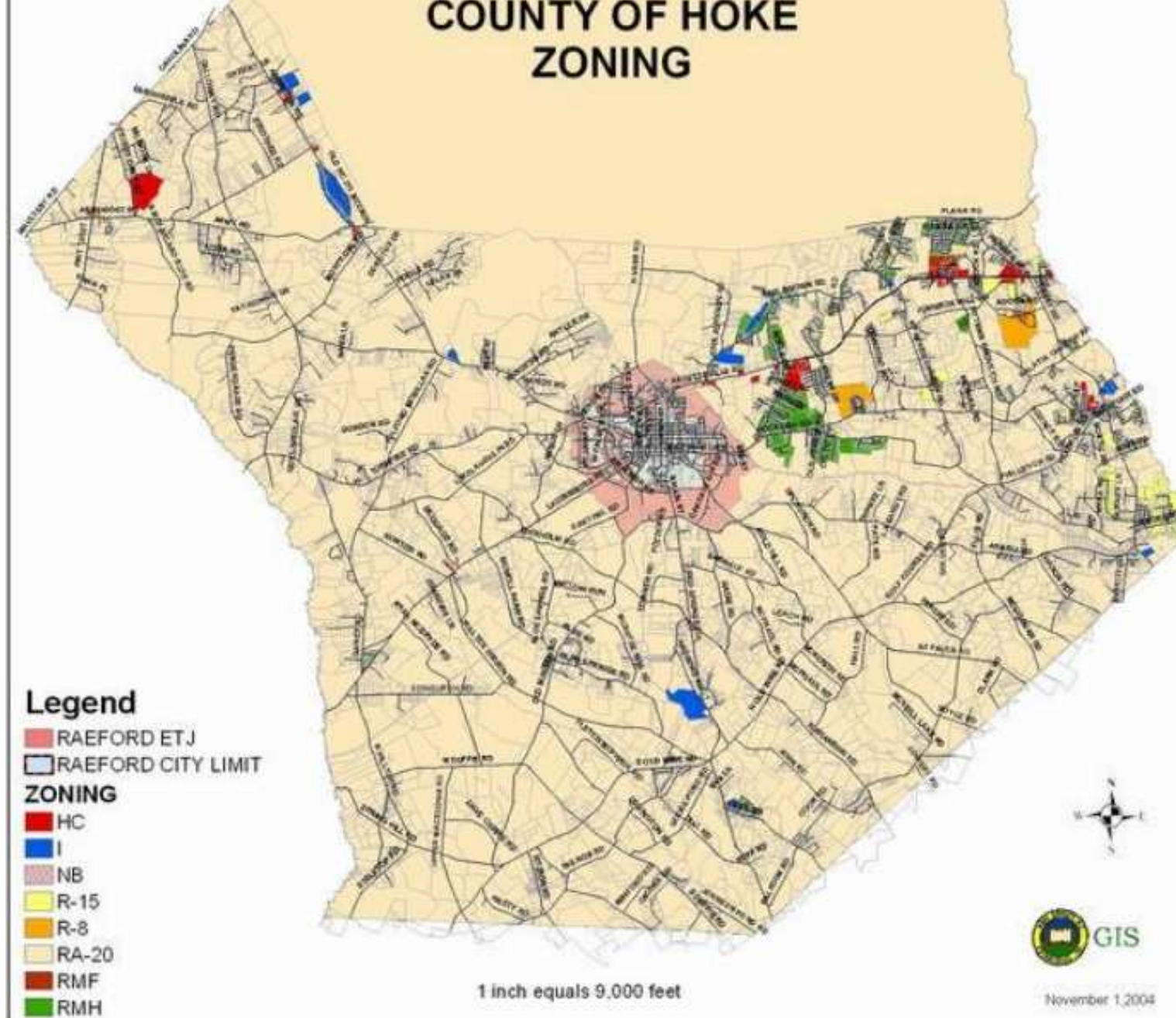
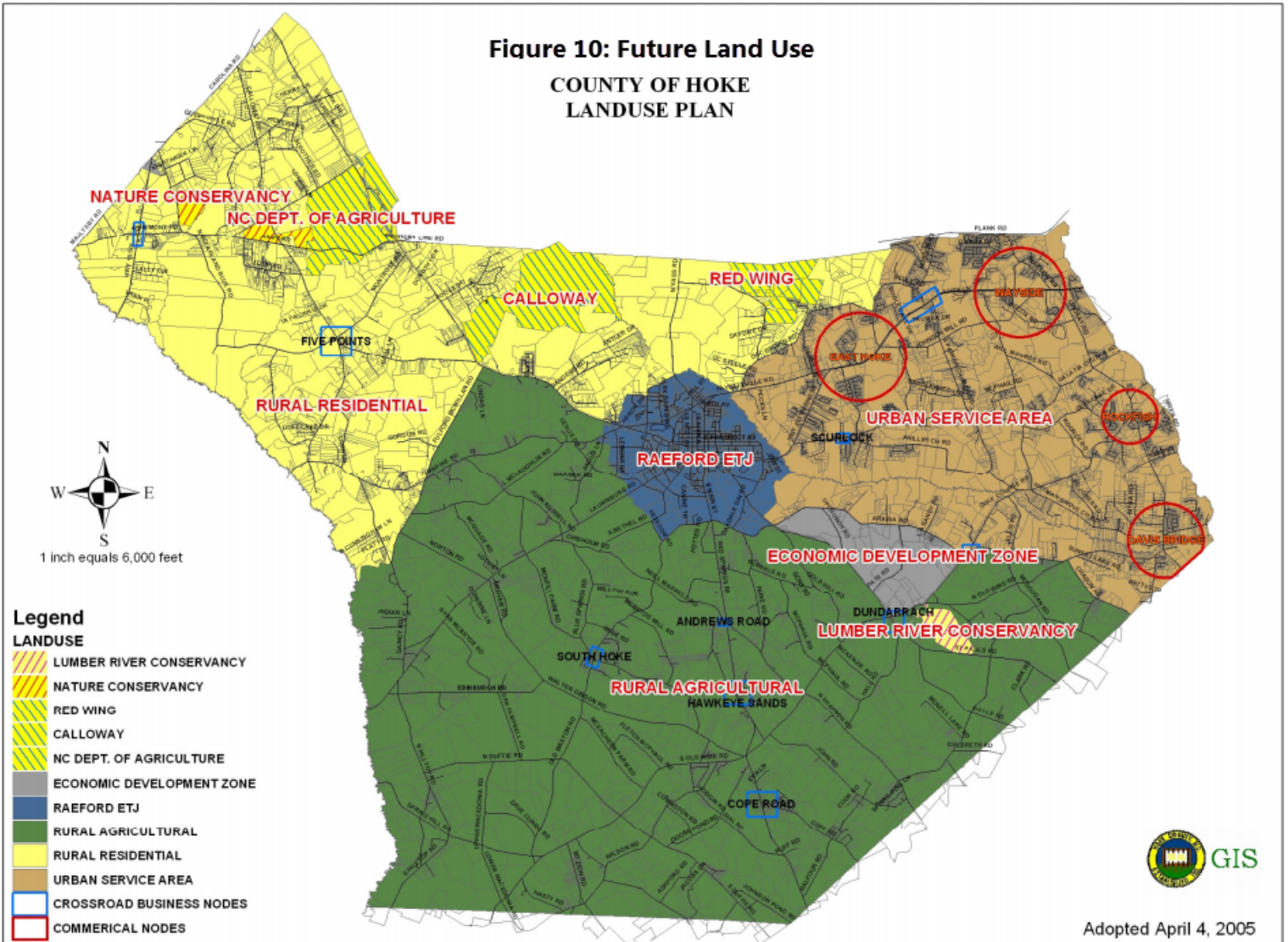


