Comprehensive Transportation Plan

Pembroke

May 2013

Comprehensive Transportation Plan

Pembroke

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In Cooperation with: Pembroke
Lumber River Rural Planning Organization

May 8, 2013

NORTH CAROLINA PROFESSIONAL SEAL 23035 5/30/13 ENGINEER TRAVIS K. MARSHALL

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Executive Summary

In March of 2010, the Transportation Planning Branch of the North Carolina Department of Transportation, the Town of Pembroke, and the Lumber River Rural Planning Organization initiated a study to cooperatively develop the Town of Pembroke Comprehensive Transportation Plan (CTP). This is a long range multi-modal transportation plan that covers transportation needs through the year 2040. Modes of transportation evaluated as part of this plan include: highway, public transportation and rail, bicycle, and pedestrian. 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. Refer to Figure 1 for the CTP maps, which were mutually endorsed/adopted in 2012. Implementation of the plan is the responsibility of the Town of Pembroke and NCDOT. Refer to Chapter 2 for information on the implementation process.

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

- **NC 711:** from Candy Park Road (SR 1553) to Pates Road (SR 1557), convert the existing 4-lane major thoroughfare into 4-lane divided major thoroughfare with breaks in the median and at intersections.
- **Deep Branch Road (SR1339), Local ID: PEM0001-H:** from Recreation Center Road (SR 1354) to Tracy Sampson Road (SR 1551), widen from two 11-foot lanes to two 12-foot lanes with 4-foot paved shoulders.
- **Pine Street, Local ID: PEM0002-H:** from Deep Branch Road (SR 1339) to 0.5 mile north of Deep Branch Road, widen from a dirt road to two 12-foot lanes with curb and gutter.
- **Jones Road (SR1564), Local ID: PEM0003-H:** from East Railroad Road (SR 1910) to NC 711, widen from 11-foot lanes to two 12-foot lanes with 4-foot paved shoulders.
- **West Railroad Road (SR 1910), Local ID: PEM0004-H:** from University Road (SR1561) to Union Chapel Road (SR 1563), a 28-foot unmarked pavement to two 12-foot lanes with curb and gutter.

- **East Railroad Road (SR 1910), Local ID: PEM0005-H:** from Union Chapel Road (SR 1563) to Jones Road (SR 1564), a 28-foot unmarked pavement to two 12-foot lanes with curb and gutter.
- **JayCee Hut Road (SR 1583), Local ID: PEM0006-H:** from NC 711 to 0.35 south of NC 711, from non-existent to two 10-foot lanes with 2-foot paved shoulders.

Adopted by:

Town of Pembroke
Date: November 5, 2012

Robeson County
Date: November 19, 2012

NCDOT
Date: June 6, 2013

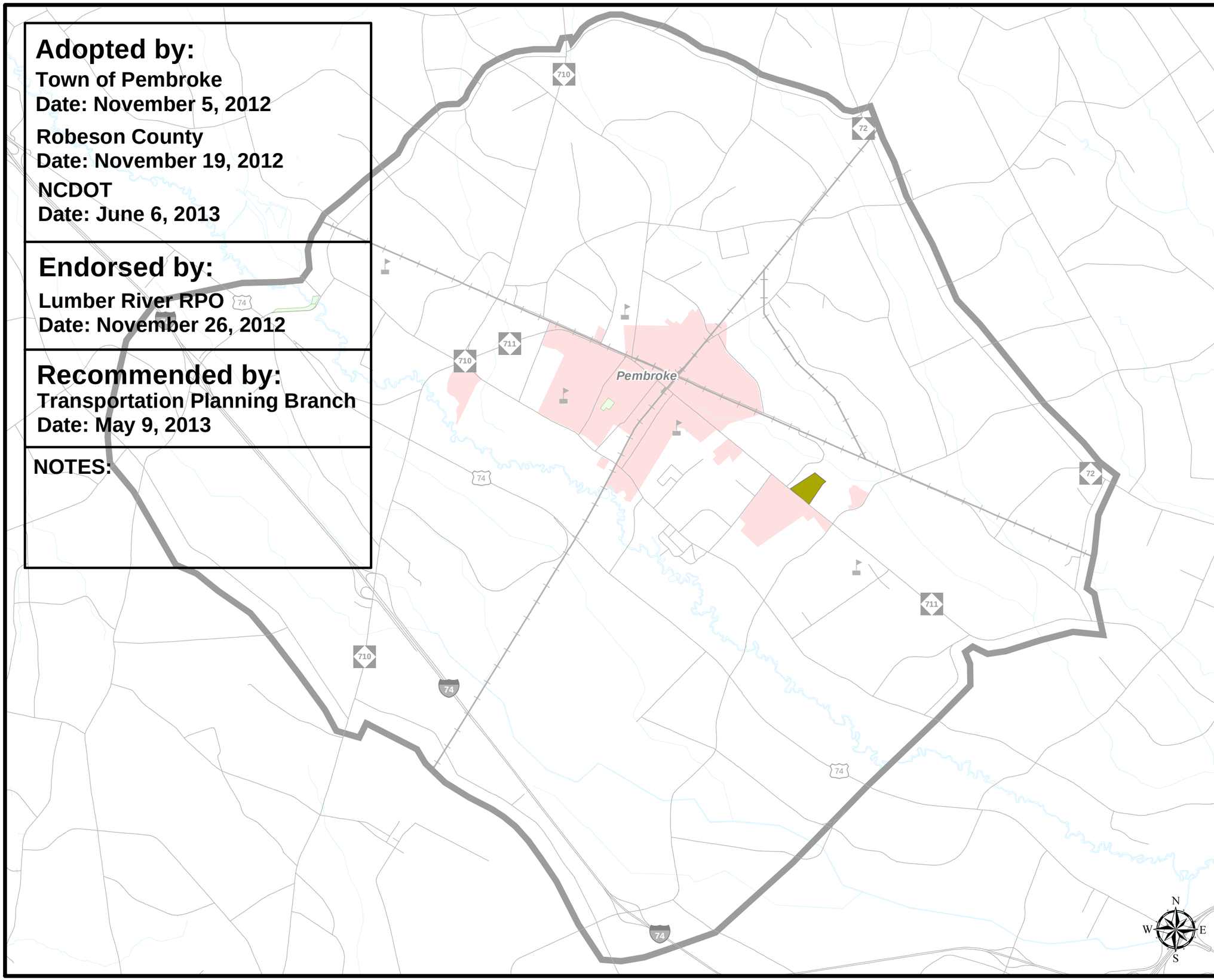
Endorsed by:

Lumber River RPO
Date: November 26, 2012

Recommended by:

Transportation Planning Branch
Date: May 9, 2013

NOTES:



Adoption Map

Pembroke
Robeson County
RECOMMENDED
Comprehensive Transportation Plan

Plan date: 11/2/2012

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

Legend

- Pembroke Schools
- Roads
- Pembroke Athletic Complex
- Planning Area Boundary
- Railroads
- Rivers and Streams
- Municipal Boundaries

0 0.25 0.5 1 1.5 2 Miles

Sheet 1 of 5

Base map date: 3/22/2012

Refer to CTP document for more details

Highway Map

Pembroke
Robeson County
Comprehensive Transportation Plan

Plan date: 11/2/2012

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

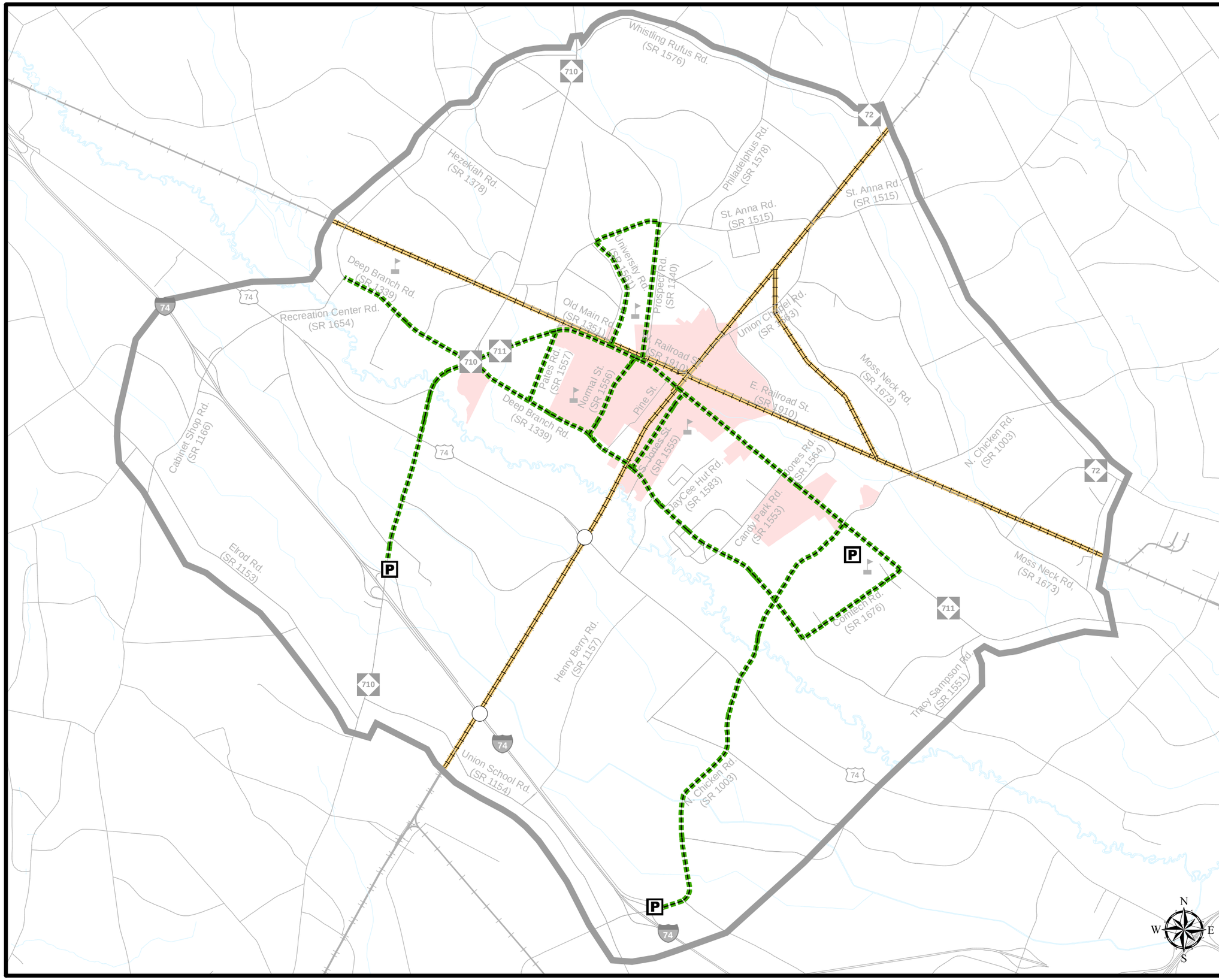
- Existing Interchange
- Proposed Interchange
- Existing Grade Separation
- Proposed Grade Separation

0 0.25 0.5 1 1.5 2 Miles

Figure 1 Sheet 2 of 5

Base map date: 3/22/2012

Refer to CTP document for more details



Public Transportation and Rail Map

Pembroke
Robeson County
Comprehensive Transportation Plan

Plan date: 11/2/2012

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

Rail Stops
- Existing
- Recommended

Intermodal Connector
- Existing
- Recommended

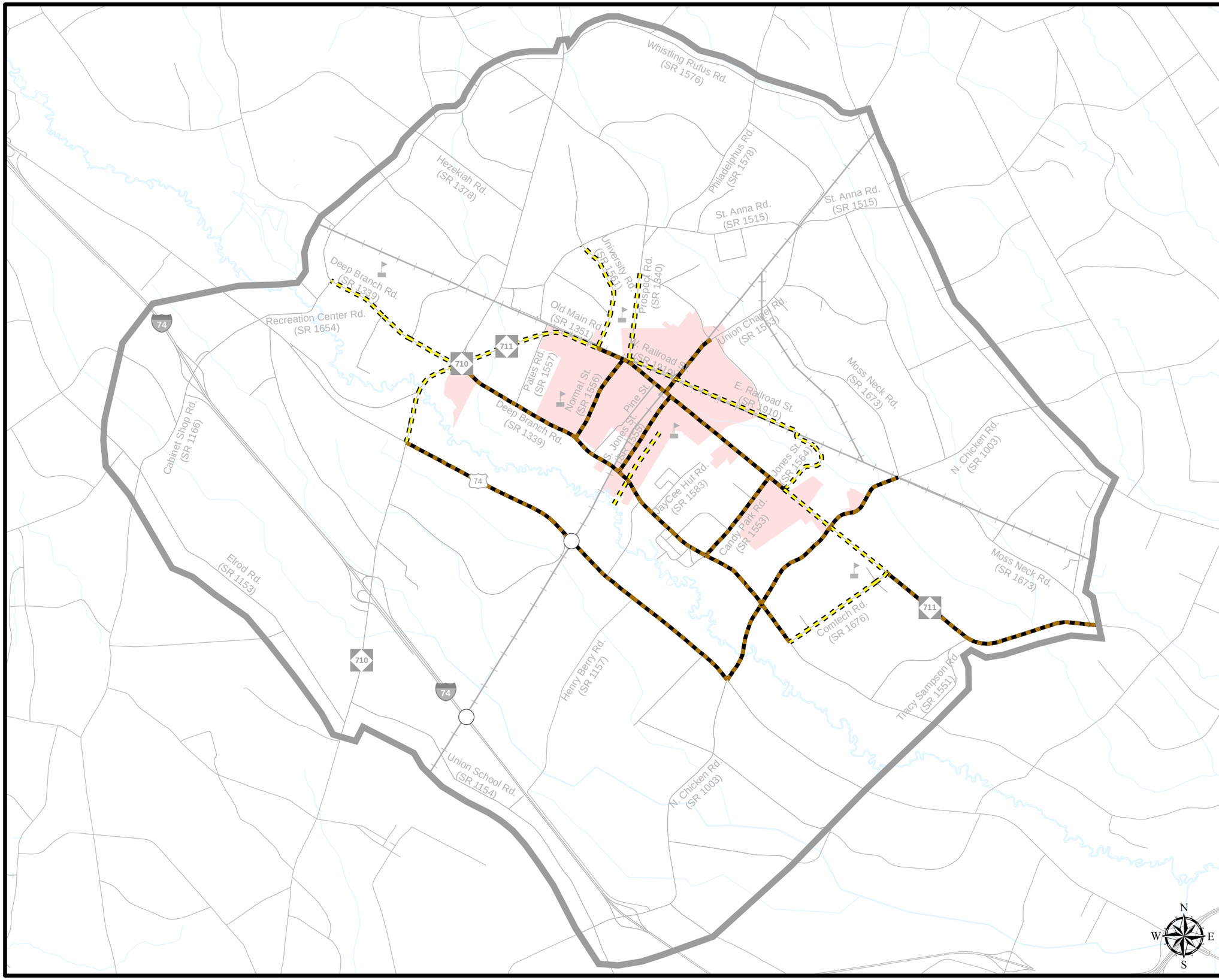
Park and Ride Lot
- Existing
- Recommended

0 0.25 0.5 1 1.5 2 Miles

Figure 1 Sheet 3 of 5

Base map date: 3/22/2012

Refer to CTP document for more details



Bicycle Map

Pembroke Robeson County Comprehensive Transportation Plan

Plan date: 11/2/2012

On-road
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

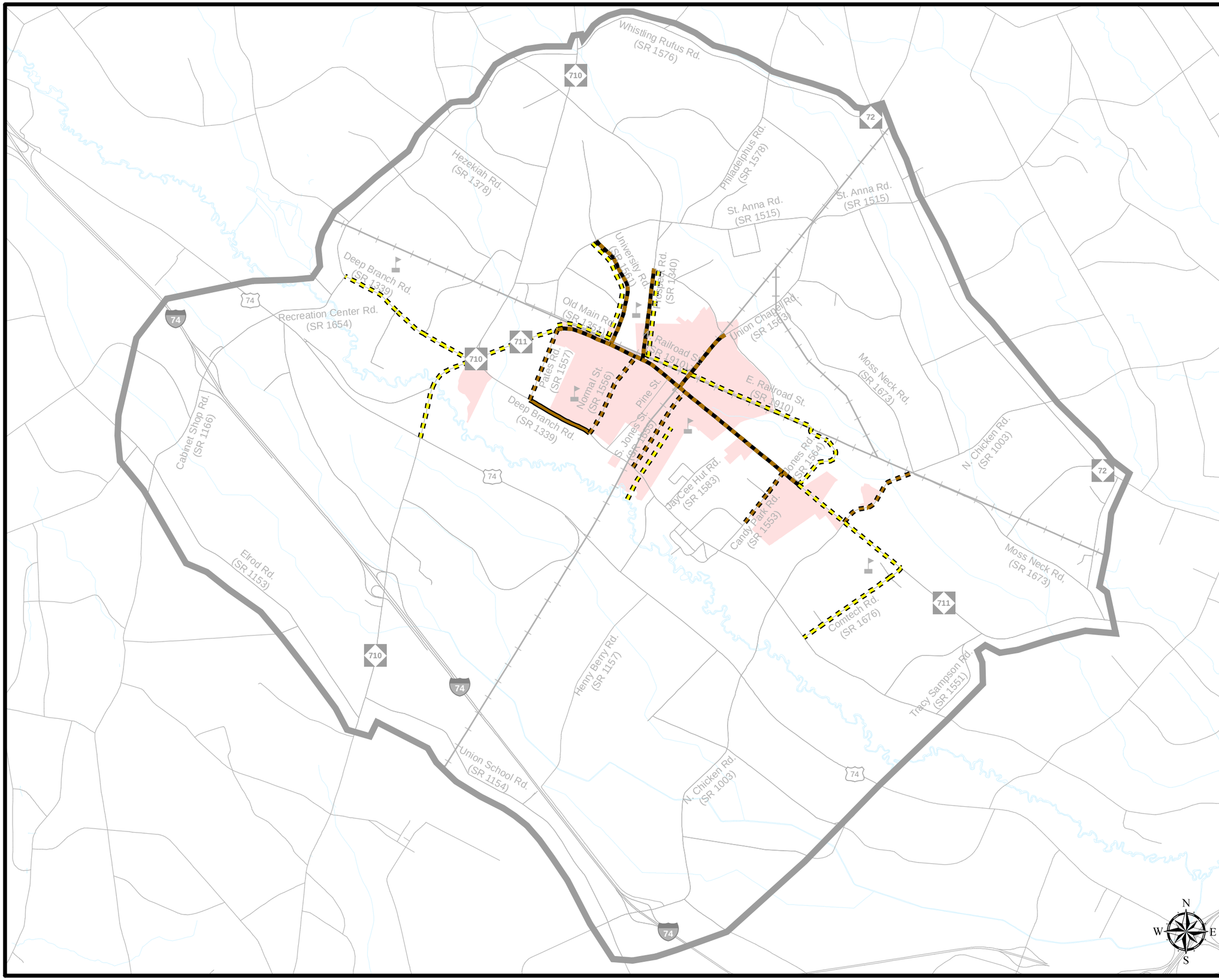
- Existing Grade Separation
- Proposed Grade Separation

0 0.25 0.5 1 1.5 2 Miles

Figure 1 Sheet 4 of 5

Base map date: 3/22/2012

Refer to CTP document for more details



Pedestrian Map

Pembroke
Robeson County
Comprehensive Transportation Plan

Plan date: 11/2/2012

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

0 0.25 0.5 1 1.5 2 Miles

Figure 1 Sheet 5 of 5

Base map date:3/22/2012

Refer to CTP document for more details

I. Analysis of the Existing and Future Transportation System

A Comprehensive Transportation Plan (CTP) is developed to ensure that the progressively developed 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 the environment.

In order to develop a Comprehensive Transportation Plan (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.

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 desires. 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 such as pavement widths, intersection geometry, and intersection controls; or system problems, such as the need to construct missing travel links, bypass routes, loop facilities, additional radial routes or infrastructure improvements to meet statewide initiatives.

One of those statewide initiatives is the Strategic Highway Corridor (SHC) Vision Plan adopted by the Board of Transportation on September 2, 2004 and last revised on July

10, 2008. The SHC Vision Plan represents a timely initiative to protect and maximize the mobility and connectivity on a core set of highway corridors throughout North Carolina, while promoting environmental stewardship through maximizing the use of existing facilities to the extent possible, and fostering economic prosperity through the quick and efficient movement of people and goods.

The primary purpose of the SHC Vision Plan is to provide a network of high-speed, safe, reliable highways throughout North Carolina. The primary goal to support this purpose is to create a greater consensus towards the development of a genuine vision for each corridor – specifically towards the identification of a desired facility type (Freeway, Expressway, Boulevard, or Thoroughfare) for each corridor. Individual Comprehensive Transportation Plans shall incorporate the long-term vision of each Corridor. Refer to Appendix A for contact information for the SHC Vision Plan.

