



2014 Western Rockingham Comprehensive Transportation Plan



2014 Western Rockingham Comprehensive Transportation Plan

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In Cooperation with:

Town of Madison
Town of Mayodan
Rockingham County
Piedmont Triad Rural Planning Organization

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A handwritten signature in blue ink, appearing to read "Wayne C. Davis, Ph.D., P.E.", written over a horizontal line.

Wayne C. Davis, PhD, PE
Triad Planning Group Supervisor

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Adopted by:

Town of Madison
Date: April 10, 2014

Town of Mayodan
Date: April 14, 2014

Rockingham County
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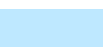







Piedmont Triad RPO
Date: May 7, 2014

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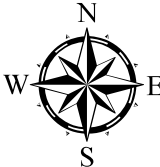
Transportation Planning Branch
Date: May 9, 2014

NOTES:

Legend

- | | | | |
|---|-------------------|---|--------------------|
|  | County Boundary |  | Water Bodies |
|  | Planning Boundary |  | Rivers and Streams |
|  | Roads |  | State Parks |
|  | Railroad |  | Municipal Boundary |
|  | Schools | | |

0 0.25 0.5 1 1.5 Miles



Sheet 1 of 5

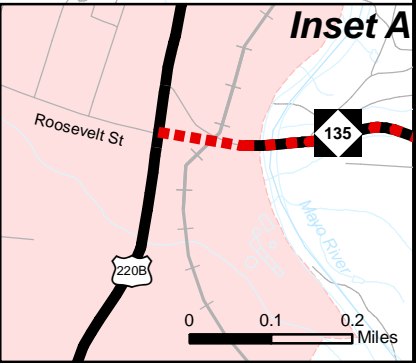
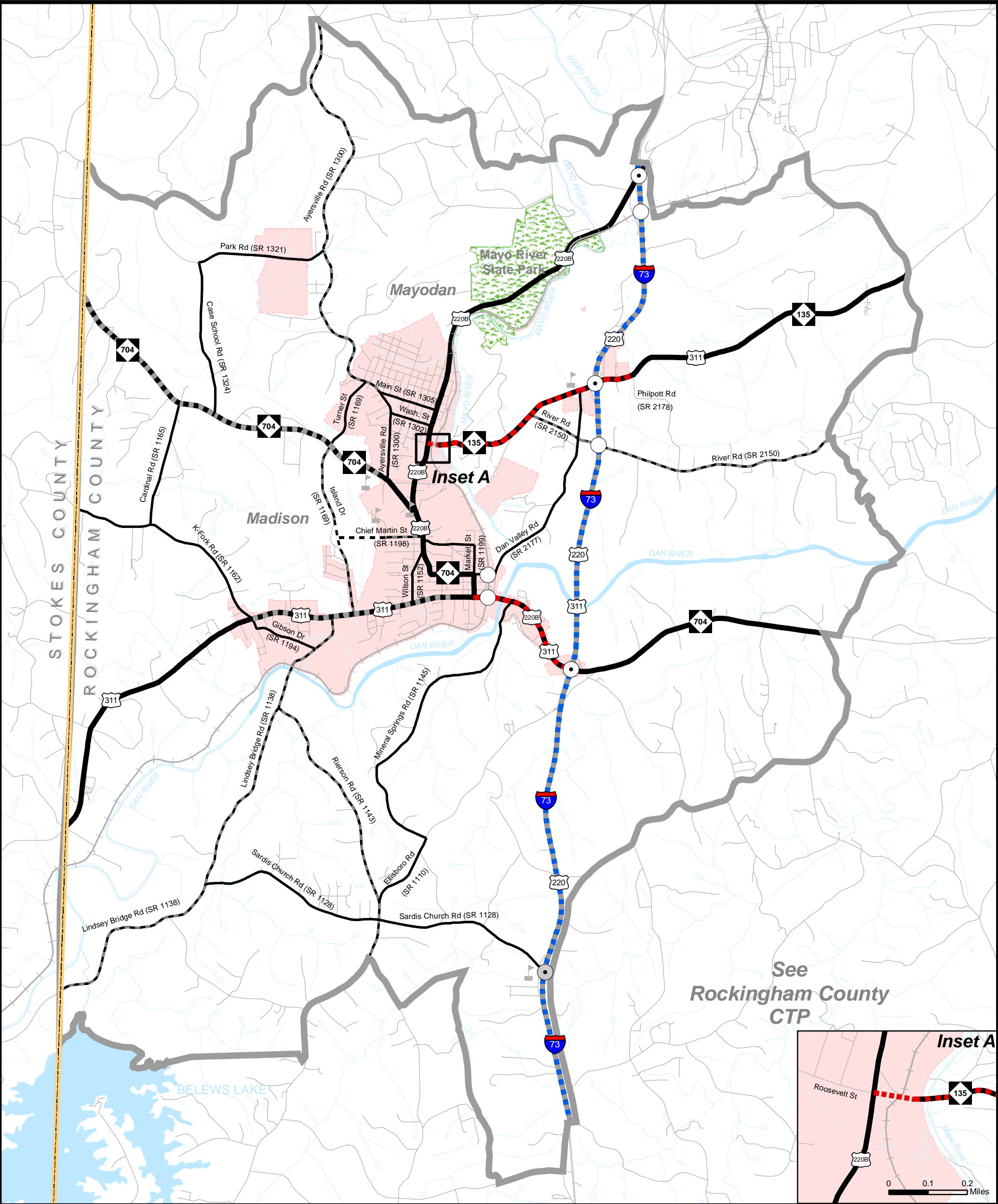
Base map date: October 2012