Figure 10: Future Land Use
COUNTY OF HOKE
LANDUSE PLAN



Appendix H

Public Involvement

This appendix documents the public involvement process and includes a listing of steering committee members, the goals and objectives survey results, and public meetings held throughout the development of the CTP.

List of CTP Steering Committee Members

At the start of a CTP study, a committee is formed that is comprised of individuals who represent the various needs, issues and populations of the community. These representatives are responsible for capturing the transportation needs of the community relative to all modes of transportation and for guiding the development of the CTP. A listing of steering committee members for the Hoke County CTP is given below.

- ❖ Harold Brock, Hoke County Planning Board Member
- ❖ Julian S. Johnson III, Hoke County Planning Board Member
- ❖ Byron Jones, Hoke County Planning Board Member
- ❖ J. Whiteford Jones, Hoke County Planning Board Member
- ❖ Russell Locklear, Hoke County Planning Board Member
- ❖ William Purdie, Hoke County Planning Board Member
- ❖ Jesse Timmons, Hoke County Planning Board Member

CTP Vision, Goals, Objectives and MOEs

The CTP vision, goals and objectives are developed as part of the public involvement process and help identify how the people within an area would like to develop the transportation system (all modes). The CTP committee develops the draft vision, goals, objectives, and MOEs which are further refined with input from citizens via the CTP Goals & Objectives (G&O) survey. These products become the official guide for the CTP being developed.

The vision statement, goals and objectives reflect what is important for the area and defines any local preferences concerning the transportation system and community assets. The vision statement is the framework for the area's strategic planning. Goals and objectives document how the area plans to fulfill its vision. The goals break down the vision statement into themes, while the objectives document how the area plans to make progress towards achieving each goal. MOEs are established to enable the area to track the progress of each objective. A summary of Hoke County's Vision, Goals, and Objectives, adopted from the Hoke County Land Use Plan, is given below.

Vision Statement:

Provide a safe, reliable, efficient multi-modal transportation network that supports responsible economic development and efficient movement of people and product while being compatible with land use patterns, and preserving and promoting the quality of life in Hoke County.

Goals and Objectives:

1. Protect property owner rights and preserve property values.
2. Grow in a fiscally responsible manner.
3. Preserve and protect the rural agricultural nature of designated areas in the County.
4. In eastern Hoke County, designate an urban services area for mixed use, higher density land uses served by public water and sewer.
5. Encourage high quality and aesthetically pleasing development, while promoting sound land management.

Public Meetings

Brief summaries of public meetings held within the planning area are given below.

Public Workshop

A public workshop was held on April 20, 2017 from 5:00 PM to 7:00 PM in the Commissioners Meeting Room of the Pratt Building (227 North Main Street, Raeford, North Carolina). The purpose of the meeting was to present the draft CTP and its recommendations and to solicit comments. One person attended and voiced his concerns about the Fayetteville MPO area. No comment forms were submitted.

Public Hearing

A public hearing was held during the Hoke County Commissioners Meeting on May 1, 2017. The purpose of the meeting was to discuss the plan recommendations and to solicit further input from the Board and the public. The CTP was adopted during this meeting. The Lumber River RPO endorsed the CTP on May 22, 2017.