In the development of this plan, travel demand was projected from 2010 to 2040 using a travel demand model. Travel demand models are developed to replicate travel patterns on the existing transportation system as well as to estimate travel patterns for 2040. In addition, local land use plans and growth expectations were used to develop future growth rates and patterns. The established future growth rates were endorsed by the CTP Steering Committee in July 2012, Robeson County Commissioners July 2012, and Pembroke on July 2012.

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.

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;
- 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 express dissatisfaction. The practical capacity for each roadway was developed based on the 2000 Highway Capacity Manual using the North Carolina Level of Service (NCLOS) Program (Version 2.1). 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 D for detailed information on LOS.

Traffic Crash Analysis

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. A crash analysis was performed for the Town of Pembroke CTP for crashes occurring in the planning area between January 1, 2008 and December 31, 2010. During this period, a total of 7 intersections were identified as high crash locations as illustrated in Figure 5. Refer to Appendix F for a detailed crash analysis.

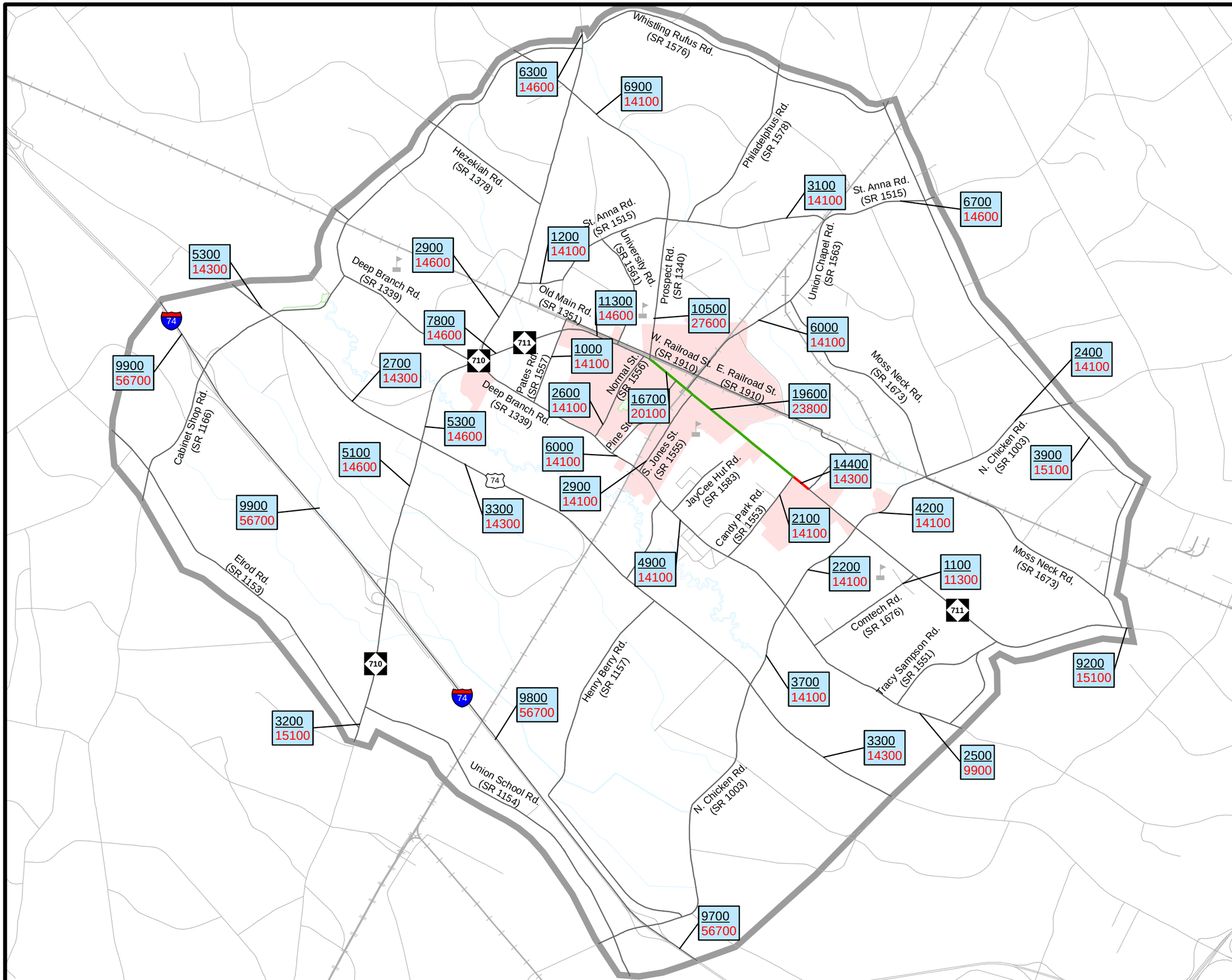
Bridge Deficiency Assessment

Bridges are a vital and unique 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 Structure 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. Thirteen deficient bridges were identified within the planning area and are illustrated in Figure 6. Refer to Appendix G for more detailed information.

Figure 2
2010
Volumes and Capacity Deficiencies

Pembroke
Robeson County
Comprehensive Transportation Plan



Legend

- Near Capacity
- Over Capacity
- ##### 2010 Volume / ##### 2010 Capacity
- Schools
- Roads
- Railroads
- Rivers and Streams
- Municipal Boundary
- Planning Boundary

0 0.25 0.5 1 1.5 2 Miles

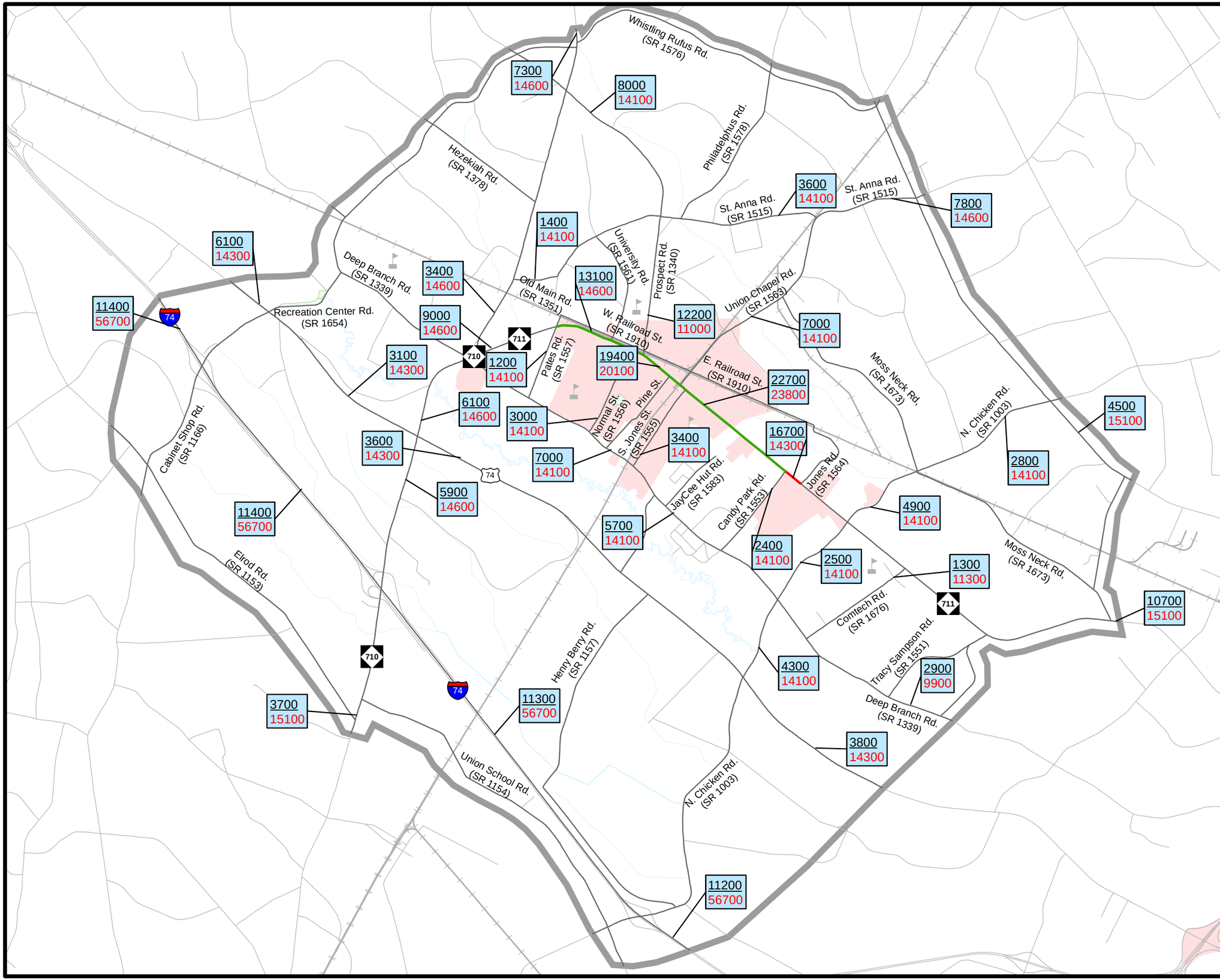
N W E S

Base map date: 3/22/2012

Refer to CTP document for more details

Figure 3
2040
Volumes and Capacity Deficiencies

Pembroke
Robeson County
Comprehensive Transportation Plan



Legend

- Near Capacity
- Over Capacity
- #### 2040 Volume
- #### 2010 Capacity
- Schools
- Roads
- Railroads
- Rivers and Streams
- Municipal Boundary
- Planning Boundary

0 0.25 0.5 1 1.5 2 Miles

N W E S

Base map date: 3/22/2012

Refer to CTP document for more details

Figure 4
Crash Locations
January 1, 2008 to December 31, 2010

Pembroke
Robeson County
Comprehensive Transportation Plan

Legend

- # Crash Locations
- Schools
- Roads
- Railroads
- Rivers and Streams
- Municipal Boundary
- Planning Boundary

0 0.25 0.5 1 1.5 2 Miles

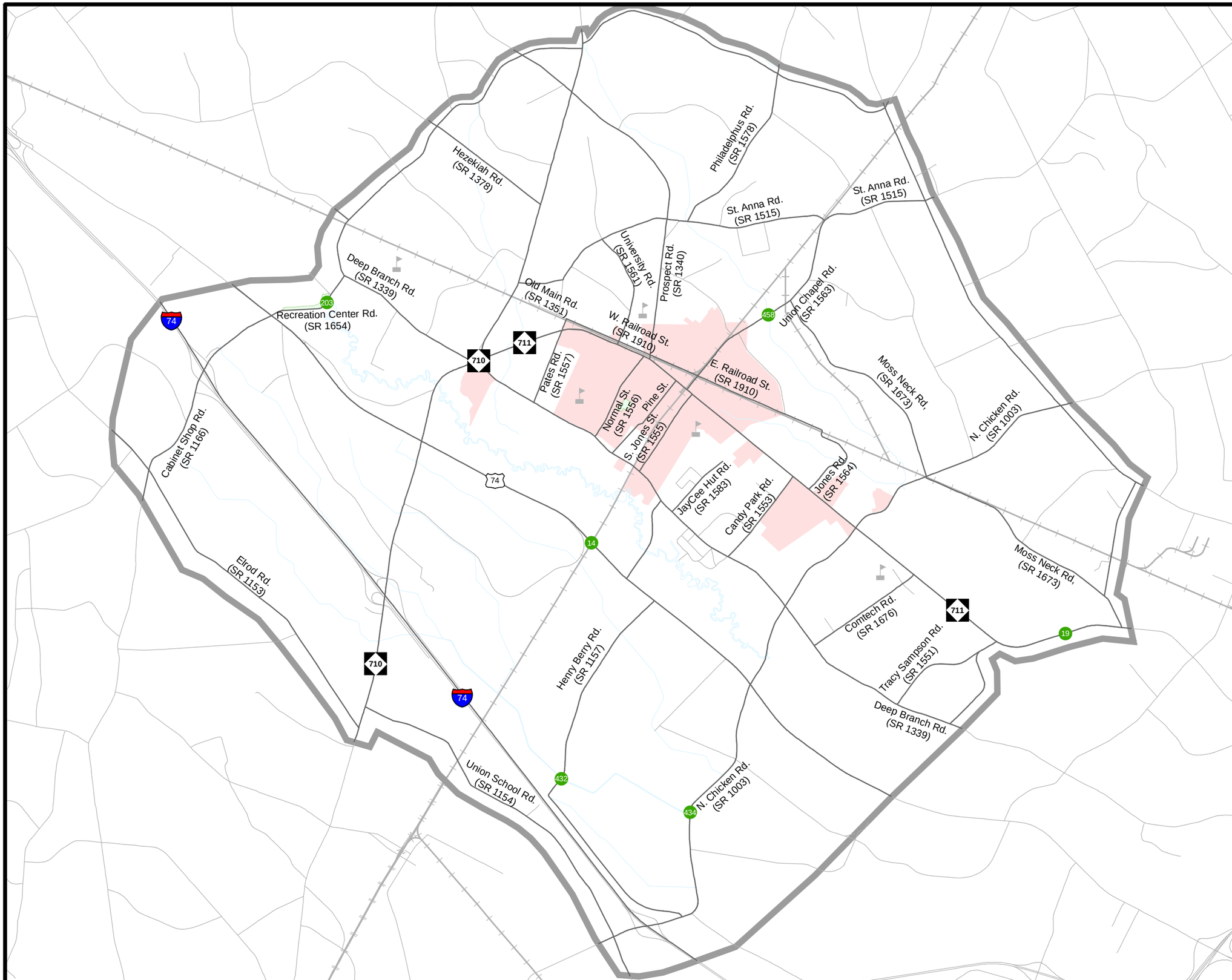
N W E S

Base map date: 3/22/2012

Refer to CTP document for more details

Figure 5
Deficient Bridges

Pembroke
Robeson County
Comprehensive Transportation Plan



Legend

- Deficient Bridge (# Bridge Number)
- Schools
- Roads
- Railroads
- Rivers and Streams
- Municipal Boundary
- Planning Boundary

0 0.25 0.5 1 1.5 2 Miles

N W E S

Base map date: 3/22/2012

Refer to CTP document for more details

Public Transportation and Rail

Public transportation and rail are vital modes of transportation that give alternative options 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, the NCDOT Board of Transportation is encouraging single-county systems 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 are at work 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 and throughout the United States and Canada. Greyhound/Carolina Trailways operates 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. South East Area Transit System (SEATS) is Robeson County's Community Transportation Program. SEATS provide human service agency and rural general public transportation for Robeson County residents. . All recommendations for public transportation were coordinated with the local governments and the Public Transportation Division of NCDOT. Refer to Appendix A for contact information.

Rail

Today North Carolina has 3,684 miles of railroad tracks throughout the state. There are two types of trains that operate in the state, passenger trains and freight trains.

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 everyday. Combined, the Carolinian and Piedmont carry more than 200,000 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 20 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. There is existing rail with no stops in the town of Pembroke. There are no rail improvements proposed in this CTP. All recommendations for rail were coordinated with the local governments and the Rail Division of NCDOT. Refer to Appendix A for contact information.

Bicycles & Pedestrians

Bicyclists and pedestrians are a growing part of the transportation equation 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 upon and 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 the 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.

Inventories of existing and planned bicycle and pedestrian facilities for the planning area are presented on Sheets 4 and 5 of Figure 1. The Town of Pembroke Pedestrian Plan was utilized in the development of these elements of the CTP. 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.

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 Town of Pembroke used an Existing and Future Land Use Map to assist in land use planning. The Existing and Future Land Use Maps were last updated May 2006, which was used to meet this requirement and is illustrated in Figures 6 and 7, respectively.

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.

Pembroke anticipates residential and employment growth to occur within the study area with emphasize of that growth along the town's major routes, NC 711 and Union Chapel Road (SR 1563). The reason the town expects growth is due to the fact that NC 711 serves as the main east – west connector in the area. It provides direct access to the University of North Carolina at Pembroke and other major and minor businesses in the area. Union Chapel Road (SR 1563) serves as a main connector for the blooming Lumbee Tribe Housing Complex which is very significant to the area given the history of the Lumbee Tribe.

With help from UNC-P and the use of tools such as the US Census, the Town's Central Business District Market Analysis, Dun and Bradstreet, NCOneMap, the Steering Committee was able to extract useful data to help determine the population and employment growth per zone, for the base year of 2010.

The employment in the planning area was verified by the town on a zone by zone inspection. The follow up verification consisted of several weeks of telephone calls to verify the exact number of employees and commercial vehicles at each employment location.

Members of the Steering Committee talked about the increases in employment and population over the next 30 years. Based off the information from the base year, it was determine, that a growth rate of 1.0% would be used over the next 30 years.

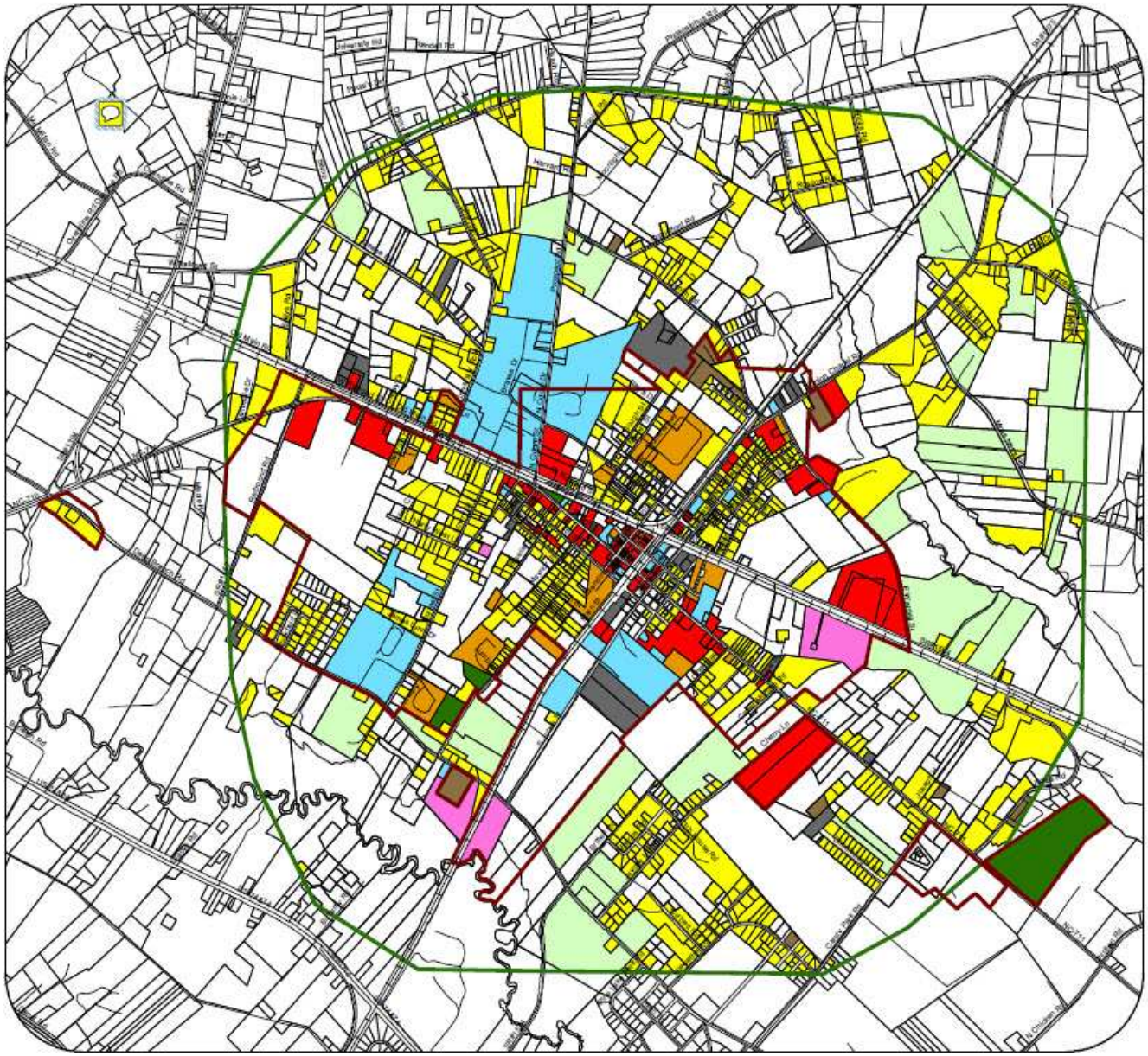


Figure 6

Town of Pembroke

Robeson County, North Carolina

Existing Land Use

Legend

- ETJ
- Town Limits
- Railroad
- NC DOT Roads

Existing Land Use

- Agricultural/Residential
- Commercial
- Industrial
- Multi-Family
- Mobile Home Park
- Office and Institutional
- Recreation
- Residential
- Utilities
- Vacant

N W E S

HCP Holland Consulting Planners, Inc.