Refer to CTP document for more details



Western Rockingham
Rockingham County

**Comprehensive
Transportation Plan**
Plan date: September 30, 2013



Freeways

- Existing
- Needs Improvement
- Recommended

Expressways

- Existing
- Needs Improvement
- Recommended

Boulevards

- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares

- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares

- Existing
- Needs Improvement
- Recommended

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



Sheet 2 of 5

Base map date: October 2012

Refer to CTP document for more details

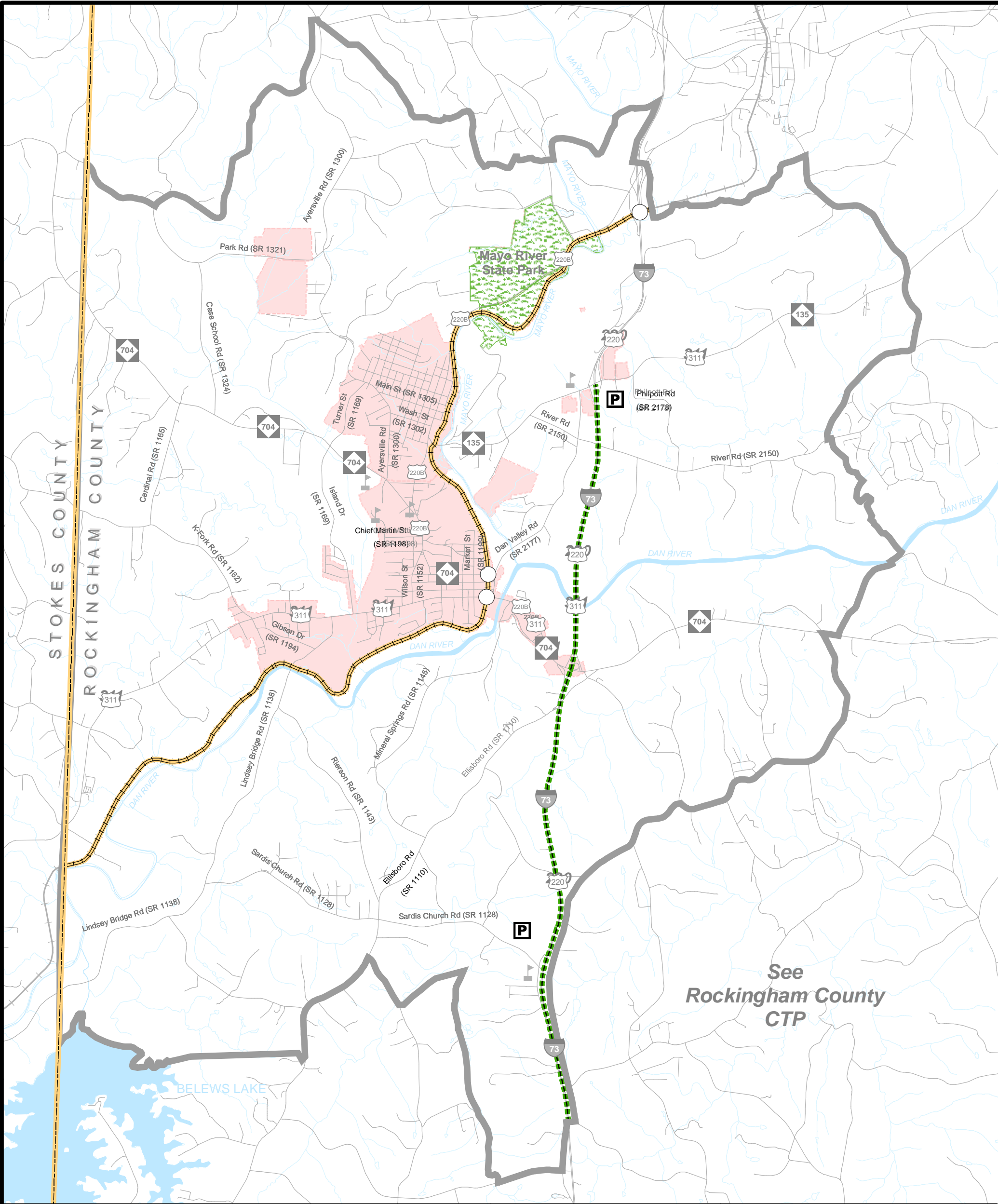
Highway Map



Western Rockingham
Rockingham County

Comprehensive
Transportation Plan

Plan date: September 30, 2013



| | | |
|-------------------------------|---------------------------------|-----------------------------|
| Bus Routes | Rail Corridor | Intermodal Connector |
| Existing | Active | Existing |
| Needs Improvement | Inactive | Recommended |
| Recommended | Recommended | |
| Fixed Guideway | High Speed Rail Corridor | Rail Stops |
| Existing | Existing | Existing |
| Needs Improvement | Recommended | Recommended |
| Recommended | | |
| Operational Strategies | Existing Grade Separation | Park and Ride Lot |
| Existing | Proposed Grade Separation | Existing |
| Needs Improvement | | Recommended |
| Recommended | | |

0 0.25 0.5 1 1.5 Miles

Sheet 3 of 5

Base map date: October 2012

Refer to CTP document for more details

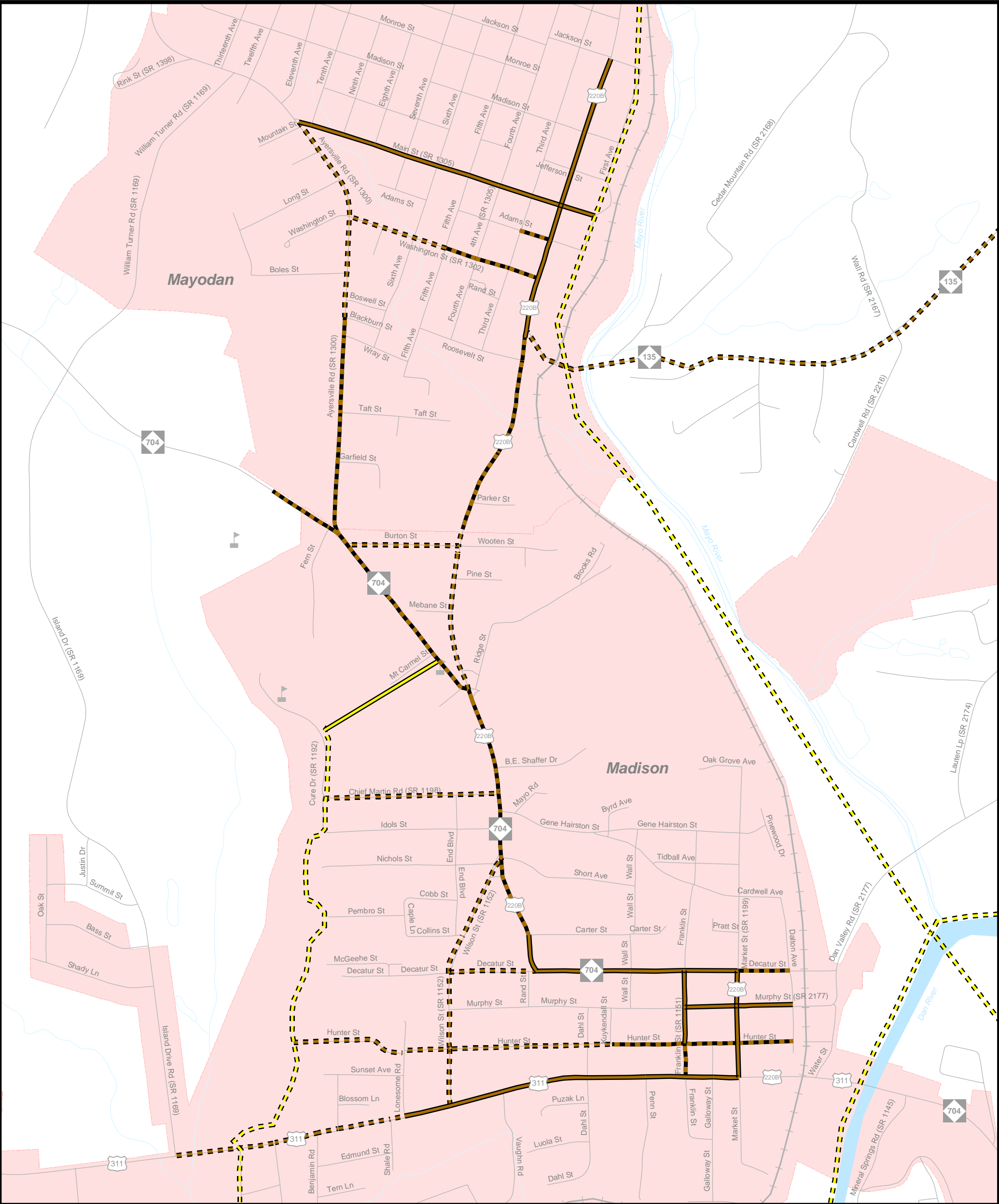
Public Transportation and Rail Map

Western Rockingham

Rockingham County

Comprehensive Transportation Plan

Plan date: September 30, 2013



Sidewalks

- Existing
- Needs Improvement
- Recommended

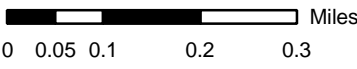
Off-Road

- Existing
- Needs Improvement
- Recommended

Multi-Use Paths

- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation



Sheet 5A of 5

Base map date: October 2012

Refer to CTP document for more details

Pedestrian Map - Inset A



Western Rockingham
Rockingham County

Comprehensive
Transportation Plan

Plan date: September 30, 2013

Executive Summary

In May of 2012, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and the towns of Madison and Mayodan initiated a study to cooperatively develop the Western Rockingham Comprehensive Transportation Plan (CTP), which includes the towns of Madison and Mayodan. This is a long range multi-modal transportation plan that covers transportation needs through 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, which are detailed in Chapter 1. Figure 1 shows the CTP maps, which were mutually adopted by NCDOT in 2014. Descriptive information and definitions for designations depicted on the CTP maps can be found in Appendix B. Implementation of the plan is the responsibility of the towns of Madison and Mayodan, and NCDOT. Refer to Chapter 2 for information on the implementation process.

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

- **US 220 (Future I-73):** Upgrade to freeway standard from US 220 Business north of Mayodan to Carlton Road (SR 2337) south of Madison, including a new interchange at Sardis Church Road (SR 1128).
- **US 220 Business/US 311/NC 704:** Widen to a four lane boulevard from US 311 to US 220 (Future I-73).
- **US 311:** Widen to a three lane major thoroughfare with center left-turn lane from Penn Street to K-Fork Road (SR 1162), including bicycle and pedestrian accommodations.
- **NC 135:** Widen to a four lane boulevard from US 220 Business to Philpott Road (SR 2178), including bicycle and pedestrian accommodations.
- **Chief Martin Street (SR 1198):** Widen and extend the existing facility from Cure Drive (SR 1192) to Island Drive (SR 1169). Pedestrian accommodations are also recommended.

1. Analysis of the Existing and Future Transportation System

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

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

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

1.1 Analysis Methodology and Data Requirements

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

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

Roadway System Analysis

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

One of those statewide initiatives is the Strategic Highway Corridor (SHC) Vision Plan¹ adopted by the Board of Transportation on September 2, 2004. The SHC Vision Plan is

¹ For more information on the SHC Vision Plan, go to:
<https://connect.ncdot.gov/projects/planning/Pages/StrategicHighwayCorridors.aspx>.

an initiative to protect and maximize the mobility and connectivity on a core set of transportation 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 CTPs 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 2013 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 Madison Board of Alderman (December 10, 2012) and the Mayodan Town Council (December 13, 2012). Refer to Appendix G for more detailed information on growth expectations and the socio-economic data forecasting methodology.

Existing and future travel demand is compared to existing roadway capacities. Capacity deficiencies occur when the traffic volume of a roadway exceeds the roadway's capacity. Roadways are considered near capacity when the traffic volume is at least eighty percent of the capacity. Refer to Figures 2 and 3 for existing and future capacity deficiencies. The 2040 traffic volumes shown in Figure 3 include existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in the 2012 – 2018 Transportation Improvement Program² (TIP).

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

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

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

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

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

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

Traffic Crash Assessment

Traffic crashes are often used as an indicator for locating congestion and roadway problems. Crash patterns obtained from an analysis of crash data can lead to the identification of improvements that will reduce the number of crashes. The Traffic Safety Unit of NCDOT’s Transportation Mobility and Safety Division identifies high frequency crashes at intersections and along roadway sections during a five year period. The high frequency crash locations examined during the development of the Western Rockingham CTP occurred between January 1, 2006 and December 31, 2010. During this period, a total of twelve intersections and twenty-three roadway sections were identified as having a high frequency of crashes as illustrated in Figure 4. Contact information for the Transportation Mobility and Safety Division can be found in Appendix A.

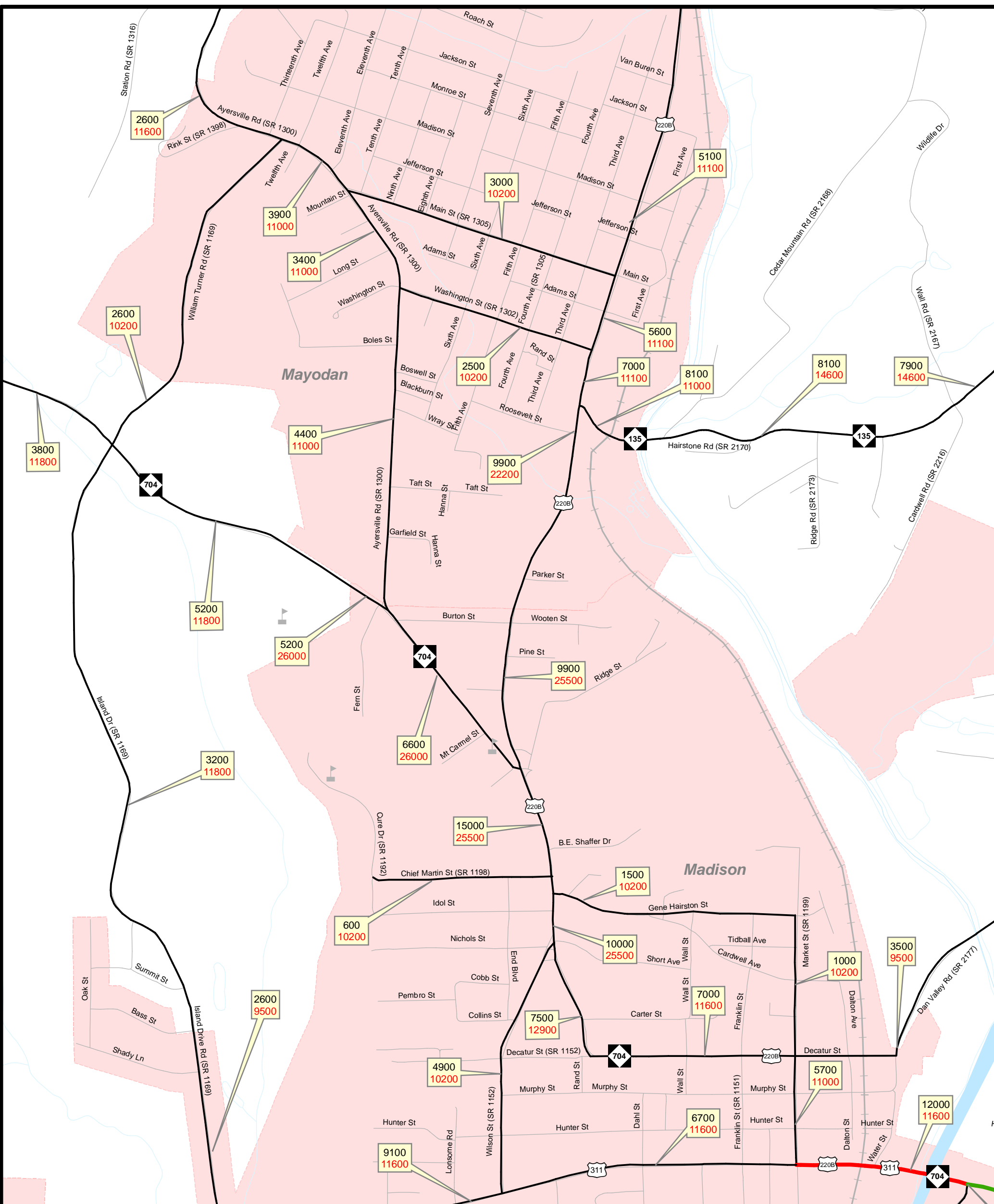
The NCDOT is actively involved with investigating and improving many of these locations. To request a more detailed analysis for any of these locations, or other intersections of concern, contact the Division Traffic Engineer (see Appendix A).