0 0.2 0.4 0.8 1.2 Miles

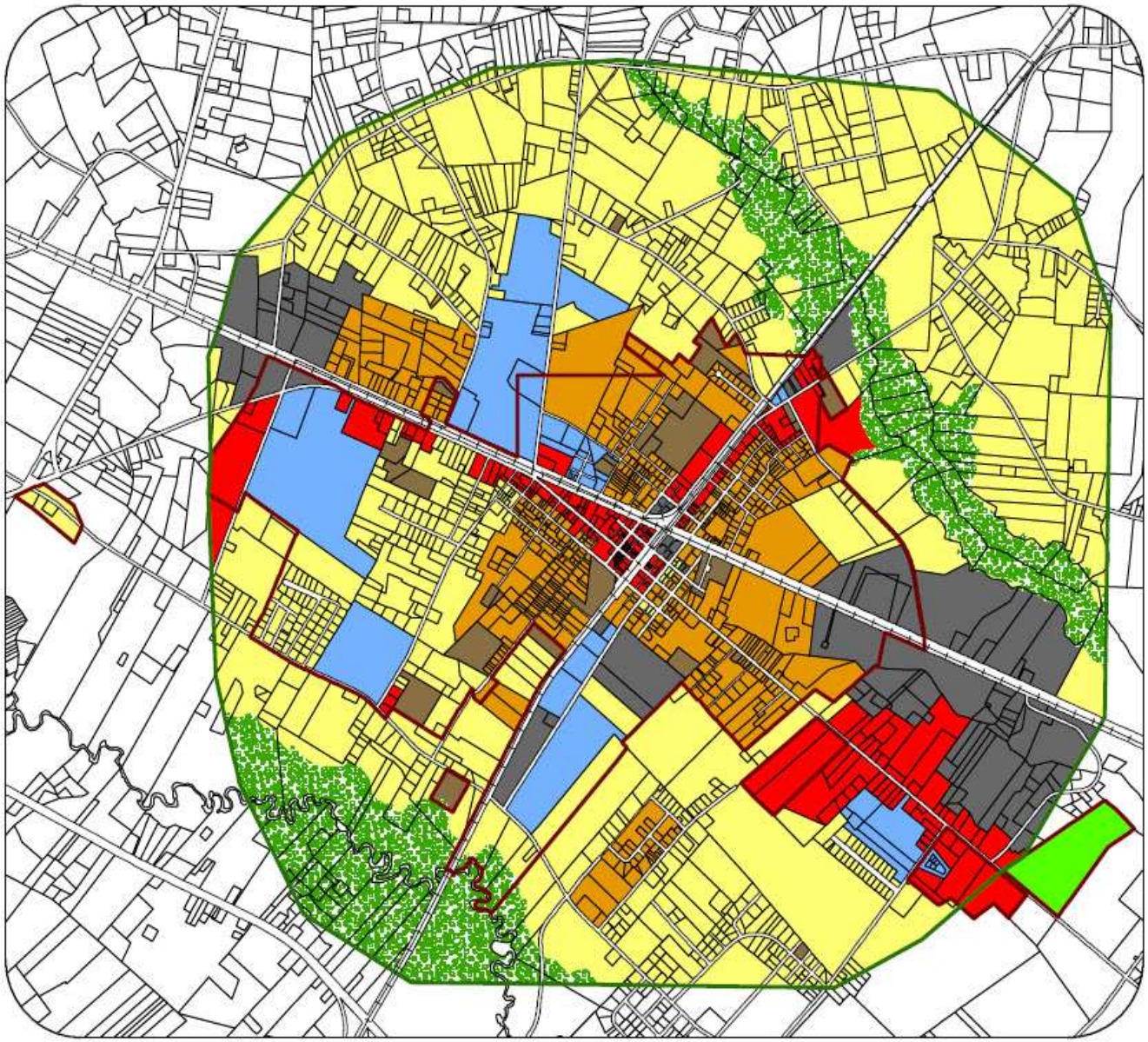


Figure 7

Town of Pembroke

Robeson County, North Carolina

Future Land Use

Legend

- Town Limits
- ETJ
- NC DOT Roads
- Railroad

Future Land Use

- Commercial
- Industrial
- Office and Institutional
- High Density Residential
- Moderate Density Residential
- Low Density Residential
- Recreation
- Conservation

N W E S

HCP Holland Consulting Planners, Inc.

0 0.15 0.3 0.6 0.9 1.2 Miles

Consideration of Natural and Human Environment

In recent years, the environmental considerations have come to the forefront of the transportation planning process. Section 102 of the National Environmental Policy Act (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, 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 were examined as a part of this study is shown in the following tables utilizing the best available data. Environmental features occurring within Pembroke Planning Area Boundary are shown in Figure(s) 8-11.

Table 1 – Environmental Features

- Airport Boundaries
- Anadromous Fish Spawning Areas
- Beach Access Sites
- Bike Routes (NCDOT)
- Coastal Marinas
- **Colleges and Universities**
- Conservation Tax Credit Properties
- Emergency Operation Centers
- Federal Land Ownership
- Fisheries Nursery Areas
- **Geology (including Dikes and Faults)**
- **Hazardous Substance Disposal Sites**
- Hazardous Waste Facilities
- **High Quality Water and Outstanding Resource Water Management Zones**
- Hospital Locations
- **Hydrography (1:24,000 scale)**
- Land Trust Priority Areas
- **National Heritage Element Occurrences**
- **National Wetlands Inventory**
- North Carolina Coastal Region Evaluation of Wetland Significance (NC-CREWS)
- **Paddle Trails – Coastal Plain**
- **Railroads (1:24,000 scale)**
- Recreation Projects – Land and Water Conservation Fund
- **Sanitary Sewer Systems – Discharges, Land Application Areas, Pipes, Pumps and Treatment Plants**
- **Schools – Public and Non-Public**
- Shellfish Strata
- **Significant Natural Heritage Areas**
- State Parks
- Submersed Rooted Vasculars
- **Target Local Watersheds - EEP**
- Trout Streams (DWQ)
- Trout Waters (WRC)
- **Water Distribution Systems – Pipes, Pumps, Tanks, Treatment Plants, and Wells**
- **Water Supply Watersheds**
- Wild and Scenic Rivers

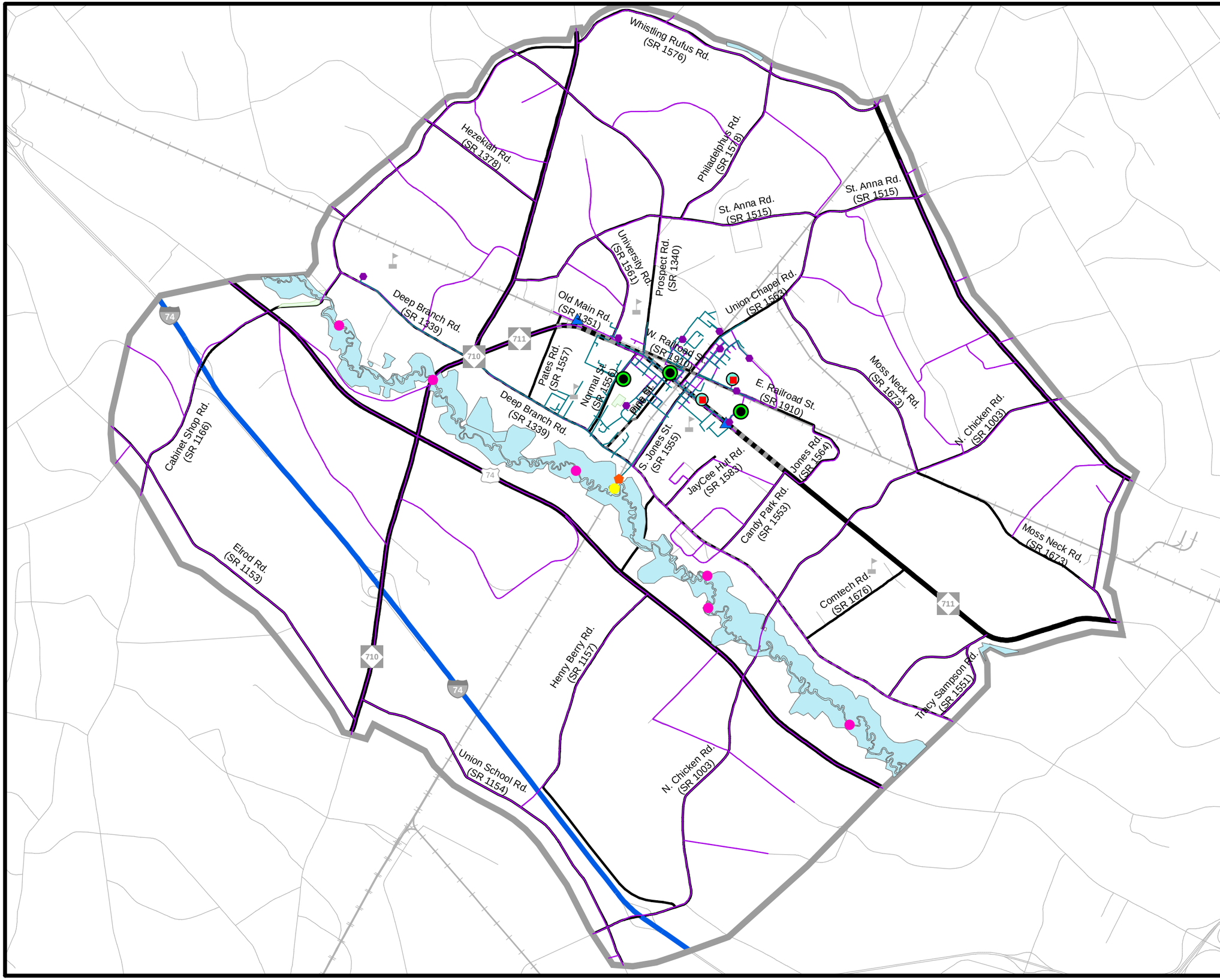
Additionally, the following environmental features were considered but are not mapped due to restrictions associated with the sensitivity of the data.

Table 2 – Restricted Environmental Features

- Archaeological Sites
- Historic National Register Districts
- **Historic National Register Structures**
- **Macrosite Boundaries**
- **Managed Areas**
- Megasite Boundaries

Figure 8
Environmental Features Map

Pembroke
Robeson County
Comprehensive Transportation Plan



Legend

- Schools
- Water Tanks
- Water Treatment Plants
- Wells
- Sanitary Sewer System - Treatment Plants
- Sanitary Sewer System - Pumps
- Sanitary Sewer System - Discharges
- Paddle Trails - Coastal Plain
- Hazardous Substance Disposal Sites
- Sanitary Pipes
- Water Pipes
- Significant Natural Hertiage Areas
- Roads
- Railroads
- Planning Boundary

0 0.25 0.5 1 1.5 2 Miles

N W E S

Base map date: 3/22/2012

Refer to CTP document for more details

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 Comprehensive Transportation Plan was requested by the Lumber River Rural Planning Organization to be developed for Pembroke based on a prioritized list of regional needs. In March 2010, an initial meeting was held with the Pembroke Steering Committee to formally initiate the study, provide an overview of the transportation planning process, and to gather input on the area transportation needs.

Throughout the course of the study, the Transportation Planning Branch cooperatively worked with the Pembroke Steering Committee, which included a representative from the town, the county, the RPO, the University of North Carolina at Pembroke and others, to provide information on current local plans, to develop transportation vision and goals, to discuss population and employment projections, and to develop 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 a public drop-in session in Pembroke to present the proposed Comprehensive Transportation Plan to the public and solicit comments. The meeting was held on August 8, 2012 at Pembroke Town Hall. The session was publicized in the local newspaper and was held from 4 pm – 7 pm. Three comment forms were submitted during the session held on August 8, 2012.

A public hearing was held on October 1, 2012 during the Pembroke Town Council meeting. The purpose of this meeting was to discuss the plan recommendations and to solicit further input from the public. On November 5, 2012, during another Pembroke Town Council meeting, the CTP was adopted.

A public hearing was held on October 15, 2012 during the Robeson County Commissioners meeting. The purpose of this meeting was to discuss the plan recommendations and to solicit further input from the public. On November 19, 2012, during another Robeson County Commissioners meeting, the CTP was adopted.

The Lumber River RPO endorsed the CTP on November 26, 2012. The North Carolina Board of Transportation voted to mutually adopt the Pembroke CTP on June 6, 2013.

II. Recommendations

This report documents the development of the 2010 Town of Pembroke CTP as shown in Figure 1. This chapter presents recommendations for each mode.

Unaddressed Deficiencies

There were no unaddressed deficiencies at the time of the development of this CTP.

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 Comprehensive Transportation Plan should be consistent with the other elements.

Initiative for implementing the CTP rests predominately with the policy boards and citizens of the Pembroke. 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 funding. Local governments may use the CTP to guide development and protect corridors for the recommended projects. It is critical that NCDOT and local government coordinate on relevant land development reviews and all transportation projects to ensure proper implementation of the CTP. Local governments and the North Carolina Department of Transportation share the responsibility for access management and the planning, design and construction of the recommended projects.

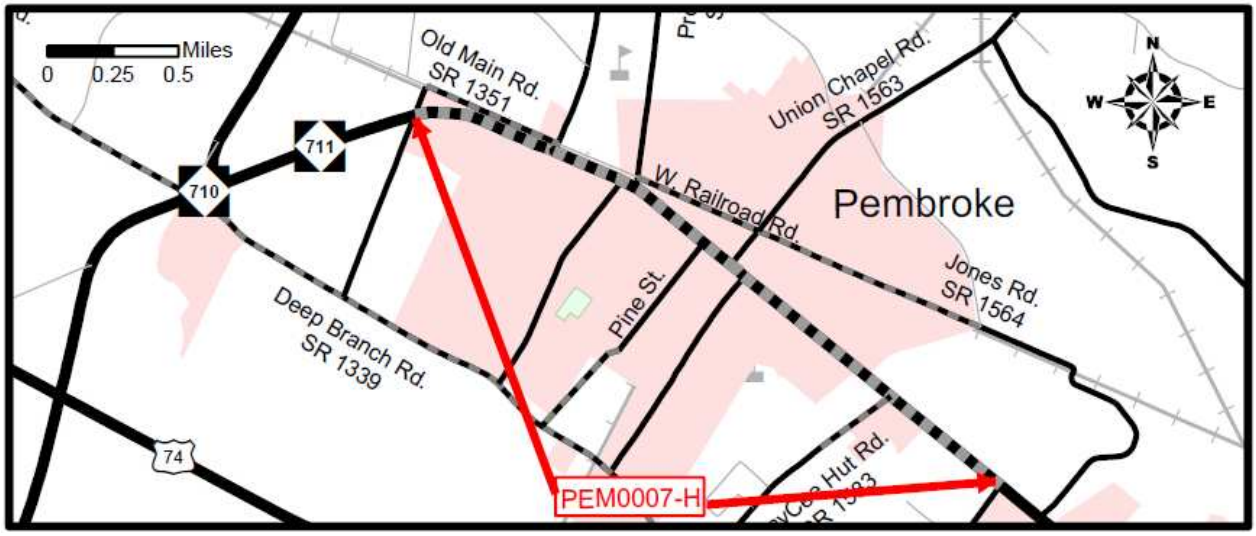
Prior to implementing projects from the CTP, additional analysis will be necessary to meet the National Environmental Policy Act (NEPA) or the North Carolina (or State) Environmental Policy Act (SEPA). This CTP may be used to provide information in the NEPA/SEPA process.

The following pages contain problem statements for each recommendation, organized by CTP modal element.

Problem Statements

HIGHWAY

NC 711 Access Control from Candy Park Road Road (SR 1553) to Pates Road (SR 1557)	Local ID: PEM0007-H Last Updated: 9/7/2012



Identified Problem

NC 711 from Pates Road (SR 1557) to Candy Park Road (SR 1553) is anticipated to be near capacity by 2040. Additionally, mobility along this facility is hampered by the lack of access control. The primary purpose of this project is to relieve congestion on the existing facility such that a minimum of LOS D can be achieved.

Justification of Need

NC 711 is a vital corridor in Pembroke that provides direct access to the town, University of North Carolina at Pembroke, and I-95 which help move people and goods through the region with consistence. There are various lane configurations that NC 711 comprises of. Pates Road (SR 1557) to University Road (SR 1561) is currently a 3-lane section with 12-foot lanes and a center turn lane, and from University Road (SR 1561) to Candy Park Road (SR 1553) it is currently a 4-lane section with 12-foot lanes and a center turn lane. This corridor is a part of the regional tier of the NC Multimodal Investment Network (NCMIN). Regional Tier facilities connect major population centers and have a mix of functions. Some of the Regional Tier facilities can be viewed as serving statewide transportation criteria, but they usually provide an unmistakable localized function. They are equally important to a particular region of the state and also provide some land access.

By 2040 the facility is projected to be near capacity from Pates Road (SR 1557) to Candy Park Road (SR 1553). Traffic on that stretch of NC 711 is projected at its peak to increase from 19,600 vpd during the year 2010 and 22,700 vpd during the year 2040. Based on these projections, the facility would be operating near capacity, at a Level of Service (LOS) D capacity of 23,800 vpd, in the future year (2040).

The CTP Project proposal for NC 711 will reduce congestion in Pembroke by providing more efficient movement of traffic. Such improvements as limiting access, installing a median, and right-in/right-out access points are expected to help raise the existing capacity (19,600 vpd) by an extra 5,000 to 10,000 vpd. Future design and public involvement would be conducted by NCDOT prior to any improvements.

Community Vision and Problem History

NC 711 from Pates Road (SR 1557) to Candy Park Road (SR 1553) serves as the main commercial arterial in Pembroke. This section of roadway is lined with various service industries, retail and grocery stores, and UNC-P. As such, the town expects to experience moderate growth in the future. Their wish is to provide more access control and mobility along NC 711 in order to support UNC-P, existing businesses, and residential along with attracting new mixed-use development.

CTP Project Proposal

Project Description and Overview

Proposed Project (PEM0007-H) is intended to convert the existing 4-lane major thoroughfare into 4-lane divided major thoroughfare with raised median with 11-foot lanes. There will be appropriate breaks in the median at intersections to make left turns. This will conversion will begin at Pates Road (SR 1557) and end at Candy Park Road (SR 1553).

The proposed improvements to NC 711 will help to reduce congestion and improve mobility in Pembroke.

Linkages to Other Plans and Proposed Project History

None

Relationship to Land Use Plans

The Pembroke Existing Land Use Map shows the proposed project area along NC 711 to mostly consist of a major university (UNC-P), a mixture of residential and commercial development. Most of commercial and strip development in Pembroke is located along

this section on NC 711. The commercial development consists of fast-food restaurants, gas stations, hotels and other service based establishments. The Pembroke Future Land Use Plan indicates commercial and residential growth to continue along this section of NC 711.

Natural &Human Environmental Context

The proposed project will have a minimal impact on the natural environmental but will impact the human environment. Since there is no roadway widening within the existing Right-of-Way (ROW), there will be minimal direct impacts to houses, businesses, churches, schools, and parks. Some indirect impacts will be felt by the town due to the construction of upgrading the current facility and by limiting some access. Future coordination with NCDOT Division 6 staff will be needed in order to limit impacts to the town during construction.

Multi-Modal Considerations

The proposed project is planned to work in conjunction with other proposed multi-modal projects for NC 711. The locals desired to improve sidewalk facilities along the corridor. Some sidewalks exist piecewise along the corridor, but the locals envisioned having a continuous sidewalk system along PEM0001-H. Refer to Pedestrian section of the CTP Report for more information.

A mixture of on-road and off-road bicycle facilities are recommended for NC 711. Signage designating this is desired for the on-road facilities on portions of this project in order to accommodate bicycle traffic. On-road bicycle routes are planned as part of the the Town of Pembroke CTP Report by the local CTP Steering Committee. Refer to Bicycle section of the CTP Report for more information

In coordination with the Pembroke CTP Steering Committee, bus routes were recommended along the corridor as well as a park and ride facility near NC 711 off COMTech Road (SR 1676) at Robeson Community College. These bus routes are aimed at connecting Pembroke with other locations within the area. Refer to the Public Transportation and Rail section of the CTP Report.

Public/Stakeholder Involvement

A public workshop was held on August 8th, 2012 where favorable comments were received regarding this specific recommendation. For more information regarding public involvement for PEM0007-H, refer to Appendix H.

Minor Widening Improvements

The following roads do not have capacity issues, but are recommended to be upgraded to improve safety, help with traffic flow, and/or to correspond to proposed bicycle and pedestrian improvements. Refer to CTP mapping for recommendation details. A public workshop was held on August 8th, 2012 where positive comments were received regarding this specific recommendations. Refer to Appendix H for further information regarding public involvement for the following projects.