Bridge Deficiency Assessment

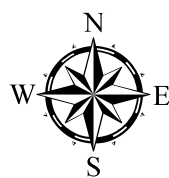
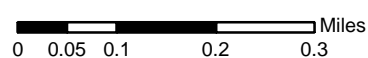
Bridges are a vital element of a highway system. First, they represent the highest unit investment of all elements of the system. Second, any inadequacy or deficiency in a bridge reduces the value of the total investment. Third, a bridge presents the greatest opportunity of all potential highway failures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

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

The NCDOT Structures Management Unit inspects all bridges in North Carolina at least once every two years. Bridges having the highest priority are replaced as federal and state funds become available. Nine deficient bridges were identified on roads evaluated as part of the CTP and are illustrated in Figure 5. Of these, two are scheduled for replacement in the 2012 – 2018 TIP. Additionally, four others occur along roadways recommended for improvement in the CTP. As deficient bridges are replaced, every consideration should be given to proposed CTP recommendation and cross section associated with the recommendation. Table 4 in Appendix F gives a listing of the deficient bridges identified in the CTP and the ID number associated with CTP project proposal. Refer to Appendix F for more detailed bridge deficiency information.



-
- Study Roads
 — Railroads
 — Near Capacity
 — Over Capacity
 — County Boundary
 — Planning Boundary
 — Roads
 — Schools
 — Water Bodies
 — Rivers and Streams
 — Municipal Boundary

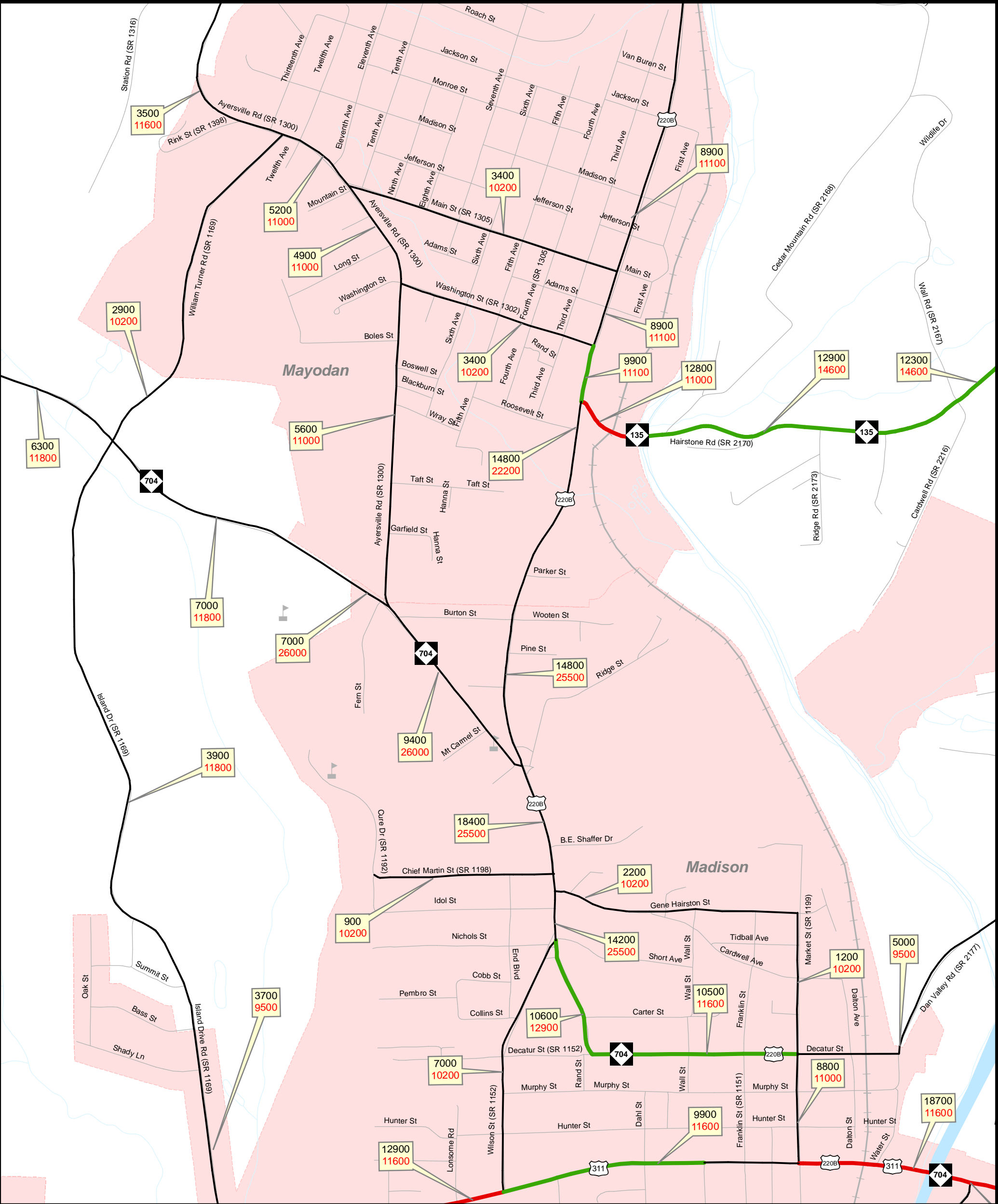


Base map date: October 2012

**Figure 2 - Inset A
2013 Volumes and
Capacity Deficiencies**



Western Rockingham Comprehensive Transportation Plan



8100 2040 Volume (E+C)
12400 2040 Capacity

- Study Roads
- Near Capacity
- Over Capacity
- County Boundary
- Planning Boundary
- Roads
- Railroads
- Schools
- Water Bodies
- Rivers and Streams
- Municipal Boundary

0 0.05 0.1 0.2 0.3 Miles

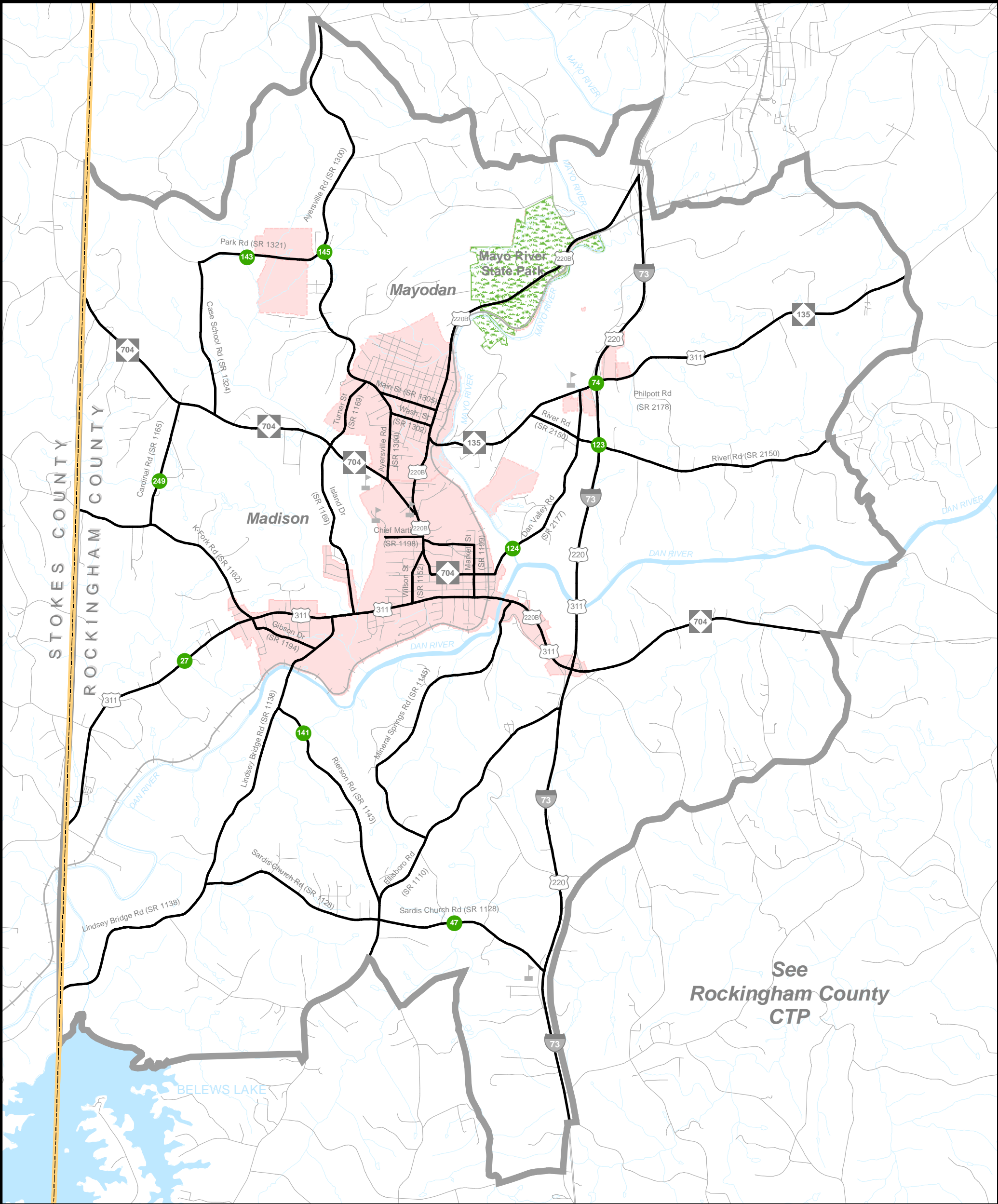


Base map date: October 2012
Sheet 2 of 2

Figure 3 - Inset A
2040 Volumes and
Capacity Deficiencies



Western Rockingham
Comprehensive
Transportation Plan



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

0 0.25 0.5 1 1.5 Miles



Base map date: October 2012

Refer to Appendix G for more details

Figure 5 - Deficient Bridges



Western Rockingham Comprehensive Transportation Plan

Public Transportation and Rail

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

Public Transportation

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

- ❖ Community Transportation - Local transportation efforts formerly centered on assisting clients of human service agencies. Today, the vast majority of rural systems serve the general public as well as those clients.
- ❖ Regional Community Transportation - Regional community transportation systems are composed of two or more contiguous counties providing coordinated/consolidated service. Although such systems are not new, single-county systems are encouraged to consider mergers to form more regional systems.
- ❖ Urban Transportation – There are currently nineteen urban transit systems operating in North Carolina, from locations such as Asheville and Hendersonville in the west to Jacksonville and Wilmington in the east. In addition, small urban systems provide service in three areas of the state. Consolidated urban-community transportation exists in five areas of the state. In those systems, one transportation system provides both urban and rural transportation within the county.
- ❖ Regional Urban Transportation - Regional urban transit systems currently operate in three areas of the state. These systems connect multiple municipalities and counties.
- ❖ Intercity Transportation - Intercity bus service is one of a few remaining examples of privately owned and operated public transportation in North Carolina. Intercity buses serve many cities and towns throughout the state and provide connections to locations in neighboring states 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. There are currently no fixed-route bus services in the planning area. However, during the development of the CTP, a need was identified for Rockingham County Public Access Transportation, a private non-profit group operating under the Rockingham County Council of Aging, Inc., to pursue development of a flexible fixed route service throughout the county, including in Madison and Mayodan. These routes would connect with the routes proposed within Rockingham County by the Piedmont Authority for Regional Transportation (PART).

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 for the Public Transportation Division.

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.

Intercity passenger service is provided by a partnership between NCDOT and Amtrak. Amtrak currently operates six passenger services daily in or through North Carolina serving 16 cities across the state. Five of the services are interstate (Crescent, Palmetto, Silver Meteor, Silver Star, and Carolinian passenger trains) and one service (Piedmont passenger train) operates exclusively within North Carolina. In addition to the six passenger services mentioned, Amtrak also operates its Auto Train service which passes through North Carolina but does not make any stops. Amtrak ridership demand has been on a rise in the state. In 2010 ridership was 840,000 and increased to 893,000 passengers in 2011.

The North Carolina Department of Transportation sponsors two passenger trains, the Carolinian and Piedmont. The Carolinian runs between Charlotte and New York City, while the Piedmont train carries passengers from Raleigh to Charlotte and back every day. 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. While no passenger rail has served the Western Rockingham CTP planning area for many years, there was once a passenger rail stop in Mayodan. During the development of the CTP, a need was identified for Rockingham County to pursue the possibility of a passenger rail route from Winston-Salem to the planning area. More information on this proposal can be found in Chapter 2 of this report. Refer to Appendix A for contact information for the Rail Division.

Bicycles & Pedestrians

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

NCDOT's Bicycle Policy, updated in 1991, clarifies responsibilities regarding the provision of bicycle facilities along the 77,000-mile state-maintained highway system. The policy details guidelines for planning, design, construction, maintenance, and

operations pertaining to bicycle facilities and accommodations. All bicycle improvements undertaken by NCDOT are based upon this policy.

The 2000 NCDOT Pedestrian Policy Guidelines specifies that NCDOT will participate with localities in the construction of sidewalks as incidental features of highway improvement projects. At the request of a locality, state funds for a sidewalk are made available if matched by the requesting locality, using a sliding scale based on population.

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

Inventories of existing and planned bicycle and pedestrian facilities for the planning area are presented on Sheets 4 and 5 of Figure 1. The 2005 Piedmont Triad RPO Regional Bicycle Study³, the 2007 Piedmont Triad RPO Sidewalk Inventory⁴, and the 2013 Rockingham County Pathways Report⁵ were 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 for the Division of Bicycle and Pedestrian Transportation.

Land Use

G.S. §136-66.2 requires that local areas have a current (less than five years old) land development plan prior to adoption of the CTP. For this CTP, the 2012 Madison and 2013 Mayodan Land Use Plans (refer to Appendix G) were used to meet this requirement.

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

- ❖ **Residential**: Land devoted to the housing of people, with the exception of hotels and motels which are considered commercial.

³ 2005 Regional Bicycle Study, go to: <http://www.ptrc.org/modules/showdocument.aspx?documentid=966>.

⁴ 2007 Sidewalk Inventory, go to: <http://www.ptrc.org/index.aspx?page=233>.

⁵ Rockingham County Pathways Report, go to: <http://www.co.rockingham.nc.us/pView.aspx?id=14918&catid=407>.

- ❖ 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.

Within Madison, existing commercial land uses are mainly located along US 220 Business. Existing industrial areas are located mainly north and west of the city along US 311 and NC 704. Within Mayodan, existing commercial land uses are mainly located along US 311/NC 135 and NC 704. Existing industrial areas are located along US 311/NC 135 and NC 704. Higher density single and multi-family households are located near the central business districts of both towns while lower density households are located in the more rural sections of the study area, mainly to the west.

The highest projected population growth areas are south of Madison near US 220 and east of Mayodan near US 220 and US 311/NC 135. For employment, the highest projected increases are to the east of Madison near the US 220/US 311/NC 704 interchange and to the east of Mayodan near the US 220/US 311/NC 135 interchange.

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

1.2 Consideration of Natural and Human Environment

Environmental features are a key consideration in the transportation planning process. Section 102 of the National Environmental Policy Act⁶ (NEPA) requires consideration of impacts on wetlands, wildlife, water quality, historic properties, and public lands. While a full NEPA evaluation was not conducted as part of the CTP, every effort was made to minimize potential impacts to these features utilizing the best available data. Any potential impacts to these resources were identified as a part of the project

⁶ For more information on NEPA, go to: <http://ceq.hss.doe.gov/>.

recommendations in Chapter 2 of this report. Prior to implementing transportation recommendations of the CTP, a more detailed environmental study would need to be completed in cooperation with the appropriate environmental resource agencies.