- **PEM0001-H:** Deep Branch Road (SR 1339) – From one end of the eastern edge of the Planning Area Boundary (PAB) to the western edge of the PAB, widen from two 11-foot lanes to two 12-foot lanes with 4-foot paved shoulders.
- **PEM0002-H:** Pine Street – From Deep Branch Road (SR 1339) to 0.5 mile north of Deep Branch Road, widen from a dirt road to two 12-foot lanes with curb and gutter.
- **PEM0003-H:** Jones Road (SR 1564) – From East Railroad Road (SR) to NC 711, widen from 11-foot lanes to two 12-foot lanes with 4-foot paved shoulders.
- **PEM0004-H:** West Railroad Road (SR 1910) – From University Road (SR1561) to Union Chapel Road (SR 1563), a 28-foot unmarked pavement to two 12-foot lanes with curb and gutter.
- **PEM0005-H:** East Railroad Road (SR 1910) – From Union Chapel Road (SR 1563) to Jones Road (SR 1564), a 28-foot unmarked pavement to two 12-foot lanes with curb and gutter.
- **PEM0006-H:** JayCee Hut Road (SR 1583) – From NC 711 to 0.35 south of NC 711, from non-existent to two 10-foot lanes with 2-foot paved shoulders.

Public Transportation & Rail

During the development of this CTP, it was concluded that there was a need for rail improvements. There are CSX freight trains that travel through the town at least 45 times a day, with no stops. The Town of Pembroke currently serves as a part of CSX SE and A lines. Currently, there is a Northern Bypass Rail Connector project (P-4900) that is currently on the State Transportation Improvement Program (STIP). The goal of this project will be to allow north and south shipments to turn east without impacting major thoroughfares in the town.

There are currently no fixed route public transportation services within the town of Pembroke. During the development of the CTP, a need was identified for the South East Area Transportation System (SEATS), to begin an internal system of travel within the town. This service would accommodate the citizens and the students of the University of North Carolina at Pembroke (UNC-P) and Robeson Community College (RCC) travel needs.

The Comprehensive Transportation Plan (CTP) is recommending fixed route services on the following facilities:

- **PEM0001-H:** Deep Branch Road (SR 1339) - From COMTech Road (SR 1676) to the intersection of Deep Branch Road and NC 710.
- **PEM0007-H:** NC 711 - From COMTech Road (SR 1676) to the intersection of NC 711 and NC 710.
- **PEM0001-T:** North Chicken Road (SR 1003) - From NC 711 to I-74.
- **PEM0002-T:** COMTech Road (SR 1676) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0003-T:** Jones Street (SR 1555) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0004-T:** Normal Street (SR 1556) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0005-T:** Pates Road (SR 1557) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0006-T:** University Road (SR 1561) - From Saint Anna Road (SR 1515) to NC 711.
- **PEM0007-T:** Prospect Road (SR 1340) - From Saint Anna Road (SR 1515) to NC 711.

- **PEM0008-T:** Saint Anna Road (SR 1515) - From University Road (SR 1561) to Prospect Road (SR 1340).
- **PEM0009-T:** NC 710 - From I-74 to the intersection of NC 710 and NC 711.

The CTP process identified a need for park-and ride lots in the future due to the projected growth of the UNC-P and its potential commuter student population, while not increasing on-campus parking after the year 2015. The university potential locations for park-and-ride lots throughout the county are as listed below:

- Near Exit 203 off of I-74.
- Near Exit 200 off of I-74.
- At the intersection of COMTech Road and NC 711, near Robeson Community College.

Those proposed park-and-ride lots could be used for carpooling to destinations in and out of Pembroke. The final locations of these proposed park-and-ride lots would be subject to agreements with property owners and be in accordance with all local ordinances.

Bicycle

Minor Bicycle Improvements

CTP Project Proposal

The Pembroke Comprehensive Transportation Plan (CTP) Steering Committee aim is to channel regional bicycle traffic to local roads within the municipal limits as a signed bicycle route. This would provide greater safety for through bicyclists. On-road bicycle facilities (bicycle route signage and wider paved shoulders) have been identified and classified as Needs Improvement. Also, recommended multi-use path are displayed on the Bicycle Map.

In accordance with American Association of State Highway and Transportation Officials (AASHTO), roadways identified as bicycle routes should incorporate the following standards as roadway improvements are made and funding is available:

- Curb & Gutter sections require at a minimum 4-ft bike lanes or 14-ft wide outside lanes.
- Shoulder sections require a minimum 4-ft paved shoulder.
- All bridges along roadways where bike facilities are recommended shall be equipped with 54" railings.

- **PEM0001-B:** US 74 - From Recreation Center Road (SR 1354) to NC 710.
- **PEM0002-B:** North Chicken Road (SR 1003) - From Recreation Center Road (SR 1354) to NC 710.
- **PEM0003-B:** COMTech Road (SR 1676) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0004-B:** Candy Park Road (SR 1553) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0005-B:** South Jones Street (SR 1555) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0006-B:** Normal Street (SR 1556) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0007-B:** Prospect Road (SR 1340) - From Union Chapel Road (SR 1563) to NC 711.

- **PEM0008-B:** Union Chapel Road (SR 1563) - From Corinth Road (SR 1566) to NC 711.

Additionally, the following multi-use paths were recommended during the development of the CTP:

- **PEM0002-M:** University Road (SR 1561) - From Saint Anna Road (SR 1515) to NC 711.
- **PEM0004-M:** NC 711 – From COMTech Road (SR 1676) to Jones Road (SR 1564).
- **PEM0005-M:** NC 711 – From University Road (SR 1561) to the intersection of NC 710 and NC 711.
- **PEM0001-H:** Deep Branch Road (SR 1339) - From Recreation Center Road (SR 1354) to NC 710.
- **PEM0003-H:** Jones Road (SR 1564) - From Union Chapel Road (SR 1563) to NC 711.
- **PEM0004-H:** West Railroad Road (SR 1910) - From Union Chapel Road (SR 1563) to Prospect Road (SR 1340).
- **PEM0005-H:** East Railroad Road (SR 1910) - From Union Chapel Road (SR 1563) to Jones Road (SR 1564).

Pedestrian

Pembroke completed a Pedestrian Transportation Plan in January 2010. These features are shown on the Pedestrian Map, as well as existing sidewalks and sidewalks that need improvement.

During the development of the Pembroke CTP, several facilities were identified as having a need for new sidewalks. These needs identified below.

Sidewalks – Needs Improvement (Sidewalks need to be added on one side of the facility)

- **PEM0007-H:** NC 711 – From Jones Road (SR 1564) to University Road (SR 1561).
- **PEM0001-P:** Union Chapel Road (SR 1563) - From Cornith Road (SR 1566) to NC 711.
- **PEM0002-P:** Prospect Road (SR 1340) – From Cornith Road (SR 1566) to NC 711.
- **PEM0003-P:** University Road (SR 1561) – From Saint Anna Road (SR 1515) to NC 711.

Sidewalks – Recommended (Sidewalks needed on both sides of the facility)

- **PEM0004-P:** Candy Park Road (SR 1553) - From NC 711 to 0.6 miles south on Candy Park Road.
- **PEM0005-P:** South Jones Street (SR 1555) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0006-P:** Normal Street (SR 1556) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0007-P:** Pates Road (SR 1557) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0008-P:** North Chicken Road (SR 1003) - From Moss Neck Road (SR 1673) to NC 711.
- **PEM0009-P:** University Road (SR 1561) - From Saint Anna Road (SR 1515) to NC 711.

- **PEM0010-P:** Prospect Road (SR 1340) - From Cornith Road (SR 1566) to NC 711.

These facilities are shown on the Pedestrian Map as recommended multi-use paths. Additionally, the following multi-use paths were recommended during the development of the CTP:

- **PEM0001-M:** COMTech Road (SR 1676) - From Deep Branch Road (SR 1339) to NC 711.
- **PEM0002-M:** University Road (SR 1561) - From Saint Anna Road (SR 1515) to NC 711.
- **PEM0003-M:** Prospect Road (SR 1340) - From Cornith Road (SR 1566) to NC 711.
- **PEM0004-M:** NC 711 - From COMTech Road (SR 1676) to Jones Road (SR 1564).
- **PEM0005-M:** NC 711 - From University Road (SR 1561) to the intersection of NC 710 and NC 711.
- **PEM0006-M:** NC 710 - From the intersection of NC 710 and NC 711 to NC 74.
- **PEM0007-M:** Deep Branch Road (SR 1339) - From Recreation Center Road (SR 1354) to NC 710.
- **PEM0003-H:** Jones Road (SR 1564) - From Union Chapel Road (SR 1563) to NC 711.
- **PEM0004-H:** West Railroad Road (SR 1910) - From Union Chapel Road (SR 1563) to Prospect Road (SR 1340).
- **PEM0005-H:** East Railroad Road (SR 1910) - From Union Chapel Road (SR 1563) to Jones Road (SR 1564).

APPENDICES

Appendix A
Resources and Contacts

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 homepage:

1-877-DOT-4YOU
(1-877-368-4968)
https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx

Secretary of Transportation

1501 Mail Service Center
Raleigh, NC 27699-1501
(919) 707-2800
http://www.ncdot.org/about/leadership/secretary.html

Board of Transportation Member

http://www.ncdot.gov/about/board/default.html

Highway Division Engineer

Contact the Division Engineer with general questions concerning NCDOT activities within each Division and for information on Small Urban Funds.

http://www.ncdot.gov/doh/operations/division6/

Division Project Manager

Contact the Division Project Manager with questions concerning transportation projects within each Division.

http://www.ncdot.gov/doh/operations/division6/

Division Construction Engineer

Contact the Division Construction Engineer for information concerning major roadway improvements under construction.

http://www.ncdot.gov/doh/operations/division6/

Division Traffic Engineer

Contact the Division Traffic Engineer for information concerning traffic signals, highway signs, pavement markings and crash history.

http://www.ncdot.gov/doh/operations/division6/

Division Operations Engineer

Contact the Division Operations Engineer for information concerning facility operations.

http://www.ncdot.gov/doh/operations/division6/

Division Maintenance Engineer

Contact the Division Maintenance Engineer information regarding maintenance of all state roadways, improvement of secondary roads and other small improvement projects. The Division Maintenance Engineer also oversees the District Offices, the Bridge Maintenance Unit and the Equipment Unit.

http://www.ncdot.gov/doh/operations/division6/

District Engineer

Contact the District Engineer for information on outdoor advertising, junkyard control, driveway permits, road additions, subdivision review and approval, Adopt A Highway program, encroachments on highway right of way, issuance of oversize/overwidth permits, paving priorities, secondary road construction program and road maintenance.

http://www.ncdot.gov/doh/operations/division6/

Transportation Planning Branch (TPB)

Contact the Transportation Planning Branch for information on long-range multi-modal planning services, including Strategic Highway Corridors.

1554 Mail Service Center
Raleigh, NC 27699-1554
(919) 707-0900
http://www.ncdot.gov/doh/preconstruct/tpb/

Lumber River Rural Planning Organization (RPO)

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

http://www.lumberrivercog.org/Rural%20Transportation%20Sub%20Page.html

Strategic Planning Office

Contact the Strategic Planning Office for information concerning prioritization of transportation projects.

https://apps.dot.state.nc.us/dot/directory/authenticated/UnitPage.aspx?id=11054

Project Development & Environmental Branch (PDEA)

Contact PDEA for information on environmental studies for projects that are included in the TIP.

1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 707-6000
http://www.ncdot.gov/doh/preconstruct/pe/

Secondary Roads Office

Contact the Secondary Roads Office for 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.

1535 Mail Service Center
Raleigh, NC 27699-1535
(919) 733-3250
http://www.ncdot.gov/doh/operations/secondaryroads/

Program Development Branch

Contact the Program Development Branch for information concerning Roadway Official Corridor Maps, Feasibility Studies and the Transportation Improvement Program (TIP).

1534 Mail Service Center
Raleigh, NC 27699-1534
(919) 733-2039
http://www.ncdot.org/planning/development/

Public Transportation Division

Contact the Public Transportation Division for information public transit systems.

1550 Mail Service Center
Raleigh, NC 27699-1550
(919) 733-4713
http://www.ncdot.org/transit/nctransit/

Rail Division

Contact the Rail Division for rail information throughout the state.

1553 Mail Service Center
Raleigh, NC 27699-1553
(919) 733-7245
http://www.bytrain.org/

Division of Bicycle and Pedestrian Transportation

Contact this Division for bicycle and pedestrian transportation information throughout the state.

1552 Mail Service Center
Raleigh, NC 27699-1552
(919) 707-2600
http://www.ncdot.gov/transit/bicycle/

Bridge Maintenance Unit

Contact the Bridge Maintenance Unit for information on bridge management throughout the state.

1565 Mail Service Center
Raleigh, NC 27699-1565
(919) 733-4362
http://www.ncdot.gov/doh/operations/dp_chief_eng/maintenance/bridge/

Highway Design Branch

The Highway Design Branch consists of the Roadway Design, Structure Design, Photogrammetry, Location & Surveys, Geotechnical, and Hydraulics Units. Contact the Highway Design Branch for information regarding design plans and proposals for road and bridge projects throughout the state.

1584 Mail Service Center
Raleigh, NC 27699-1584
(919) 250-4001
http://www.ncdot.gov/doh/preconstruct/highway/

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/en/CommunityServices/

Appendix B
Comprehensive Transportation Plan Definitions

Highway Map

For visual depiction of facility types for the following CTP classification, visit http://www.ncdot.gov/doh/preconstruct/tpb/SHC/facility/.

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, or system continuity. The improvement to the facility may be widening, other operational strategies, increasing the level of access control along the facility, or a combination of improvements and strategies. *"Needs improvement" does not refer to the maintenance needs of existing facilities.*
- **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 high speed rail service is provided (there are currently no existing high speed corridor in North Carolina).
  - Recommended – Proposed corridor for high speed rail service.
- **Rail Stop** – A railroad station or stop along the railroad tracks.
- **Intermodal 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 or a bus station.
- **Park and Ride Lot** – A strategically located parking lot that is free of charge to anyone who parks a vehicle and commutes by transit or in a carpool.
- **Existing Grade Separation** – Locations where existing rail facilities and 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 '(ft)' is the approximate width of the roadway from edge of pavement to edge of pavement. Listed under 'lanes' is the total number of lanes, with the letter 'D' if the facility is divided.

- **Existing ROW:** The estimated existing right-of-way is based on the Roadway Characteristics file from NCDOT GIS Department. 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 using NCLOS D Standards for Systems Level Planning, as documented in Chapter I.

- **Existing and Proposed AADT** (Annual Average Daily Traffic) volumes, given in vehicles per day (vpd), are estimates only based on a systems-level analysis. The '2040 AADT E+C' is an estimate of the volume in 2040 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in the 2012 - 2018 Transportation Improvement Program (TIP). The '2040 AADT with CTP' is an estimate of the volume in 2040 with all proposed CTP improvements assumed to be in place. The '2040 AADT 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 I.

- **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 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 Mulitmodal Investment Network (NCMIN). Abbreviations are Sta= statewide tier, Reg= regional tier, Sub= subregional tier.

- **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, and P= pedestrian).

CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
					2010 Existing System						2040 Proposed System								
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	Cross-Section (ft)	Cross-Section lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2040 AADT E+C	2040 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Tier	Other Modes
	I 74	W. Planning Bndry - Cabinet Shop Rd. (SR 1166)	Robeson Co.	0.8	12	2	300	70	56700	9900	11500	13300	56700	ADQ	ADQ	F	Sta	
	I 74	Cabinet Shop Rd. (SR 1166) - NC 710	Robeson Co.	2.8	12	2	300	70	56700	9900	11500	13300	56700	ADQ	ADQ	F	Sta	
	I 74	NC 710 - N. Chicken Rd. (SR 1003)	Robeson Co.	4.1	12	2	300	70	56700	9800	11400	13200	56700	ADQ	ADQ	F	Sta	
	I 74	N. Chicken Rd. (SR 1003) - E. Planning Bndry	Robeson Co.	0.8	12	2	300	70	56700	9700	11300	13200	56700	ADQ	ADQ	F	Sta	
	US 74	W. Planning Bndry - Cabinet Shop Rd. (SR 1166)	Robeson Co.	0.1	12	2	60	45	14300	5300	5300	6100	14300	ADQ	ADQ	Maj	Sta	B
	US 74	Cabinet Shop Rd. (SR 1166) - NC 710	Robeson Co.	1.9	12	2	60	45	14300	2700	2700	3100	14300	ADQ	ADQ	Maj	Sta	B
	US 74	NC 710 - Three Bridges Rd. (SR 1554)	Robeson Co.	2.4	12	2	60	55	14300	3300	3300	3800	14300	ADQ	ADQ	Maj	Sta	B
	US 74	Three Bridges Rd. (SR 1554) - Henry Berry Rd. (SR 1157)	Robeson Co.	0.3	12	2	60	55	14300	3300	3300	3800	14300	ADQ	ADQ	Maj	Sta	B
	US 74	Henry Berry Rd. (SR 1157) - N. Chicken Rd. (SR 1003)	Robeson Co.	1.3	12	2	60	55	14300	3300	3300	3800	14300	ADQ	ADQ	Maj	Sta	B
	US 74	N. Chicken Rd. (SR 1003) - E. Planning Bndry	Robeson Co.	1.7	12	2	60	55	14300	3300	3300	3800	14300	ADQ	ADQ	Maj	Sta	B
	NC 72	Whistling Rufus Rd. (SR 1576) - St. Anna Rd. (SR 1515)	Robeson Co.	1.0	12	2	60	45	15100	4400	4400	5100	15100	ADQ	ADQ	Maj	Reg	
	NC 72	St. Anna Rd. (SR 1515) - N. Chicken Rd (SR 1003)	Robeson Co.	2.4	12	2	60	55	15100	3700	3700	4300	15100	ADQ	ADQ	Maj	Reg	
	NC 72	N. Chicken Rd. (SR 1003) - Beam Rd.	Robeson Co.	1.0	12	2	60	55	15100	3900	3900	4500	15100	ADQ	ADQ	Maj	Reg	
	NC 710	S. Planning Bndry - Elrod Rd. (SR 1153)	Robeson Co.	0.2	12	2	60	45	15100	2800	2800	3200	15100	ADQ	ADQ	Maj	Reg	
	NC 710	Elrod Rd. (SR 1153) - Union School Rd. (SR 1154)	Robeson Co.	0.2	12	2	60	45	15100	3200	3200	3700	15100	ADQ	ADQ	Maj	Reg	
	NC 710	Union School Rd. (SR 1154) - I 74	Robeson Co.	1.1	12	2	60	45	15100	3200	3200	3700	15100	ADQ	ADQ	Maj	Reg	
	NC 710	I 74 - US 74	Robeson Co.	1.6	12	2	60	45	14600	5100	5100	5900	14600	ADQ	ADQ	Maj	Reg	
	NC 710	US 74 - Deep Branch Rd. (SR 1339)	Robeson Co.	0.9	12	2	60	45	14600	5300	5300	6100	14600	ADQ	ADQ	Maj	Reg	
	NC 710	Deep Branch Rd. (SR 1339) - NC 711	Robeson Co.	0.1	12	4	80	45	14600	5300	5300	6100	14600	ADQ	ADQ	Maj	Reg	
	NC 710	NC 711 - St. Anna Rd. (SR 1515)	Robeson Co.	0.8	12	2	60	45	14600	2900	2900	3400	14600	ADQ	ADQ	Maj	Reg	
	NC 710	St. Anna Rd. (SR 1515) - Hezekiah Rd. (SR 1378)	Robeson Co.	0.7	12	2	60	45	14600	2900	2900	3400	14600	ADQ	ADQ	Maj	Reg	
	NC 710	Hezekiah Rd. (SR 1378) - Prospect Rd. (SR 1340)	Robeson Co.	1.1	12	2	60	45	14600	2900	2900	3400	14600	ADQ	ADQ	Maj	Reg	
	NC 710	Prospect Rd. (SR 1340) - Whistling Rufus Rd. (SR 1576)	Robeson Co.	0.5	12	2	60	45	14600	5200	5200	6000	14600	ADQ	ADQ	Maj	Reg	
	NC 710	Whistling Rufus Rd. (SR 1576) - N. Planning Bndry	Robeson Co.	0.1	12	2	60	45	14600	6300	6300	7300	14600	ADQ	ADQ	Maj	Reg	
	NC 711	NC 710 - Pates Rd. (SR 1557)	Robeson Co.	0.8	12	2	50	45	14600	7800	7800	9000	14600	ADQ	ADQ	Maj	Reg	
PEM0007-H	**NC 711**	Pates Rd. (SR 1557) - University Rd, (SR 1561)	Robeson Co.	0.6	12	2	50	45	14600	11300	11300	13100	14600	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	University Rd, (SR 1561) - Normal St. (SR 1556)	Robeson Co.	0.3	10	4	50	35	14600	11300	11300	13100	14600	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	Normal St. (SR 1556) - Prospect Rd. (SR 1340)	Robeson Co.	0.1	10	4	40	35	14600	11300	11300	13100	14600	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	Prospect Rd. (SR 1340) - Pine St.	Robeson Co.	0.3	10	4	40	35	20100	14700	14700	17100	20100	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	Pine St. - Union Chapel Rd. (SR 1563)	Robeson Co.	0.1	10	4	40	35	20100	16700	16700	19400	20100	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	Union Chapel Rd. (SR 1563) - S. Jones St. (SR 1555)	Robeson Co.	0.2	10	3	40	35	20100	19600	19600	22700	20100	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	S. Jones St. (SR 1555) - JayCee Hut Rd. (SR 1583)	Robeson Co.	0.7	10	4	50	35	23800	19600	19600	22700	23800	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	JayCee Hut Rd. (SR 1583) - Candy Park Rd. (SR 1553)	Robeson Co.	0.6	10	2	50	35	23800	19600	19600	22700	23800	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	Candy Park Rd. (SR 1553) - Jones Rd. (SR 1564)	Robeson Co.	0.2	10	2	50	35	14300	14400	14400	17000	14300	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	Jones Rd. (SR 1564) - N. Chicken Rd. (SR 1003)	Robeson Co.	0.6	11	2	70	35	15100	9200	9200	10700	15100	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	N. Chicken Rd. (SR 1003) - COMTech Rd. (SR 1676)	Robeson Co.	0.8	11	2	70	45	15100	9200	9200	10700	15100	ADQ	ADQ	Maj	Reg	T P M B
PEM0007-H	**NC 711**	COMTech Rd. (SR 1676) - Tracy Sampson Rd. (SR 1551)	Robeson Co.	1.0	12	2	70	45	15100	9200	9200	10700	15100	ADQ	ADQ	Maj	Reg	T P B
PEM0007-H	**NC 711**	Tracy Sampson Rd. (SR 1551) - Moss Neck Rd. (SR 1673)	Robeson Co.	1.1	12	2	60	45	15100	9200	9200	10700	15100	ADQ	ADQ	Maj	Reg	T P B
	Beam Rd. (SR 1573)	Moss Neck Rd. (SR 1673) - NC 72	Robeson Co.	1.1	10	2	50	45	11300	1000	1000	1200	11300	ADQ	ADQ	Min	Sub	
	Cabinet Shop Rd. (SR 1166)	Elrod Rd (SR 1153) - I 74	Robeson Co.	1.1	11	2	70	45	14600	700	700	800	14600	ADQ	ADQ	Min	Sub	
	Cabinet Shop Rd. (SR 1166)	I 74 - US 74	Robeson Co.	0.9	11	2	70	45	14600	700	700	800	14600	ADQ	ADQ	Min	Sub	
	Candy Park Rd. (SR 1553)	Deep Branch Rd. (SR 1339) - NC 711	Robeson Co.	1.0	10	2	40	35	14100	2100	2100	2400	14100	ADQ	ADQ	Min	Sub	P B

CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
					2010 Existing System						2040 Proposed System								
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	Cross-Section (ft)	Cross-Section lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2040 AADT E+C	2040 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Tier	Other Modes
	COMTech Rd. (SR 1676)	Deep Branch Rd. (SR 1339) - NC 711	Robeson Co.	1.2	10	2	50	45	11300	1100	1100	1300	11300	ADQ	ADQ	Min	Sub	T M
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Red Bank Rd. (SR 1347) - Recreation Center Rd. (SR 1654)	Robeson Co.	0.6	11	2	40	45	14100	4000	4000	4600	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Recreation Center Rd. (SR 1654) - NC 710	Robeson Co.	1.5	11	2	60	45	14100	4100	4100	4800	14100	ADQ	ADQ	Min	Reg	T M
PEM0001-H	**Deep Branch Rd. (SR 1339)**	NC 710 - Pates Rd. (SR 1557)	Robeson Co.	0.7	11	2	50	45	14100	4300	4300	5000	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Pates Rd. (SR 1557) - Normal St. (SR 1556)	Robeson Co.	0.7	11	2	50	45	14100	5100	5100	5900	14100	ADQ	ADQ	Min	Reg	T P B
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Normal St. (SR 1556) - Pine St.	Robeson Co.	0.2	12	2	50	45	14100	5500	5500	6400	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Pine St. - S. Jones St. (SR 1555)	Robeson Co.	0.3	12	2	50	45	14100	6000	6000	7000	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	S. Jones St. (SR 1555) - Three Bridges Rd. (SR 1554)	Robeson Co.	0.4	12	2	50	45	14100	5500	5500	6400	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Three Bridges Rd. (SR 1554) - JayCee Hut Rd. (SR 1583)	Robeson Co.	0.2	11	2	50	45	14100	4900	4900	5700	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	JayCee Hut Rd. (SR 1583) - Candy Park Rd. (SR 1553)	Robeson Co.	0.7	11	2	50	45	14100	4900	4900	5700	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Candy Park Rd. (SR 1553) - N. Chicken Rd. (SR 1003)	Robeson Co.	0.8	11	2	50	45	14100	3900	3900	4500	14100	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	N. Chicken Rd. (SR 1003) - COMTech Rd. (SR 1676)	Robeson Co.	0.5	11	2	50	45	14600	3400	3400	3900	9900	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	COMTech Rd. (SR 1676) - Eddie Sampson Rd. (SR 1551)	Robeson Co.	1.0	11	2	50	45	14600	3400	3400	3900	9900	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Eddie Sampson Rd. (SR 1551) - Tracy Sampson Rd. (SR 1551)	Robeson Co.	0.6	11	2	50	45	14600	2500	2500	2900	9900	ADQ	ADQ	Min	Reg	
PEM0001-H	**Deep Branch Rd. (SR 1339)**	Eddie Sampson Rd. (SR 1551) - E Planning Bndry	Robeson Co.	0.1	11	2	50	45	9900	2500	2500	2900	9900	ADQ	ADQ	Min	Reg	
PEM0005-H	**E. Railroad St. (SR 1910)**	Union Chapel Rd (SR 1563) - Jones Rd. (SR 1564)	Robeson Co.	1.3	10	2	50	35	9900	400	400	500	9900	ADQ	ADQ	Min	Sub	M
	Eddie Sampson Rd.	Deep Branch Rd. (SR 1339) - Tracy Sampson Rd. (SR 1551)	Robeson Co.	1.0	10	2	40	45	14100	400	400	500	14100	ADQ	ADQ	Min	Sub	
	Elrod Rd. (SR 1153)	E. Planning Bndry - Cabinet Shop Rd. (SR 1166)	Robeson Co.	0.5	10	2	50	45	14600	1700	1700	2000	14600	ADQ	ADQ	Min	Sub	
	Elrod Rd. (SR 1153)	Cabinet Shop Rd. (SR 1166) - NC 710	Robeson Co.	3.2	10	2	50	45	14600	1000	1000	1200	14600	ADQ	ADQ	Min	Sub	
	Henry Berry Rd. (SR 1157)	Union School Rd. (SR 1154) - US 74	Robeson Co.	2.5	10	2	50		14100	100	100	100	14100	ADQ	ADQ	Min	Sub	
	Hezekiah Rd. (SR 1378)	Red Bank Rd. (SR 1347) - NC 710	Robeson Co.	1.3	11	2	60	45	14100	800	800	900	14100	ADQ	ADQ	Min	Sub	
PEM0006-H	**JayCee Hut Rd. (SR 1583)**	Deep Branch Rd. (SR 1339) - 0.7 N of Deep Branch Rd. (SR 1339)	Robeson Co.	0.7	11	2	60	35	14100	100	100	100	14100	ADQ	ADQ	Min	Sub	
PEM0003-H	**Jones Rd. (SR 1564)**	NC 711 - E. Railroad St. (SR 1910)	Robeson Co.	1.0	11	2	40	35	14100	1100	1100	1300	14100	ADQ	ADQ	Min	Sub	M
	Moss Neck Rd (SR 1673)	Union Chapel Rd (SR 1563) - N. Chicken Rd.(SR 1003)	Robeson Co.	2.2	10	2	40	45	14100	1100	1100	1300	14100	ADQ	ADQ	Min	Sub	
	Moss Neck Rd (SR 1673)	N. Chicken Rd. (SR 1003) - Beam Rd.	Robeson Co.	2.0	10	2	50	45	14100	1100	1100	1300	14100	ADQ	ADQ	Min	Sub	
	Moss Neck Rd (SR 1673)	Beam Rd. - NC 711	Robeson Co.	0.4	10	2	40	45	14100	1100	1100	1300	14100	ADQ	ADQ	Min	Sub	
	Normal St. (SR 1556)	NC 711 - Deep Branch Rd. (SR 1339)	Robeson Co.	1.0	10	2	50	35	14100	2600	2600	3000	14100	ADQ	ADQ	Min	Sub	T P B
	N. Chicken Rd. (SR 1003)	S Planning Bndry - Union School Rd. (SR 1154)	Robeson Co.	0.2	10	2	50	45	14100	1600	1600	1900	14100	ADQ	ADQ	Min	Reg	
	N. Chicken Rd. (SR 1003)	Union School Rd. (SR 1154) - I 74	Robeson Co.	0.3	10	2	50	45	14100	1900	1900	2200	14100	ADQ	ADQ	Min	Reg	
	N. Chicken Rd. (SR 1003)	I 74 - US 74	Robeson Co.	2.8	10	2	50	45	14100	2300	2300	2700	14100	ADQ	ADQ	Min	Reg	
	N. Chicken Rd. (SR 1003)	US 74 - Deep Branch Rd. (SR 1339)	Robeson Co.	0.9	10	2	50	45	14100	2900	2900	4300	14100	ADQ	ADQ	Min	Reg	T P B
	N. Chicken Rd. (SR 1003)	Deep Branch Rd. (SR 1339) - NC 711	Robeson Co.	0.9	10	2	50	45	14100	2200	2200	2600	14100	ADQ	ADQ	Min	Reg	T P B
	N. Chicken Rd. (SR 1003)	NC 711 - Moss Neck Rd. (SR 1673)	Robeson Co.	0.9	10	2	50	45	14100	4200	4200	4900	14100	ADQ	ADQ	Min	Reg	T P B
	N. Chicken Rd. (SR 1003)	Moss Neck Rd. (SR 1673) - NC 72	Robeson Co.	1.4	10	2	50	45	14100	2400	2400	2800	14100	ADQ	ADQ	Min	Reg	
	Old Main Rd. (SR 1351)	Pates Rd. (SR 1557) - University Rd. (SR 1561)	Robeson Co.	0.5	10	2	50	45	14100	800	800	900	14100	ADQ	ADQ	Min	Sub	
	Pates Rd. (SR 1557)	Deep Branch Rd. (SR 1339) - Old Main Rd. (SR 1351)	Robeson Co.	0.8	10	2	50	35	14100	1000	1000	1200	14100	ADQ	ADQ	Min	Sub	T P
	Philadelphus Rd. (SR 1578)	St. Anna Rd. (SR 1515) - Whistling Rufus Rd. (SR 1576)	Robeson Co.	1.6	10	2	40	45	14600	500	500	600	14600	ADQ	ADQ	Min	Sub	
PEM0002-H	**Pine St.**	0.5 S of NC 711 - NC 711	Robeson Co.	0.5	10	2	40	35	14100	2900	2900	3400	14100	ADQ	ADQ	Min	Sub	
	Prospect Rd. (SR 1340)	W. Railroad St. (SR 1910) - St. Anna Rd. (SR 1515)	Robeson Co.	1.3	11	5	100	45	27600	10500	10500	12200	27600	ADQ	ADQ	Min	Sub	T M B
	Prospect Rd. (SR 1340)	St. Anna Rd. (SR 1515) - NC 710	Robeson Co.	1.6	11	2	60	45	14100	6900	6900	8000	14100	ADQ	ADQ	Min	Sub	
	Prospect Rd. (SR 1340)	NC 710 - Red Bank Rd. (SR 1347)	Robeson Co.	0.6	11	2	60	45	14100	3300	3300	3900	14100	ADQ	ADQ	Min	Sub	

CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
					2010 Existing System						2040 Proposed System								
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	Cross-Section (ft)	Cross-Section lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2040 AADT E+C	2040 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Tier	Other Modes
	Recreation Center Rd. (SR 1654)	Deep Branch Rd. (SR 1339) - US 74	Robeson Co.	0.9	10	2	50	45	9900	3100	3100	3600	9900	ADQ	ADQ	Min	Sub	
	Red Bank Rd. (SR 1347)	Recreation Center Rd. (SR 1564) - Deep Branch Rd. (SR 1339)	Robeson Co.	0.6	11	2	60	45	14100	4100	4100	4800	14100	ADQ	ADQ	Min	Sub	
	Red Bank Rd. (SR 1347)	Deep Branch Rd. (SR 1339) - Hezekiah Rd. (SR 1378)	Robeson Co.	1.3	11	2	60	45	14100	4100	4100	4800	14100	ADQ	ADQ	Min	Sub	
	Red Bank Rd. (SR 1347)	Hezekiah Rd. (SR 1378) - Prospect Rd. (SR 1340)	Robeson Co.	1.1	11	2	50	45	14100	4100	4100	4800	14100	ADQ	ADQ	Min	Sub	
	Red Bank Rd. (SR 1347)	Prospect Rd. (SR 1340) - NC 710	Robeson Co.	0.6	11	2	60	45	14100	4100	4100	4800	14100	ADQ	ADQ	Min	Sub	
	S. Jones St. (SR 1555)	NC 711 - Deep Branch Rd. (SR 1339)	Robeson Co.	0.9	10	2	50	35	14100	2900	2900	3400	14100	ADQ	ADQ	Min	Sub	T P B
	St. Anna Rd. (SR 1515)	NC 710 - University Rd. (SR 1561)	Robeson Co.	1.0	11	2	60	45	14100	1200	1200	1400	14100	ADQ	ADQ	Min	Sub	
	St. Anna Rd. (SR 1515)	University Rd. (SR 1561) - Prospect Rd. (SR 1340)	Robeson Co.	0.7	11	2	60	45	14100	2200	2200	2600	14100	ADQ	ADQ	Min	Sub	T
	St. Anna Rd. (SR 1515)	Prospect Rd. (SR 1340) - Union Chapel Rd. (SR 1563)	Robeson Co.	1.6	11	2	60	45	14100	3100	3100	3600	14100	ADQ	ADQ	Min	Sub	
	St. Anna Rd. (SR 1515)	Union Chapel Rd. (SR 1563) - NC 72	Robeson Co.	1.0	11	2	60	45	14600	6700	6700	7800	14600	ADQ	ADQ	Min	Sub	
	Tracy Sampson Rd. (SR 1551)	Deep Branch Rd. (SR 1339) - NC 711	Robeson Co.	1.2	10	2	50	45	9900	400	400	500	9900	ADQ	ADQ	Min	Sub	
	Three Bridges Rd. (SR 1554)	US 74 - Deep Branch Rd. (SR 1339)	Robeson Co.	0.9	11	2	60	45	9900	2300	2300	2700	9900	ADQ	ADQ	Min	Sub	
	Union Chapel Rd. (SR 1563)	NC 711 - E. Railroad St. (SR 1910)	Robeson Co.	0.2	11	2	60	35	14100	7000	7000	8100	14100	ADQ	ADQ	Min	Sub	P B
	Union Chapel Rd. (SR 1563)	E. Railroad Rd. (SR 1910) - Moss Neck Rd. (SR 1673)	Robeson Co.	1.2	11	2	60	35	14100	6000	6000	7000	14100	ADQ	ADQ	Min	Sub	
	Union Chapel Rd. (SR 1563)	Moss Neck Rd (SR 1673) - St. Anna Rd. (SR 1515)	Robeson Co.	0.9	11	2	60	45	14100	4200	4200	4900	14100	ADQ	ADQ	Min	Sub	
	Union School Rd. (SR 1154)	NC 710 - Henry Berry Rd. (SR 1157)	Robeson Co.	1.9	10	2	50	45	15100	100	100	100	15100	ADQ	ADQ	Min	Sub	
	Union School Rd. (SR 1154)	Henry Berry Rd. (SR 1157) - N. Chicken Rd. (SR 1003)	Robeson Co.	1.5	10	2	50	45	15100	100	100	100	15100	ADQ	ADQ	Min	Sub	
	Union School Rd. (SR 1154)	N. Chicken Rd. (SR 1003) - E Planning Bndry	Robeson Co.	0.4	10	2	50	45	15100	100	100	100	15100	ADQ	ADQ	Min	Sub	
	University Rd. (SR 1561)	NC 711 - St. Anna Rd. (SR 1515)	Robeson Co.	1.1	10	2	50	35	9900	200	200	200	9900	ADQ	ADQ	Min	Sub	T P M
PEM0004-H	**W. Railroad St. (SR 1910)**	Prospect Rd. (SR 1340) - Union Chapel Rd. (SR 1563)	Robeson Co.	0.5	10	2	50	35	9900	300	300	300	9900	ADQ	ADQ	Min	Sub	M
	Whistling Rufus Rd. (SR 1576)	NC 710 - Philadelphus Rd. (SR 1578)	Robeson Co.	2.1	11	2	60	45	14100	600	600	700	14100	ADQ	ADQ	Min	Sub	
	Whistling Rufus Rd. (SR 1576)	Philadelphus Rd. (SR 1578) - NC 72	Robeson Co.	1.1	11	2	60	45	14100	600	600	700	14100	ADQ	ADQ	Min	Sub	

BICYCLE AND PEDESTRIAN

BICYCLE								
				Existing System		Proposed System		
				Cross-Section				
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	(ft)	lanes	Type	Cross-Section	ther Mode
PEM0001- B	US 74	NC 710 / NC 711 - N. Chicken Rd (SR 1157)	3.9	Concurrent with US 74- see Highway Table				H
PEM0007- H	NC 711	University Rd. (SR 1561) - Normal St (SR 1556)	0.4	Concurrent with NC 711- see Highway Table				H T P M
PEM0007- H	NC 711	Normal St. (SR 1556) - Union Chapel Rd. (SR 1563)	0.5	Concurrent with NC 711- see Highway Table				H T P M
PEM0007- H	NC 711	Union Chapel Rd (SR 1563) - S. Jones St. (SR 1555)	0.1	Concurrent with NC 711- see Highway Table				H T P M
PEM0007- H	NC 711	S. Jones St. (SR 1555) - Candy Park Rd. (SR 1553)	0.9	Concurrent with NC 711- see Highway Table				H T P M
PEM0007- H	NC 711	Candy Park Rd. (SR 1553) - Jones Rd (SR 1564)	0.2	Concurrent with NC 711- see Highway Table				H T P M
PEM0007- H	NC 711	Comtech Rd. (SR 1676) - Tracy Sampson Rd (SR 1551)	1	Concurrent with NC 711- see Highway Table				H T P B
PEM0007- H	NC 711	Tracy Sampson Rd (SR 1551) - Moss Neck Rd (SR 1673)	1.3	Concurrent with NC 711- see Highway Table				H T P B
PEM0004- B	Candy Park Rd. (SR 1553)	NC 711 - Deep Branch Rd (SR 1339)	1	Concurrent with Candy Park Rd. (SR 1553)- see Highway Table				H P
PEM0006- B	Normal St. (SR 1556)	NC 711 - Deep Branch Rd (SR 1339)	1	Concurrent with Normal St. (SR 1556)- see Highway Table				H T P
PEM0002- B	N. Chicken Rd. (SR 1003)	US 74 - Deep Branch Rd (SR 1339)	0.8	Concurrent with N. Chicken Rd. (SR 1003)- see Highway Table				H T P
PEM0002- B	N. Chicken Rd. (SR 1003)	Deep Branch Rd (SR 1339) - NC 711	1.1	Concurrent with N. Chicken Rd. (SR 1003)- see Highway Table				H T P
PEM0002- B	N. Chicken Rd. (SR 1003)	NC 711 - Moss Neck Rd. (SR 1673)	0.9	Concurrent with N. Chicken Rd. (SR 1003)- see Highway Table				H T P
PEM0005- B	S. Jones St. (SR 1555)	NC 711 - Deep Branch Rd (SR 1339)	0.9	Concurrent with S. Jones St. (SR 1555)- see Highway Table				H T P
PEM0008- B	Union Chapel Rd. (SR 1563)	Cornith Rd - NC 711	0.7	Concurrent with Union Chapel Rd. (SR 1563)- see Highway Table				H P