A full listing of environmental features that are typically examined as a part of a CTP study is shown in the following tables. Environmental features occurring within Western Rockingham CTP are shown in Figure 6, and highlighted in bold text in Tables 1 and 2.

Table 1 – Environmental Features

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

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 | • Macrosite Boundaries |
| • Historic National Register Districts | • Managed Areas |
| • Historic National Register Structures | • Megasite Boundaries |

1.3 Public Involvement

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

A meeting was held with the Madison Board of Aldermen and the Mayodan Town Council in July 2012 to formally initiate the study, provide an overview of the transportation planning process, and to gather input on area transportation needs.

Throughout the course of the study, the NCDOT Transportation Planning Branch cooperatively worked with the Western Rockingham CTP Committee, which included a representative from each municipality, town staff, the Piedmont Triad RPO and others. The committee provided information on current local plans, developed transportation vision and goals, discussed population and employment projections, and developed proposed CTP recommendations. Refer to Appendix H for detailed information on the vision statement, the goals and objectives survey and a listing of committee members.

The public involvement process included holding two public drop-in sessions in to present the proposed CTP to the public and solicit comments. The first meeting was held on April 18, 2013 from 4:00-5:30 pm at the Mayodan United Methodist Church; the second meeting was held on January 22, 2014 from 4:30-6:30 pm at the First Baptist Church in Madison. Each session was publicized in the local newspaper. Sixteen comment forms were submitted during the session held on April 18, 2013 and one comment form was submitted during the session held on January 22, 2014.

Public hearings were held during the Madison Board of Aldermen meeting on April 10, 2014, the Mayodan Town Council meeting on April 14, 2014, and the Rockingham County Commissioners meeting on May 5, 2014. The purposes of these meetings were to discuss the plan recommendations and to solicit further input from the public. The CTP was adopted during each of these meetings.

The Piedmont Triad RPO endorsed the CTP on May 7, 2014. The North Carolina Department of Transportation mutually adopted the Western Rockingham CTP on June 5, 2014.