BICYCLE AND PEDESTRIAN

PEDESTRIAN								
				Existing System		Proposed System		Other
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Type	Side of Street	Type	Side of Street	Modes
PEM0007- H	NC 711	Pates Rd (SR 1557) - University Rd (US 1561)	0.5	N/A		Sidewalks	--	H T P
PEM0007- H	NC 711	University Rd (SR 1561) - Normal St. (SR 1556)	0.4	N/A		Sidewalks	--	H T P
PEM0007- H	NC 711	Normal St. (SR 1556) - Union Chapel Rd (SR 1563)	0.5	N/A		Sidewalks	--	H T P
PEM0007- H	NC 711	Union Chapel Rd (SR 1563) - S. Jones St. (SR 1555)	0.1	N/A		Sidewalks	--	H T P
PEM0007- H	NC 711	S. Jones St. (SR 1555) - Candy Park Rd (SR 1553)	0.9	Sidewalk		Sidewalks	--	H T P
PEM0007- H	NC 711	Candy Park Rd (SR 1553) - Jones Rd (SR 1564)	0.2	N/A		Sidewalks	--	H T P
PEM0004- P	Candy Park Rd. (SR 1553)	NC 711 - 0.6 miles south of Candy Park Rd (SR 1553)	0.6	N/A		Sidewalks	North/ South	H B
	Deep Branch Rd (SR 1339)	Pates Rd (SR 1557) - Normal St. (US 1556)	0.7	Sidewalk	North	Sidewalks	--	H T B
PEM0006- P	Normal St. (SR 1556)	NC 711 - Deep Branch Rd (SR 1339)	1.0	N/A		Sidewalks	North / South	H T B
PEM0008- P	N. Chicken Rd. (SR 1003)	Moss Neck Rd (SR 1673) - NC 711	0.9	N/A		Sidewalks	North / South	H T B
PEM0007- P	Pates Rd. (SR 1557)	NC 711 - Deep Branch Rd (SR 1339)	0.7	N/A		Sidewalks	North / South	H T
PEM0010- P	Prospect Rd (SR 1340)	Cornith Rd (SR 1566) - NC 711	0.9	N/A		Sidewalks	--	H T M
PEM0005- P	S. Jones St. (SR 1555)	NC 711 - Deep Branch Rd (SR 1339)	0.9	N/A		Sidewalks	North / South	H T B
PEM0001- P	Union Chapel Rd. (SR 1563)	Cornith Rd (SR 1566) - NC 711	0.7	N/A		Sidewalks	--	H B
PEM0009- P	University Rd (SR 1561)	St. Anna Rd. (SR 1515) - NC 711	1.1	N/A		Sidewalks	--	H T M

BICYCLE AND PEDESTRIAN

MULTI-USE PATH								
				Existing System		Proposed System		Other
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Side of Street	Cross-Section	Side of Street	Cross-Section	Modes
PEM0006- M	NC 710	NC 710 / NC 711 - US 74	1	N/A		N/A	MA	H T
PEM0005- M	NC 711	NC 710 - University Rd (SR 1561)	1.5	N/A		N/A	MA	H T
PEM0004- M	NC 711	Jones Rd (SR 1564) - Comtech Rd (SR 1676)	1.3	N/A		N/A	MA	H T
PEM0001- M	Comtech Rd (SR 1676)	NC 711 - Deep Branch Rd (SR 1339)	1.1	N/A		N/A	MA	H T
PEM0007- M	Deep Branch Rd (SR 1339)	Recreation Center Rd (SR 1654) - NC 710 / NC 711	1.5	N/A		N/A	MA	H T
PEM0005- H	E. Railroad St (SR 1910)	Union Chapel Rd (SR 1563) - Jones Rd (SR 1564)	0.1	N/A		N/A	MA	H
PEM0003- H	Jones Rd (SR 1564)	E. Railroad Rd (1910) - NC 711	1	N/A		N/A	MA	H
PEM003- M	Prospect Rd (SR 1340)	Cornith Rd (SR 1566)- NC 711	0.9	N/A		N/A	MA	H T P
PEM0002- M	University Rd (SR 1561)	St. Anna Rd. (SR 1515) - NC 711	1.1	N/A		N/A	MA	H T P
PEM0004-H	W. Railroad St (SR 1910)	Prospect Rd (SR 1340) - Union Chapel Rd (SR 1563)	1.7	N/A		N/A	MA	H
	New Facility	Pembroke Elementary School - Lumber River	0.9	N/A		N/A	MA	--

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 typical cross sections were updated on December 7, 2010 to support the Department's "Complete Streets" policy that was adopted in July 2009. This guidance established design elements that emphasize safety, mobility, and accessibility for multiple modes of travel. These "typical" cross sections should be used as preliminary 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 Act (NEPA) documentation and through final plan 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:

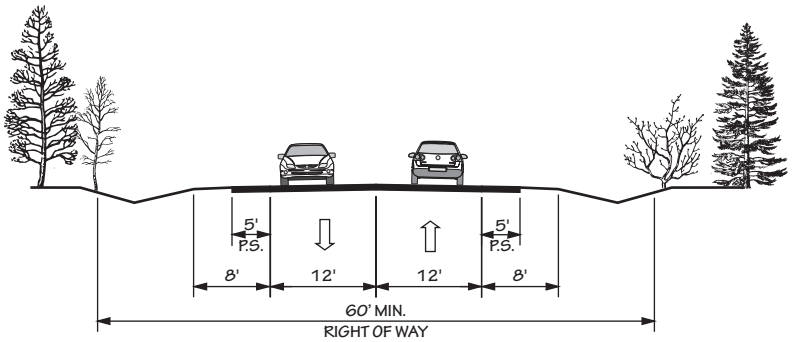
- roadways which may require widening after the current planning period,
- roadways which are borderline adequate and accelerated traffic growth could render them deficient, and
- roadways where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment.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

TYPICAL HIGHWAY CROSS SECTIONS

2 LANES

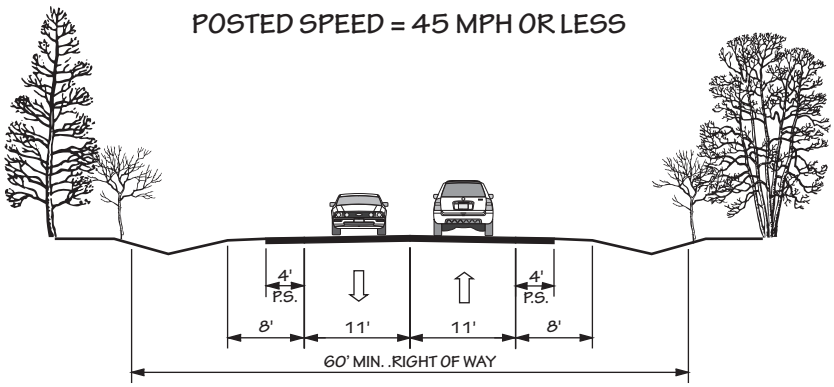
2 A

WIDE PAVED SHOULDERS
POSTED SPEED = 55 MPH



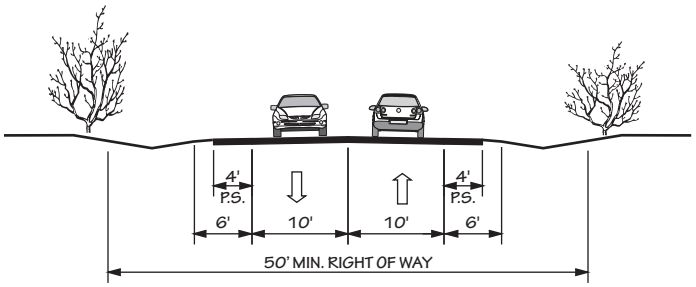
2 B

WIDE PAVED SHOULDERS
POSTED SPEED = 45 MPH OR LESS



2 C

WIDE PAVED SHOULDERS
POSTED SPEED = 35 MPH OR LESS



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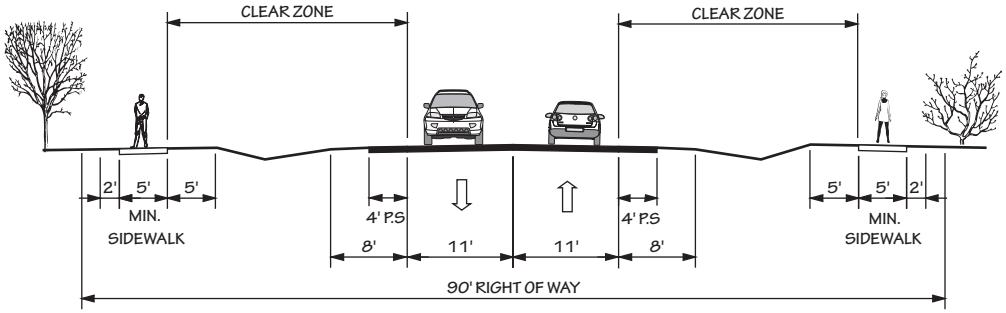
TYPICAL HIGHWAY CROSS SECTIONS

2 LANES

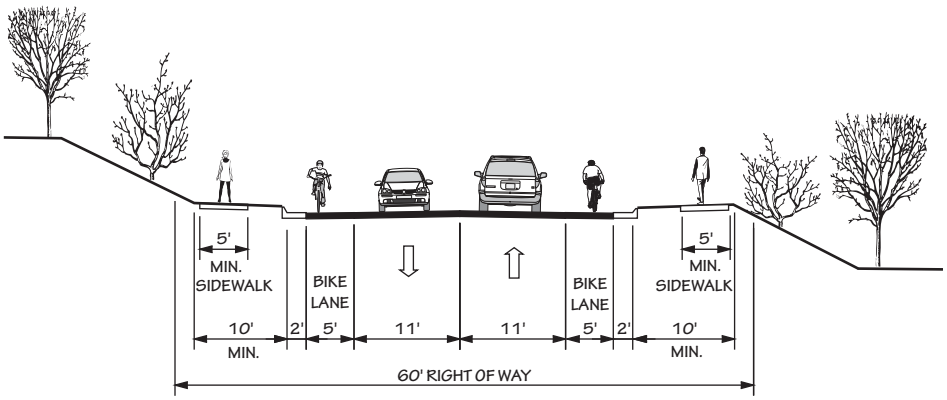
2 D

SIDEWALK PLACEMENT BEHIND A ROADWAY DITCH



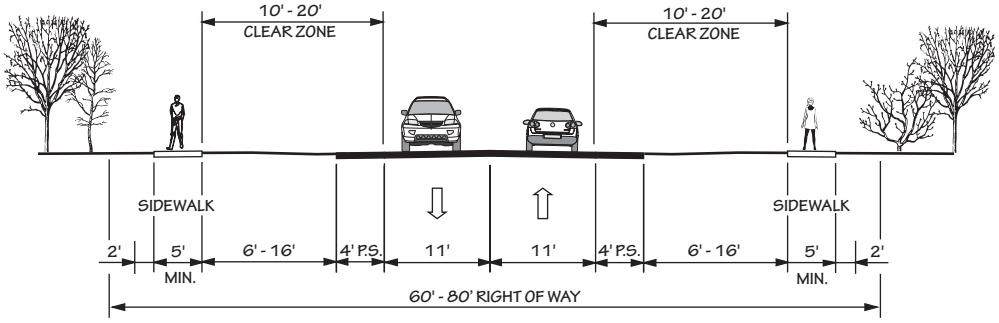
2 E

CURB AND GUTTER
WITH BIKE LANES AND SIDEWALKS



2 F

BUFFERS AND SIDEWALKS WITHOUT A ROADWAY DITCH
(20 MPH TO 45 MPH)
(TYPICALLY COASTAL AREA MANAGEMENT ACT COUNTIES)



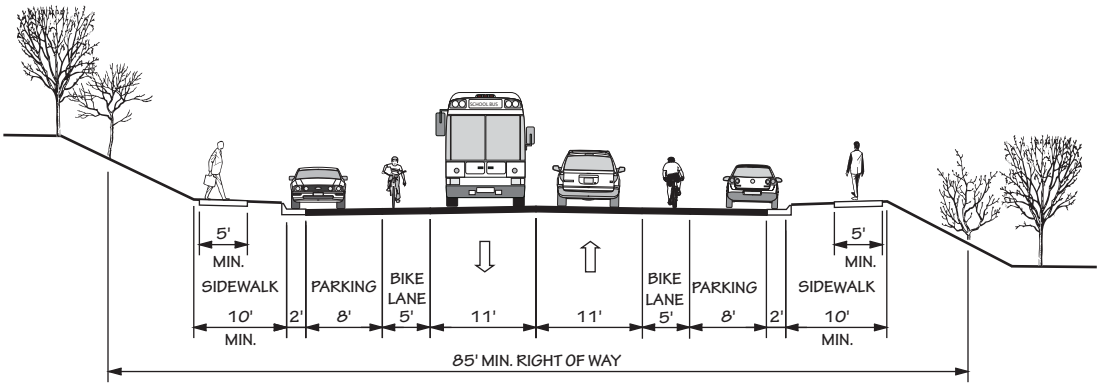
Revised 12/07/2010

TYPICAL HIGHWAY CROSS SECTIONS

2 LANES

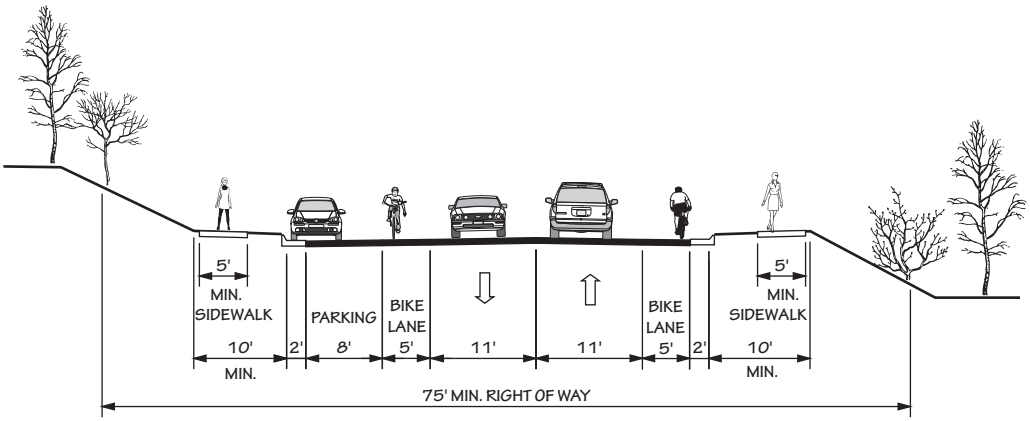
2 G

CURB & GUTTER - PARKING ON EACH SIDE



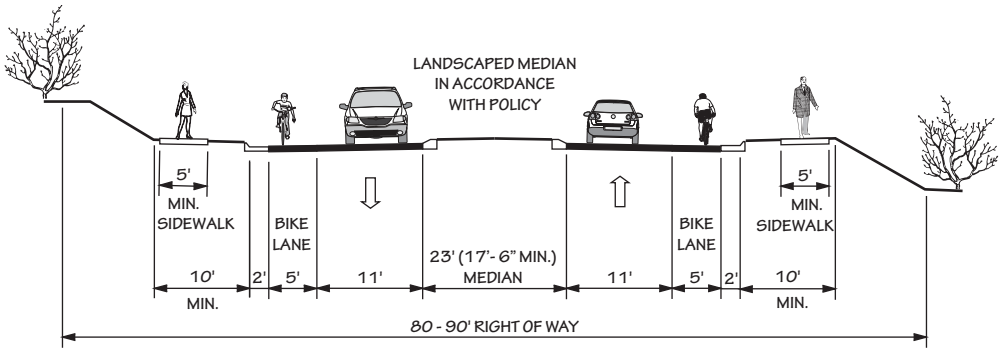
2 H

CURB & GUTTER - PARKING ON ONE SIDE



2 I

RAISED MEDIAN WITH CURB & GUTTER



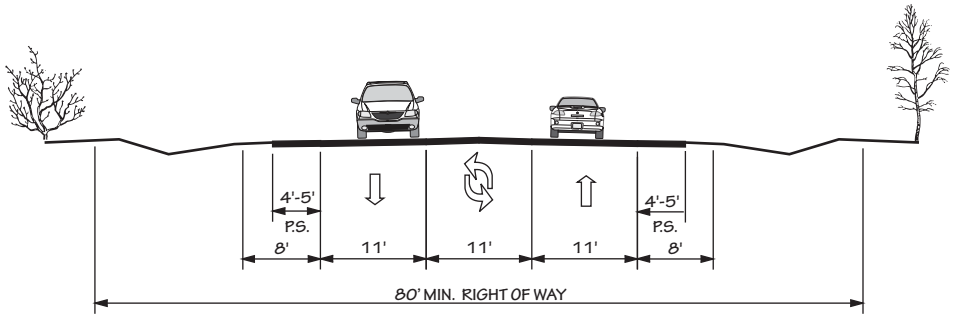
Revised 12/07/2010

TYPICAL HIGHWAY CROSS SECTIONS

3 LANES

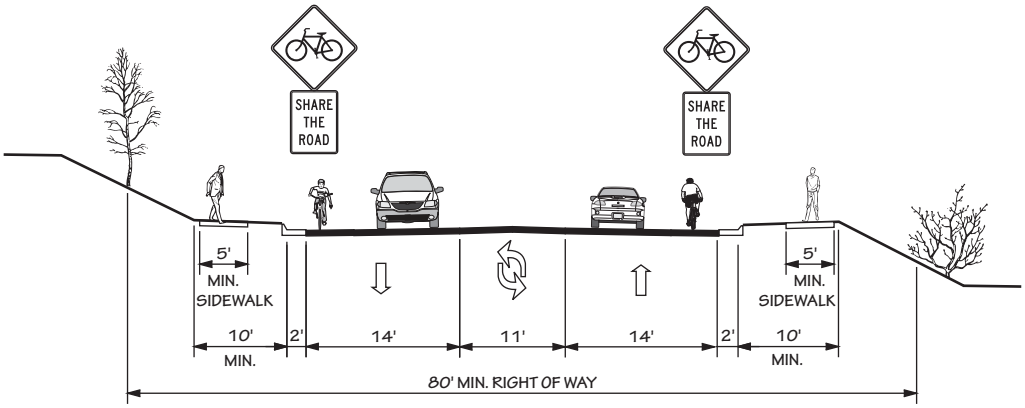
3 A

WIDE PAVED SHOULDERS



3 B

CURB & GUTTER WITH WIDE OUTSIDE LANES AND SIDEWALKS



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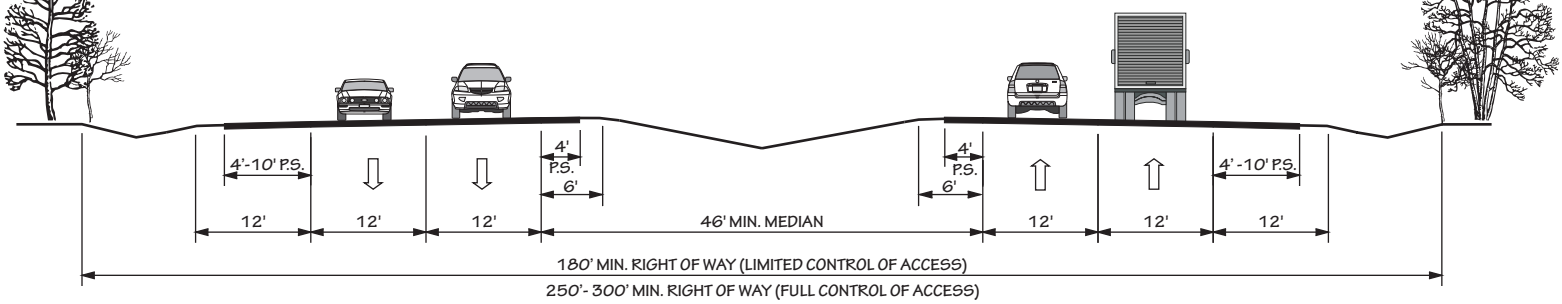
TYPICAL HIGHWAY CROSS SECTIONS

4 LANES

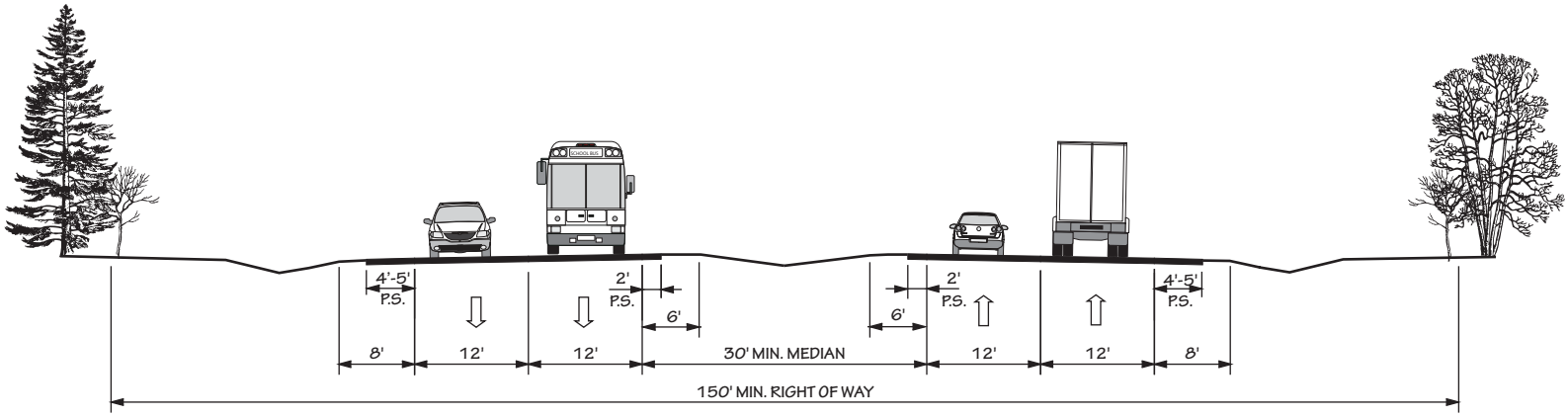
4 A

DIVIDED WITH MEDIAN
FULL OR LIMITED CONTROL OF ACCESS



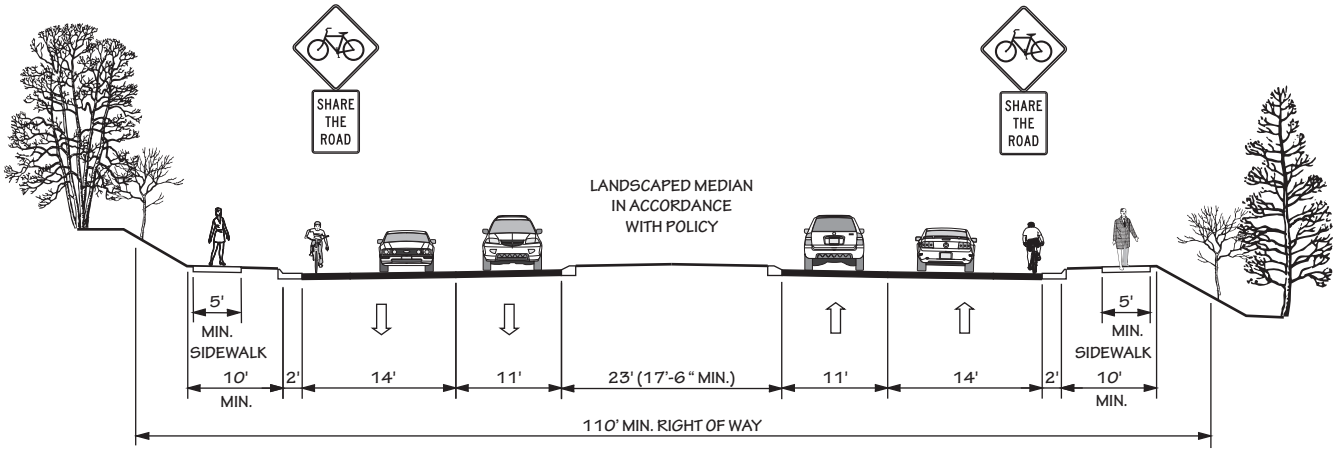
4 B

DIVIDED WITH MEDIAN - NO CURB & GUTTER
PARTIAL CONTROL OF ACCESS



4 C

RAISED MEDIAN WITH WIDE OUTSIDE LANES AND SIDEWALKS



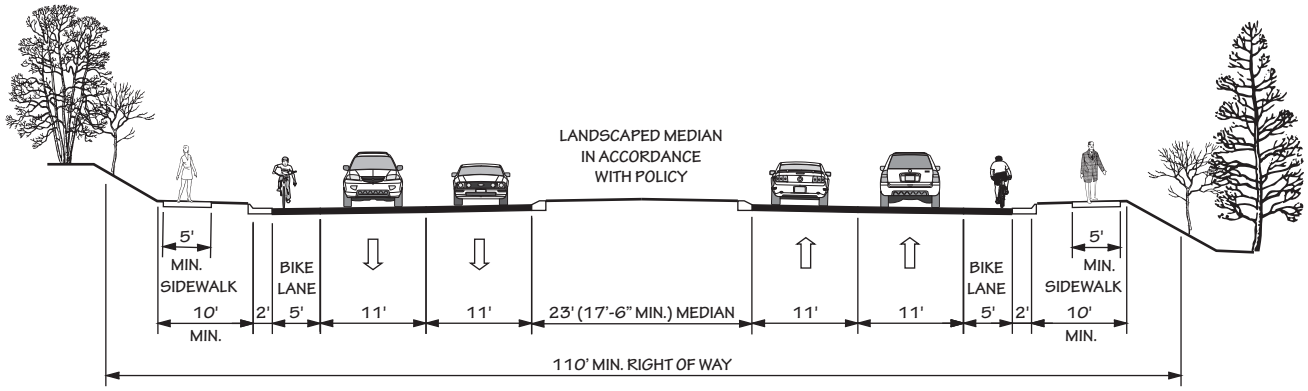
Revised 12/07/2010

TYPICAL HIGHWAY CROSS SECTIONS

4 LANES

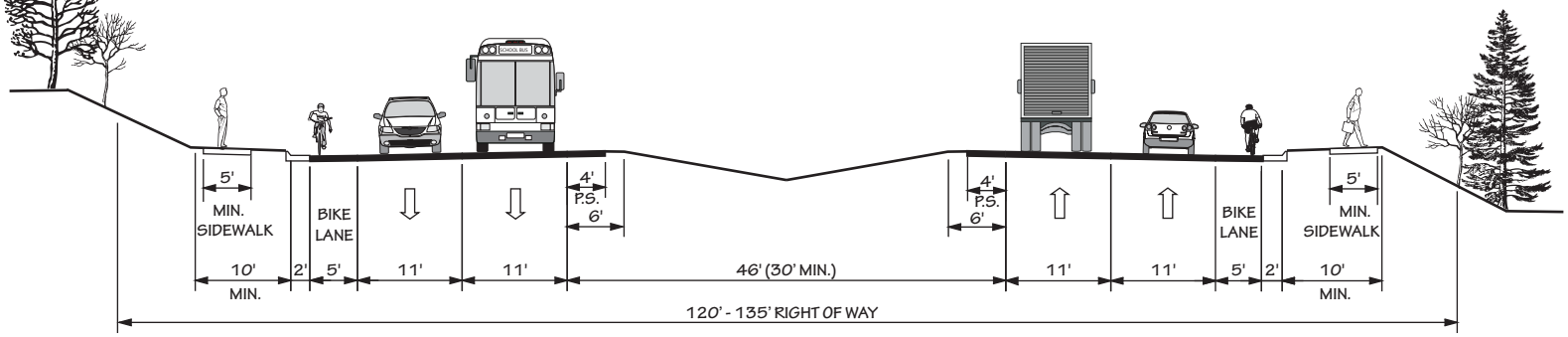
4 D

RAISED MEDIAN - CURB & GUTTER WITH BIKE LANES AND SIDEWALKS



4 E

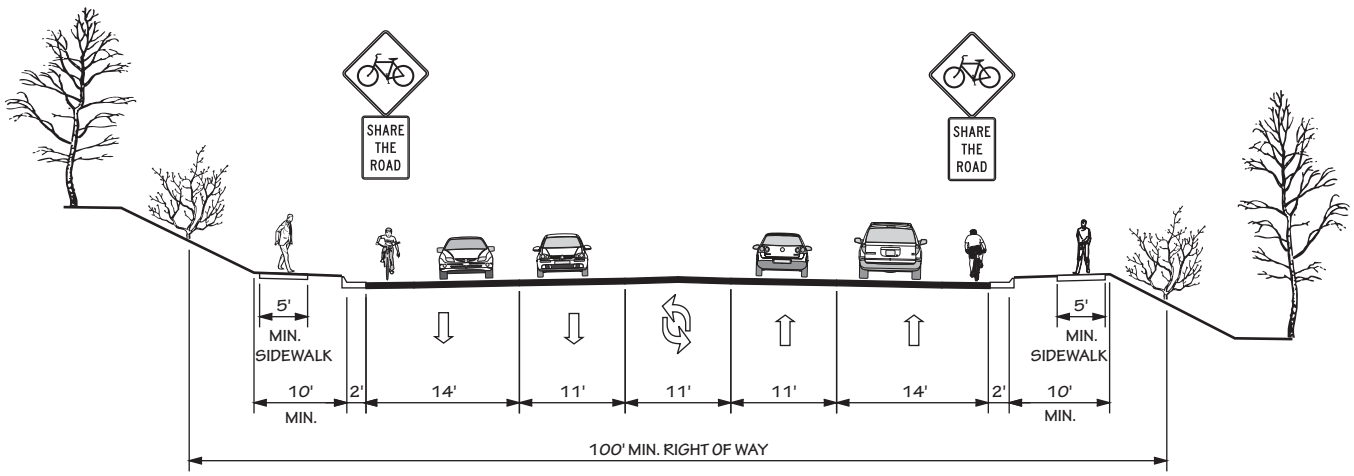
GRASS MEDIAN WITH BIKE LANES AND SIDEWALKS



5 LANES

5 A

WIDE OUTSIDE LANES



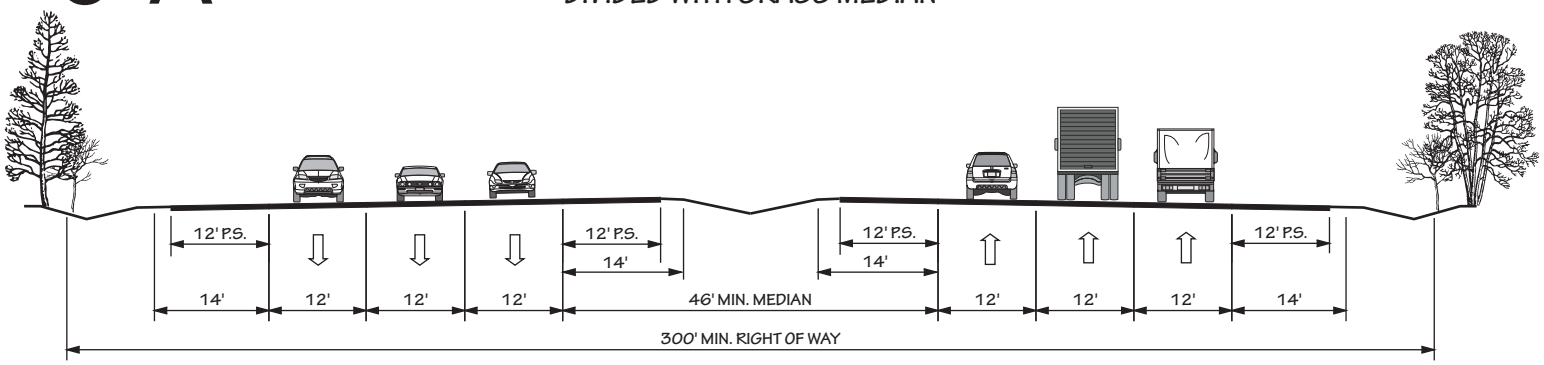
Revised 12/07/2010

TYPICAL HIGHWAY CROSS SECTIONS

6 LANES

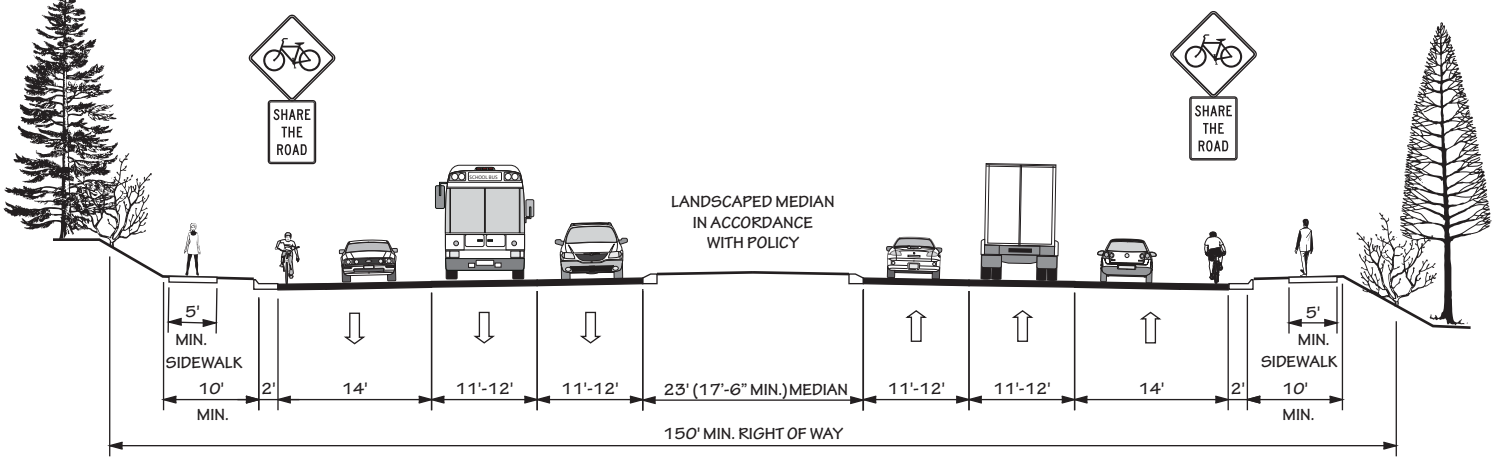
6 A

DIVIDED WITH GRASS MEDIAN



6 B

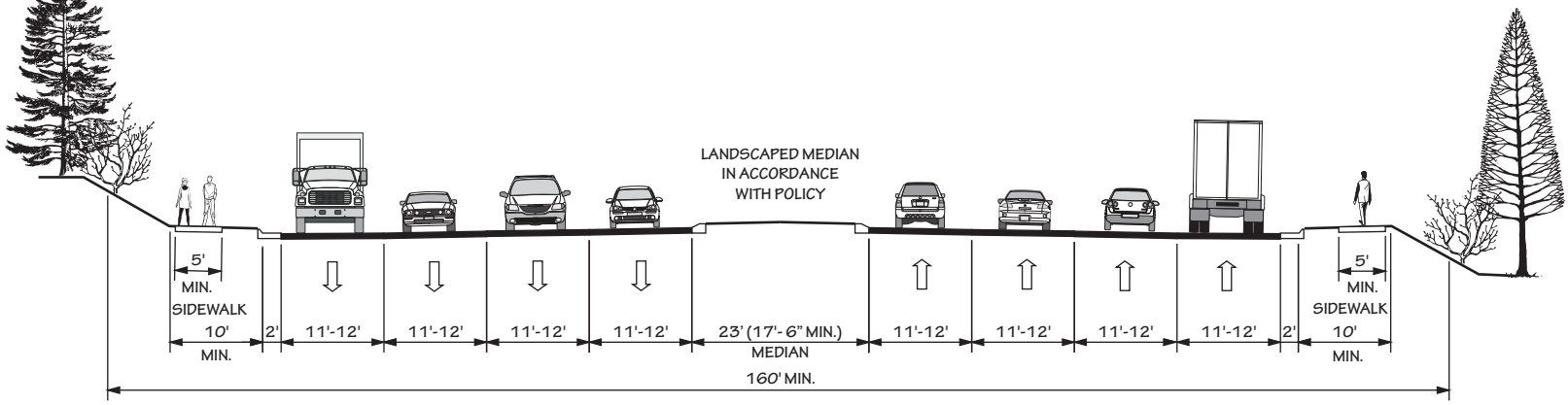
RAISED MEDIAN - CURB & GUTTER WITH WIDE OUTSIDE LANES AND SIDEWALKS



8 LANES

8 A

RAISED MEDIAN - CURB & GUTTER WITH SIDEWALKS

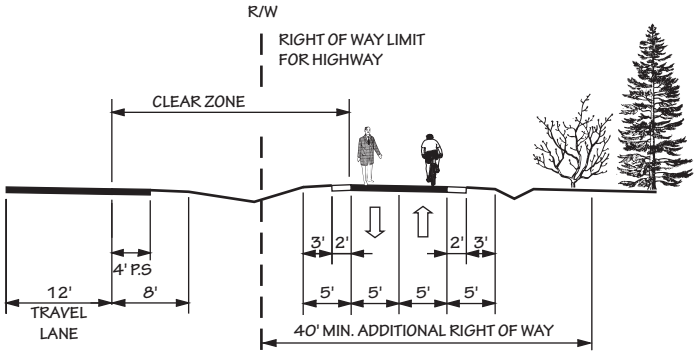


Revised 12/07/2010

TYPICAL MULTI - USE PATH

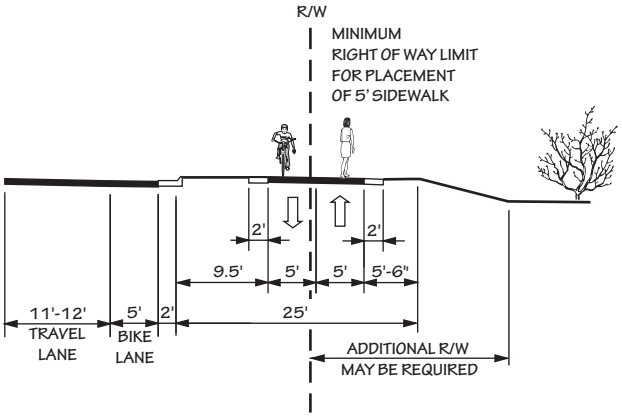
MULTI - USE PATH
ADJACENT TO RIGHT OF WAY OR SEPARATE PATHWAY

M A



MULTI - USE PATH ADJACENT TO CURB AND GUTTER

M B



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 10.

- **LOS A**: Describes primarily free flow conditions. The motorist experiences a high level of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 ft, or 26 car lengths.
- **LOS B**: Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 ft, or 18 car lengths.
- **LOS C**: Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacing is in the range of 220 ft, or 11 car lengths.
- **LOS D**: Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and the driver experiences drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 ft, or 9 car lengths.
- **LOS E**: Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver.

- **<u>LOS F</u>**: Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

Figure 10 - Level of Service Illustrations

Level of Service A

Driver Comfort: High

Maximum Density:

12 passenger cars per mile per lane

Level of Service B

Driver Comfort: High

Maximum Density:

20 passenger cars per mile per lane

Level of Service C

Driver Comfort: Some Tension

Maximum Density:

30 passenger cars per mile per lane

Level of Service D

Driver Comfort: Poor

Maximum Density:

42 passenger cars per mile per lane

Level of Service E

Driver Comfort: Extremely Poor

Maximum Density:

67 passenger cars per mile per lane

Level of Service F

Driver Comfort: The lowest

Maximum Density:

More than 67 passenger cars per mile per lane

Source: 2000 Highway Capacity Manual

Appendix F
Traffic Crash Analysis

A crash analysis performed for the Pembroke CTP factored crash frequency, crash type, and crash severity. Crash frequency is the total number of reported crashes and contributes to the ranking of the most problematic intersections. Crash type provides a general description of the crash and allows the identification of any trends that may be correctable through roadway or intersection improvements. Crash severity is the crash rate based upon injuries and property damage incurred.

The severity of every crash is measured with a series of weighting factors developed by the NCDOT Division of Highways (DOH). These factors define a fatal or incapacitating crash as 47.7 times more severe than one involving only property damage and a crash resulting in minor injury is 11.8 times more severe than one with only property damage. In general, a higher severity index indicates more severe accidents. Listed below are levels of severity for various severity index ranges.

Severity	Severity Index
low	< 6.0
average	6.0 to 7.0
moderate	7.0 to 14.0
high	14.0 to 20.0
very high	> 20.0

Table 4 depicts a summary of the crashes occurring in the planning area between January 1, 2008 and December 31, 2010. The data represents locations with 5 or more crashes and/or a severity average greater than that of the state's 4.37 index. The "Total" column indicates the total number of crashes reported within 150-ft of the intersection during the study period. The severity listed is the average crash severity for that location.

Table 4 - Crash Locations

Map Index	Intersection	Average Severity	Total Crashes
1	NC 710 and SR 1340 (Prospect Road)	13.53	9
2	NC 711 and SR 1003 (North Chicken Road)	8.40	6
3	US 74 and SR 1354 (Recreation Center Road)	8.40	5
4	NC 710 and SR 1339 (Deep Branch Road)	6.92	5
5	US 74 and SR 1003 (North Chicken Road)	5.93	9
6	SR 1340 (Prospect Road) and SR 1515 (Saint Anna Road)	5.44	15
7	US 74 and NC 710	4.17	14
8	West Railroad Road and SR 1563 (Union Chapel Road)	3.96	5
9	NC 710 and NC 711	2.85	8

The NCDOT is actively involved with investigating and improving many of these locations. To request a more detailed analysis for any of the locations listed in Table 4, or other intersections of concern, contact the Division Traffic Engineer. Contact information for the Division Traffic Engineer is included in Appendix A.

Appendix G
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 Bridge Maintenance 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 or functionally obsolete. 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 quality 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 within the planning area are listed in Table 5.