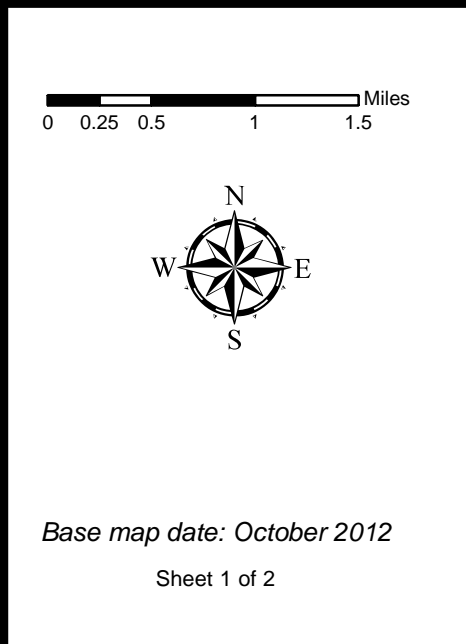
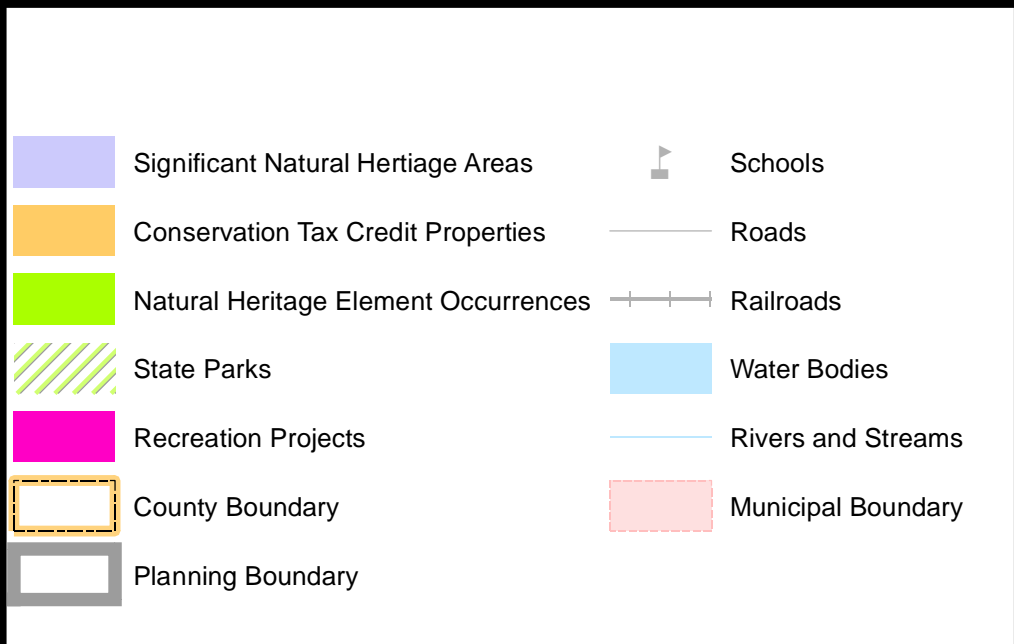
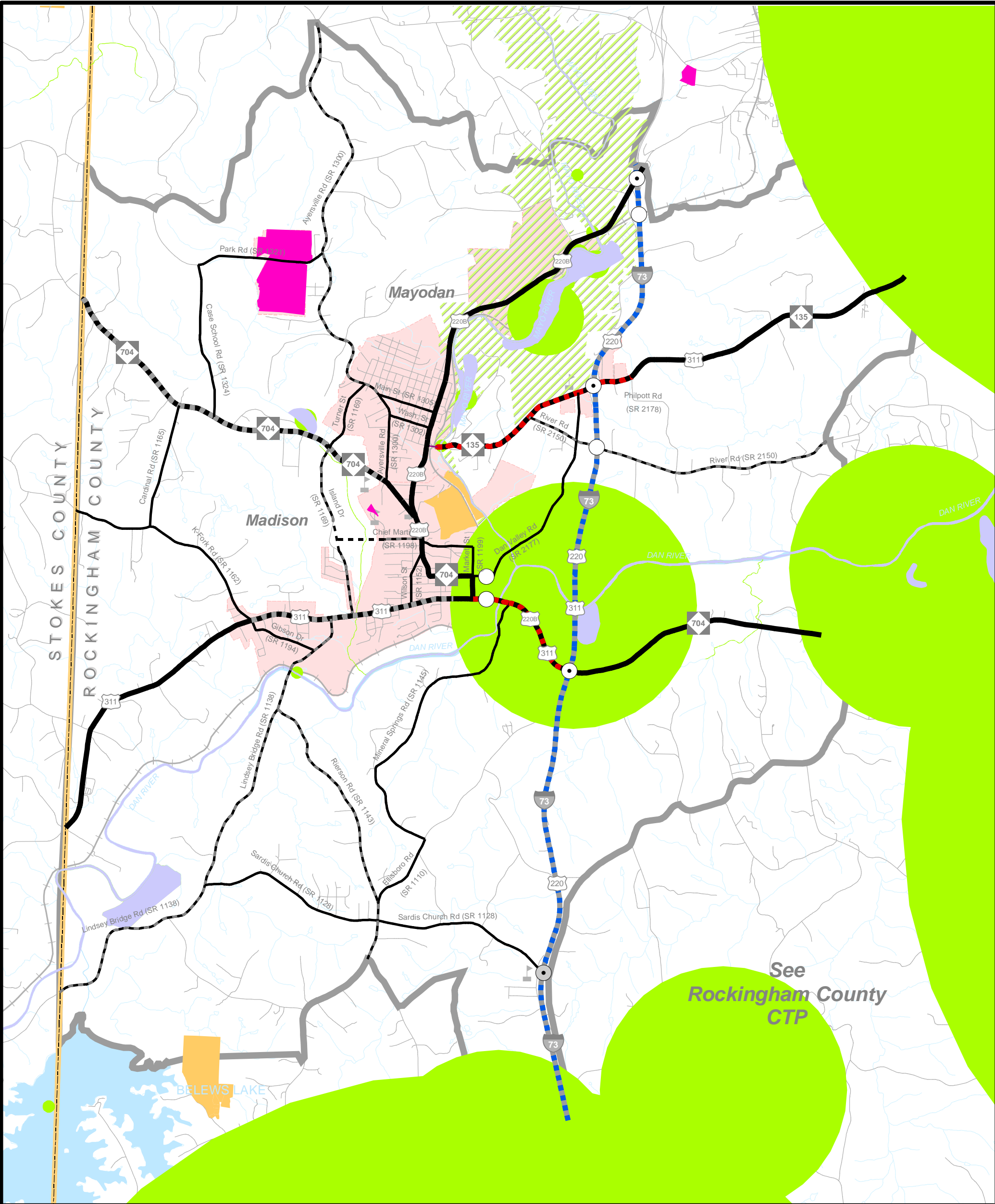
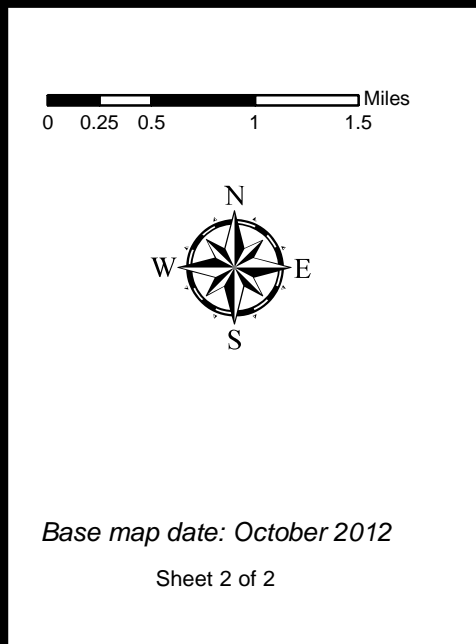
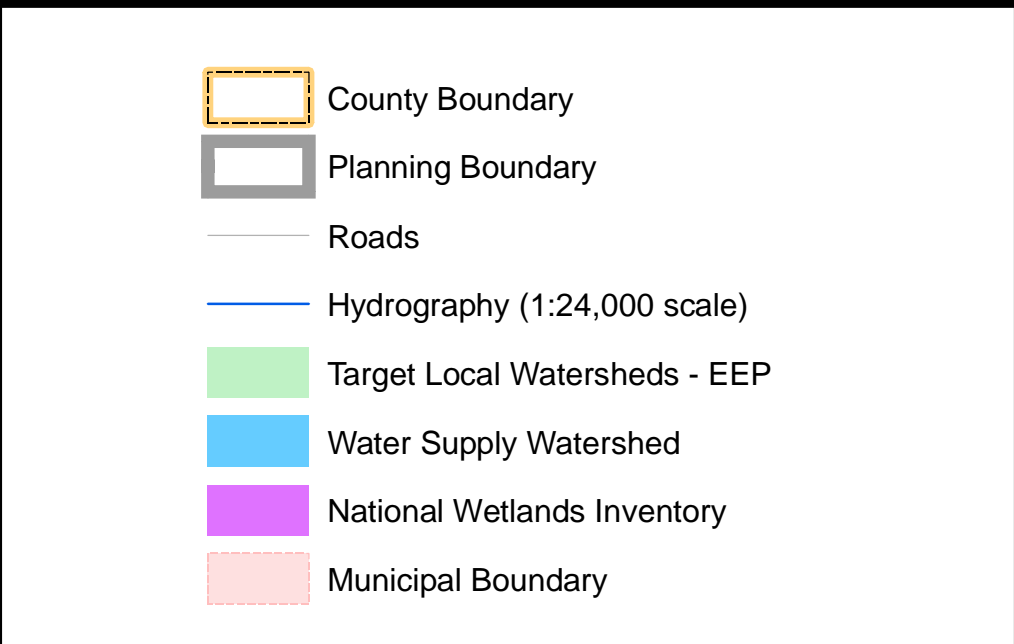
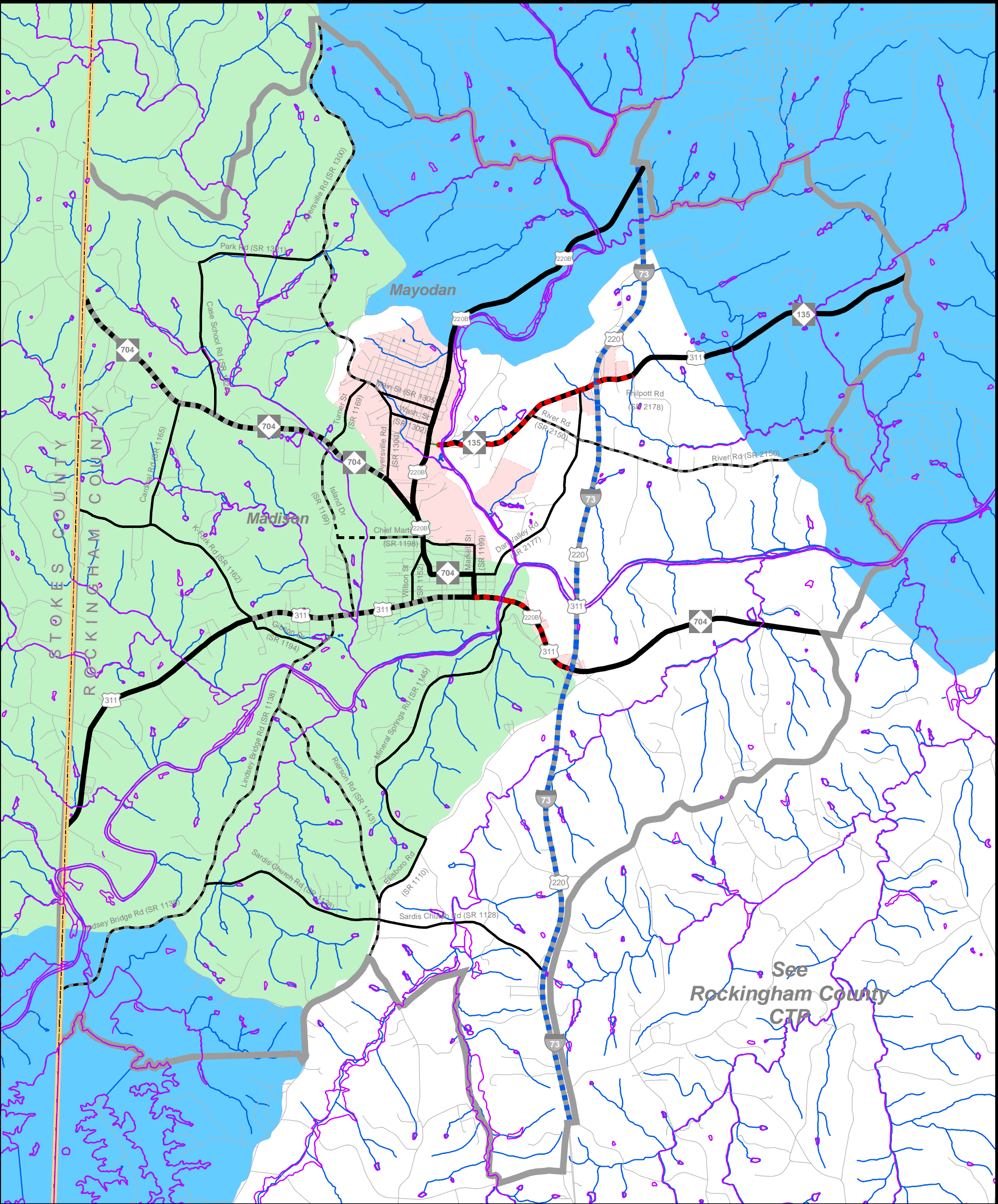


Figure 6 - Environmental Features Map



Western Rockingham Comprehensive Transportation Plan



2. Recommendations

This chapter presents recommendations for each mode of transportation in the 2014 Western Rockingham CTP as shown in Figure 1. More detailed information on each recommendation is tabulated in Appendix C.