Table 5 - Deficient Bridges

Bridge Number	Facility	Feature	Condition	Local ID
14	US 74	CSX RR	Functionally Obsolete	
19	NC 711	Bear Creek	Functionally Obsolete	PEM0007
203	Recreation Center Road (SR 1654)	Lumber River	Functionally Obsolete	
432	Henry Berry Road (SR 1157)	Back Swamp Canal	Functionally Obsolete	
434	North Chicken Road (SR 1003)	Back Swamp	Structurally Deficient	
458	Union Chapel Road (SR1563)	Bear Swamp	Structurally Deficient	

Appendix H
Public Involvement

Town of Pembroke CTP Steering Committee Members

Name	Organization
McDuffie Cummings	Town of Pembroke, Former Town Manager
Channing Jones	Town of Pembroke, Former Assistant Town Manager
Gregory Cummings	Robeson County Economic Developer
Brian Maynor	Lumbee Bank, EVP / Chief Operating Officer
T. Dale Holland, AICP	Holland Consulting Planners, Prinicpal
Janet Robertson	Lumber River Council of Governments (LRCOG) – Rural Transportation Organization Planner
James Upchurch	NCDOT -- Trans. Planning Branch, Supervisor
Dominique Boyd	NCDOT -- Trans. Planning Branch, Project Engineer
R. Travis Bryant	UNCP – Associate Vice Chancellor for Campus Safety and Emergency Operations
Diane Jones	Former UNCP – Vice Chancellor for Division of Student Affairs
Lee Jernigan	City of Fayetteville, Former NCDOT – Division 6 Traffic Engineer
Chuck Miller	NCDOT -- Division 6, District Engineer
Ryan Sampson	Pembroke Town Council Member

Goals and Objectives Statement

Purpose:

Coordinate with the Town of Pembroke, Robeson County, Lumber River Council of Government, and North Carolina Department of Transportation to analyze all methods of transportation utilized within this area and to develop a Comprehensive Transportation Plan (CTP) to serve as a policy document for all future transportation needs and recommendations.

Vision:

Enhance the connectivity of the Town of Pembroke through the development of a multi-modal transportation network which provides safe, reliable, efficient, and sustainable transportation alternatives. Develop this transportation network to improve quality of life and economic vitality while maintaining compatibility with existing and future environmental and land use patterns.

Goals:

1. Coordinate transportation and land use plans with the Town of Pembroke and its surrounding areas, the North Carolina Department of Transportation, Lumber River Rural Planning Organization, and other partner agencies.
2. Coordinate recommendations with those of the Robeson County Comprehensive Transportation Plan.
3. Establish a county-wide multi-modal transportation system to ensure that safe and reliable alternatives are available to County residents, visitors, and travelers by utilizing existing rights-of-way and new alignments.
4. Encourage right-of-way preservation to ensure expansion of the existing system and for future new alignments.
5. Analyze capacity and crash data in order to make recommendations where needed to reduce congestion and improve safety.
6. Make informed transportation decisions that consider impacts to sensitive environmental areas.
7. Educate the public on general transportation issues as well as alternative forms of transportation.
8. Develop a network that minimizes the need for expansion of roadways within incorporated towns and rural community centers so that the rural nature and character of these locations is maintained.

Public Involvement Opportunities

Public Meetings

Public Workshop #1 at Pembroke Town Hall Public Meeting Room, 100 Union Chapel Rd, Pembroke, NC 28372

The public workshop was at Pembroke Town Hall Public Meeting Room on August 8, 2012 from 4pm to 7pm. This workshop introduced the CTP process as well as what could be expected of the final plan. Draft CTP maps such as the Adoption Map, Highway Map, Public Transportation Map, Bicycle Map, and Pedestrian Map were presented. Four citizens signed the attendance sheet. They were given the opportunity to look at the draft plan and give comments about specific aspects of the plan that would need to be added, removed, or changed. One written comment was submitted. A few people asked questions about the maps and made comments about the Public Transportation Map. The public seemed to be in favor of installing more sidewalks and having bus routes.

Public Hearings

A public hearing was held on October 1, 2012 during the Town of Pembroke Town Council meeting. The purpose of this meeting was to discuss the plan recommendations and to solicit further input from the public. The Town of Pembroke CTP was adopted the meeting, November 5, 2012.

A public hearing was held on October 15, 2012 during the Robeson County Commissioners meeting. The purpose of this meeting was to discuss the plan recommendations and to solicit further input from the public. The Town of Pembroke CTP was adopted the meeting, November 19, 2012.

The Lumber River Rural Planning Organizations endorsed the CTP on November 26, 2012.

The North Carolina Board of Transportation voted to mutually adopt the Town of Pembroke CTP on

Pembroke CTP Survey Results

These are survey results from a survey that was geared towards finding out the issues/problems that hindered mobility in and through the area.

Do you have concerns about accessibility to residential areas and/or traffic problems within residential areas?

	Response Percent	Response Count
Yes	25.5%	179
No	74.5%	524
If Yes, please list specific locations:		123
answered question		703
skipped question		21

Are you concerned about traffic accidents or other safety problems in your area?

	Response Percent	Response Count
Yes	57.7%	408
No	42.3%	299
If Yes, please list specific locations and the type of problem:		350
answered question		707
skipped question		17

When traveling in the Pembroke area, do you find that you have to go out of your way to get to your destination because the most direct route is too congested?

	Response Percent	Response Count
Yes	57.3%	402
No	42.7%	299
If Yes, please list the congested route you avoid and the alternate route that you take instead:		327
answered question		701
skipped question		23

Are there other congestion issues in the Pembroke area?

	Response Percent	Response Count
Yes	41.6%	279
No	58.4%	391
If Yes, please describe:		240
answered question		670
skipped question		54

Are you concerned with the interruption of automobile traffic by trains?

	Response Percent	Response Count
Yes	53.7%	377
No	46.3%	325
Comments:		191
answered question		702
skipped question		22

One of the recommended alternative routes for a South-East Passenger Rail Connector from Raleigh to Wilmington goes through Fayetteville and Pembroke. Would you consider using this passenger rail service?

	Response Percent	Response Count
Yes	62.5%	431
No	37.5%	259
Comments:		103
answered question		690
skipped question		34

Is truck traffic a problem in your area?

	Response Percent	Response Count
Yes	9.4%	65
No	90.6%	627
If Yes, please list specific locations and the type of problem:		43
answered question		692
skipped question		32

How often do you use the bike lanes on NC 711 between Pembroke and Lumberton?

	Response Percent	Response Count
Daily	2.0%	14
Weekly	2.9%	20
Monthly	1.9%	13
Annually	2.9%	20
Never	91.2%	634
answered question		695
skipped question		29

This new comprehensive transportation plan will include recommendations for new transit facilities. Would you use the following transportation facilities if they were built or improved?

	Yes	No	Maybe	Response Count
Increased bus service?	31.8% (215)	27.8% (188)	**40.4% (273)**	676
Park-n-Ride lots (parking areas at transit stations or bus stops to failitate the use of public transportation and carpooling)?	**37.3% (249)**	25.6% (171)	37.1% (248)	668
Where would you like additional bus service to go and/or where would you put Park-n-Ride lots?				146
			answered question	**684**
			skipped question	**40**

This new comprehensive transportation plan will include recommendations for new transit facilities. Would you use the following transportation facilities if they were built or improved?

	Yes	No	Maybe	Response Count
Increased bus service?	31.8% (215)	27.8% (188)	**40.4% (273)**	676
Park-n-Ride lots (parking areas at transit stations or bus stops to failitate the use of public transportation and carpooling)?	**37.3% (249)**	25.6% (171)	37.1% (248)	668
Where would you like additional bus service to go and/or where would you put Park-n-Ride lots?				146
			answered question	**684**
			skipped question	**40**

What is you race?

	Response Percent	Response Count
Caucasian (White)	**43.0%**	**295**
African American (Black)	11.1%	76
Native American	37.8%	259
Hispanic	1.5%	10
Asian	2.2%	15
Other	4.5%	31
	answered question	**686**
	skipped question	**38**

These are survey results from a survey that was geared towards finding out the driving habits of people of Pembroke.

1. Do you live inside the Pembroke Town limits?

	Response Percent	Response Count
Yes	23.3%	168
No	76.7%	553
If No, what is your Zip Code?		519
answered question		721
skipped question		3

2. How long have you lived and/or worked in the Pembroke area?

	Response Count
	679
answered question	679
skipped question	45

3. How many drivers live in your household?

	Response Count
	706
answered question	706
skipped question	18

4. How many vehicles are there in your household?

	Response Count
	703
answered question	**703**
skipped question	**21**

5. Are you a student at UNC Pembroke?

	Response Percent	Response Count
Yes	44.8%	321
No	**55.2%**	**396**
If Yes, do you live on Campus?		290
answered question		**717**
skipped question		**7**

6. Are you concerned about traffic accidents or other safety problems in your area?

	Response Percent	Response Count
Yes	**57.7%**	**408**
No	42.3%	299
If Yes, please list specific locations and the type of problem:		350
answered question		**707**
skipped question		**17**

7. Do you have concerns about accessibility to residential areas and/or traffic problems within residential areas?

	Response Percent	Response Count
Yes	25.5%	179
No	**74.5%**	**524**
If Yes, please list specific locations:		123
answered question		**703**
skipped question		**21**

8. When traveling in the Pembroke area, do you find that you have to go out of your way to get to your destination because the most direct route is too congested?

	Response Percent	Response Count
Yes	**57.3%**	**402**
No	42.7%	299
If Yes, please list the congested route you avoid and the alternate route that you take instead:		327
answered question		**701**
skipped question		**23**

9. Are there other congestion issues in the Pembroke area?

	Response Percent	Response Count
Yes	41.6%	279
No	58.4%	391
	If Yes, please describe:	240
	answered question	670
	skipped question	54

10. Are you concerned with the interruption of automobile traffic by trains?

	Response Percent	Response Count
Yes	53.7%	377
No	46.3%	325
	Comments:	191
	answered question	702
	skipped question	22

11. One of the recommended alternative routes for a South-East Passenger Rail Connector from Raleigh to Wilmington goes through Fayetteville and Pembroke. Would you consider using this passenger rail service?

	Response Percent	Response Count
Yes	62.5%	431
No	37.5%	259
	Comments:	103
	answered question	690
	skipped question	34

12. Is truck traffic a problem in your area?

	Response Percent	Response Count
Yes	9.4%	65
No	90.6%	627
	If Yes, please list specific locations and the type of problem:	43
	answered question	692
	skipped question	32

13. What areas or roads would you like to have improved connections to and from?

	Response Percent	Response Count
I-95	41.2%	240
I-74	34.5%	201
Lumberton	**47.2%**	**275**
Fayetteville	44.1%	257
Wilmington	15.1%	88
Raleigh	17.3%	101
Charlotte	19.7%	115
Myrtle Beach	27.6%	161
Other (please specify)	11.0%	64
	answered question	**583**
	skipped question	**141**

14. Do you agree with the following strategies to increase the ability of a road to carry more traffic? (Please choose one.)

	Strongly Agree	Agree	Disagree	Strongly Disagree	I'm not sure	Response Count
Building additional traffic lanes.	**52.6% (361)**	34.1% (234)	4.7% (32)	2.2% (15)	6.4% (44)	686
Controlling the number of driveways and cross streets that access a road.	28.6% (192)	**39.3% (264)**	12.6% (85)	2.5% (17)	17.4% (117)	672
Making improvements to intersections and/or the timing of traffic signals.	**62.3% (424)**	31.0% (211)	1.8% (12)	1.2% (8)	3.8% (26)	681
Building a Bypass around a town.	**43.1% (292)**	26.7% (181)	11.5% (78)	5.6% (38)	13.6% (92)	677
					answered question	**700**
					skipped question	**24**

15. Please rate the importance of each of the following potential transportation goals: (Please choose one.)

	Very Important	Important	Somewhat Unimportant	Not Important	Response Count
INCREASED TRANSPORTATION CHOICES (More & safer opportunites to walk or bike to destinations)	**63.3% (434)**	28.6% (196)	5.4% (37)	2.8% (19)	686
FASTER AUTOMOBILE TRAVEL TIMES (Higher-speed roads with more lanes & fewer intersections; less congestion)	**41.9% (286)**	36.7% (251)	13.3% (91)	8.1% (55)	683
ECONOMIC GROWTH (Building or improving roads & railways to attract new businesses & to allow existing businesses to expand)	**61.9% (424)**	31.4% (215)	4.1% (28)	2.6% (18)	685
INCREASED PUBLIC TRANSIT OPTIONS (Bus service to more destinations; Park-n-Ride lots to facilitate carpooling & transit use)	**53.7% (366)**	30.6% (209)	10.7% (73)	5.0% (34)	682
COMMUNITY & RURAL CULTURE PRESERVATION (Keeping businesses in downtown areas, preserving existing buildings & neighborhoods, maintaining the rural culture & landscape)	**50.4% (346)**	31.3% (215)	10.3% (71)	8.0% (55)	687
ENVIRONMENTAL PROTECTION (Minimizing the impact on wetlands, streams, and wildlife; reducing air pollution)	**64.5% (441)**	26.9% (184)	4.8% (33)	3.8% (26)	684
SERVICE OF SPECIAL NEEDS (Better transportation services for elderly, low-income, & disabled residents)	**58.5% (400)**	30.8% (211)	7.5% (51)	3.2% (22)	684
IMPROVED ACCESS (Better connection to employment, medical, higher education, & shopping facilities)	**63.3% (434)**	31.2% (214)	3.8% (26)	1.7% (12)	686
				answered question	**703**

16. How often do you use the bike lanes on NC 711 between Pembroke and Lumberton?

	Response Percent	Response Count
Daily	2.0%	14
Weekly	2.9%	20
Monthly	1.9%	13
Annually	2.9%	20
Never	**91.2%**	**634**
	answered question	**695**
	skipped question	**29**

17. How often do you use the on-demand bus service currently provided by SEATS (South East Area Transit System):

	Response Percent	Response Count
Daily	0.6%	4
Weekly	0.6%	4
Monthly	0.4%	3
Annually	1.0%	7
Never	**97.4%**	**675**
	answered question	**693**
	skipped question	**31**

18. This new comprehensive transportation plan will include recommendations for new transit facilities. Would you use the following transportation facilities if they were built or improved?

	Yes	No	Maybe	Response Count
Increased bus service?	31.8% (215)	27.8% (188)	**40.4% (273)**	676
Park-n-Ride lots (parking areas at transit stations or bus stops to failitate the use of public transportation and carpooling)?	**37.3% (249)**	25.6% (171)	37.1% (248)	668
Where would you like additional bus service to go and/or where would you put Park-n-Ride lots?				146
			answered question	**684**
			skipped question	**40**

19. What do you consider to be the major transportation issues in the Pembroke area?

	Response Count
	439
answered question	**439**
skipped question	**285**

20. What is your age group?

	Response Percent	Response Count
Under 18	0.0%	0
18-24	**28.6%**	**201**
25-34	18.5%	130
35-44	20.9%	147
45-54	18.5%	130
55-64	11.5%	81
65-74	1.6%	11
Over 74	0.3%	2
	answered question	**702**
	skipped question	**22**

21. What is your Employment Status?

	Response Percent	Response Count
Employed	**71.2%**	**496**
Homemaker	0.6%	4
Military	0.0%	0
Retired	1.0%	7
Student	25.3%	176
Unemployed	2.0%	14
	answered question	**697**
	skipped question	**27**

22. What was your household income last year?

	Response Percent	Response Count
Below $15,000	**20.5%**	**134**
$15,000 - $29,999	**20.5%**	**134**
$30,000 - $39,999	10.2%	67
$40,000 - $59,999	17.6%	115
$60,000 - $74,999	12.2%	80
above $75,000	19.0%	124
	answered question	**654**
	skipped question	**70**

23. What is you race?

	Response Percent	Response Count
Caucasian (White)	**43.0%**	**295**
African American (Black)	11.1%	76
Native American	37.8%	259
Hispanic	1.5%	10
Asian	2.2%	15
Other	4.5%	31
	answered question	**686**
	skipped question	**38**

Town of Pembroke Pedestrian Plan Survey Results

1. How important to you is improving walking conditions in the Pembroke area? (select one)

	Response Percent	Response Count
Very important	**85.6%**	**185**
Somewhat important	13.0%	28
Not important	1.4%	3
answered question		**216**
skipped question		**0**

2. How do you rate present pedestrian conditions in the Pembroke area? (select one)

	Response Percent	Response Count
Excellent	1.9%	4
Fair	35.6%	77
Poor	**62.5%**	**135**
answered question		**216**
skipped question		**0**

3. Do you feel that the Town should consider non-automobile transportation (i.e. pedestrian and bicycle) as a priority? (select one)

	Response Percent	Response Count
Yes	**82.4%**	**178**
No	8.3%	18
Doesn't matter	9.3%	20
answered question		**216**
skipped question		**0**

4. How often do you walk around Town now? (select one)

	Response Percent	Response Count
never	**36.0%**	**77**
few times per month	33.6%	72
few times per week	19.6%	42
5+ times per week	10.7%	23
answered question		**214**
skipped question		**2**

5. Would you walk more often if more sidewalks, trails, and safe roadway crossings were provided for pedestrians?

	Response Percent	Response Count
Yes	**94.4%**	**202**
No	5.6%	12
answered question		**214**
skipped question		**2**

6. Should public funds be used to improve pedestrian options and facilities?

	Response Percent	Response Count
Yes	**96.2%**	**202**
No	3.8%	8
	answered question	**210**
	skipped question	**6**

7. What types of funds should be used? (Choose all that apply)

	Response Percent	Response Count
Capital improvements bond or other financing strategy	57.8%	122
Existing local taxes	55.9%	118
New local taxes	19.0%	40
State and federal grants	**77.7%**	**164**
Other (please specify)	14.2%	30
	answered question	**211**
	skipped question	**5**

8. For what purposes do you walk most now and/or would you want to walk for in the future? Select all that apply.

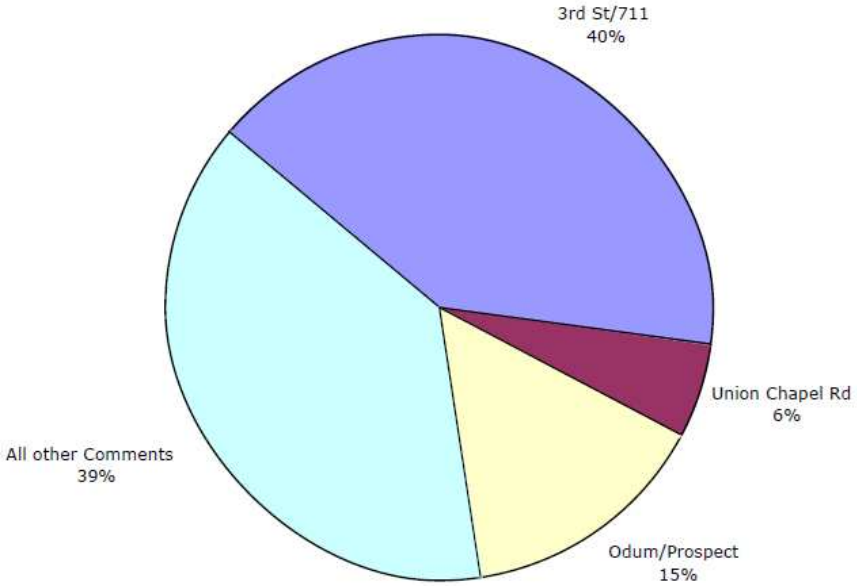
	Response Percent	Response Count
Fitness or recreation	73.8%	152
Transportation to some destination	**75.7%**	**156**
Social visits	39.8%	82
Walking the dog	13.6%	28
Walking with a stroller	6.8%	14
	answered question	**206**
	skipped question	**10**

9. What walking destinations would you most like to get to? Select all that apply.

	Response Percent	Response Count
Place of work	31.7%	66
School	18.3%	38
UNC-Pembroke	**80.8%**	**168**
Restaurants	78.4%	163
Downtown	48.1%	100
Shopping centers	45.7%	95
Parks	47.1%	98
Pembroke Recreation Complex	40.4%	84
Library	32.2%	67
	answered question	**208**
	skipped question	**8**

10. What factors discourage you from walking in Pembroke? Select all that apply.

	Response Percent	Response Count
Lack of sidewalks and trails	**80.8%**	**168**
Lack of crosswalks at traffic signals	74.5%	155
Lack of pedestrian signals at intersections	59.6%	124
Automobile traffic and speed	63.9%	133
Lack of interest	4.3%	9
Lack of time	8.7%	18
Aggressive motorist behavior	52.9%	110
Sidewalks in need of repair	34.1%	71
Lack of nearby destinations	29.3%	61
Criminal activity	48.1%	100
Level of street lighting	43.8%	91
Lack of landscaping and/or buffer between sidewalks and road	36.5%	76
	answered question	**208**
	skipped question	**8**

11. What do you think are the top roadway corridors most needing sidewalk or pedestrian crossing improvements?

The open ended responses to this question are sorted and listed below, verbatim. The pie chart below represents a summary of the responses.