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

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

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

2.1 Implementation

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

Initiative for implementing the CTP rests predominately with the policy boards and citizens of the towns. 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 Piedmont Triad RPO for regional prioritization and submittal to NCDOT. Refer to Appendix A for contact information on regional prioritization and funding. Local governments may use

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

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

Prior to implementing projects from the CTP, additional analysis will be necessary to meet the National Environmental Policy Act (NEPA) or the North Carolina (or State) Environmental Policy Act² (SEPA). This CTP may be used to provide information in the NEPA/SEPA process.

2.2 Problem Statements

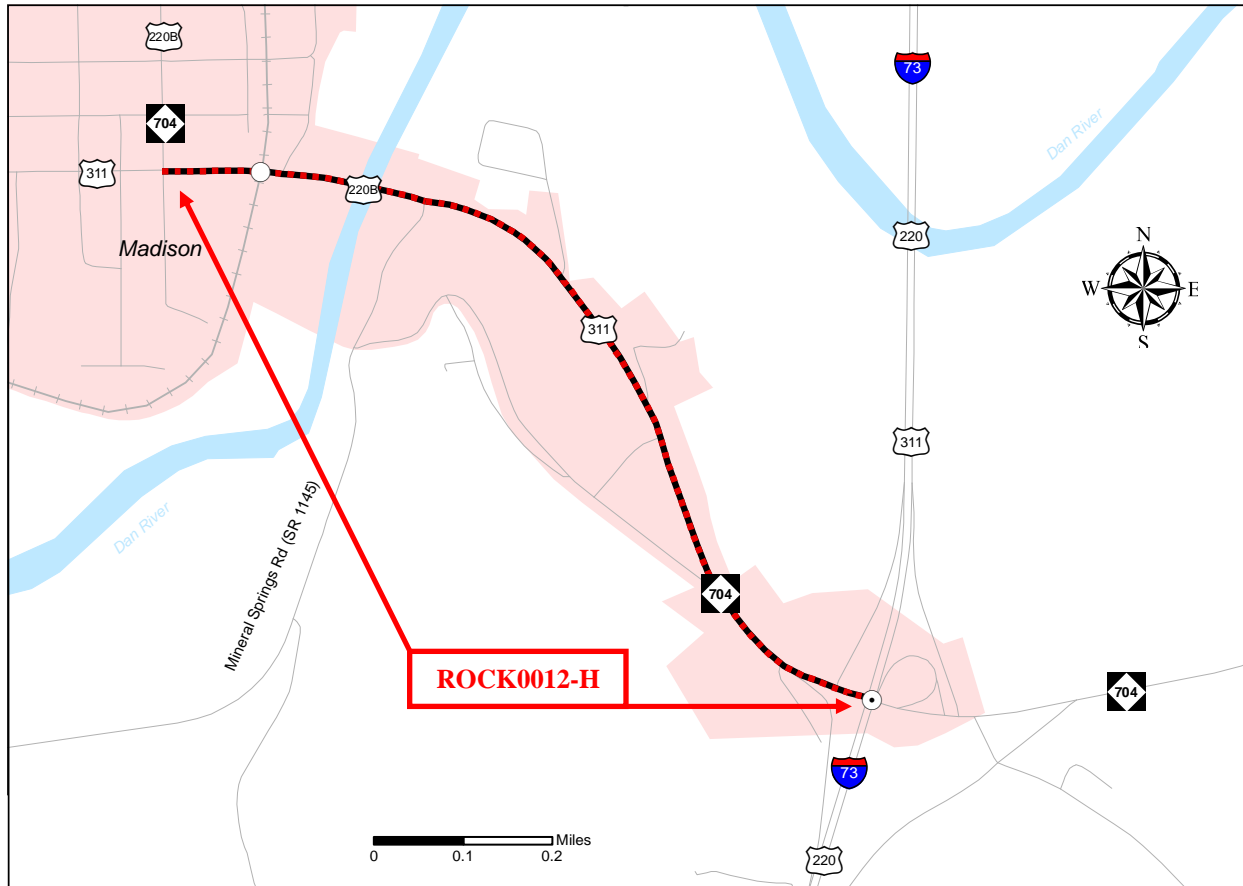
The following pages contain problem statements for each recommendation, organized by CTP modal element. The information provided in the problem statement is intended to help support decisions made in the NEPA/SEPA process. A full, minimum or reference problem statement is presented for each recommendation, with full problem statements occurring first in each section. Full problem statements are denoted by a gray shaded box containing project information. Minimum problem statements are more concise and less detailed than full problem statements, but include all known or readily available information. Reference problem statements are developed for TIP projects where the purpose and need for the project has already been established.

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

HIGHWAY

**US 220 Business/US 311/NC 704 Proposed
Improvements from US 311 to US 220**

**Local ID: ROCK0012-H
Last Updated: 9/23/2013**



Identified Problem

Existing US 220 Business/US 311/NC 704 is currently near or over capacity from US 311 in Madison to US 220 and is projected to be over capacity by 2040. Improvements are needed to relieve congestion on the existing facility and accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved.

Justification of Need

US 220 Business/US 311/NC 704 is a major east-west facility connecting the town of Madison with US 220 and other rural parts of western Rockingham County. The facility is a vital artery in moving people and goods within the county, connecting the area with US 220 and Greensboro and ultimately Martinsville, Virginia.

This section of US 220 Business/US 311/NC 704 is currently a two lane facility with 12 foot lanes. It is on the regional tier of the NC Multimodal Investment Network³ (NCMIN). Regional tier facilities connect major population centers and serve local land use.

By 2040 the facility is projected to be over capacity from US 311 in Madison to US 220, based on providing a LOS D. Traffic is projected to increase from 12,000 vehicles per day (vpd) in 2013 to 18,700 vpd in 2040, compared to a LOS D capacity of 11,600 vpd.

Community Vision and Problem History

US 220 Business/US 311/NC 704 is the primary east-west route that connects the town of Madison to US 220. This area of Madison is mostly commercial and industrial in nature, with more traditional central business district development near US 311. Providing access to these developments while maintaining a high level of mobility on this facility is a challenge, especially during peak hours.

This route was previously identified as deficient in the 2001 Madison/Mayodan Thoroughfare Plan.

CTP Project Proposal

Project Description and Overview

The proposed project (Local ID: ROCK0012-H) is to widen the existing two lane facility to a four lane boulevard from US 311 to US 220.

A crash assessment performed during the CTP identified the intersections at US 220 Business/NC 704 and at US 220 as experiencing a high number of crashes between January 1, 2006 and December 31, 2010. Refer to Chapter 1 of the CTP report for more detailed information on these locations. The proposed improvements to US 220 Business/US 311/NC 704 will help to reduce congestion and improve mobility in this area

Natural & Human Environmental Context

Based on a planning level environmental assessment using available GIS data, this project is within the vicinity of a natural heritage element occurrence and is within the local watershed area. The proposed project also crosses an active rail line and the Dan River via one continuous bridge structure from just west of the rail line to just west of Mineral Springs Road (SR 1145).

Relationship to Land Use Plans

The 2012 Madison Land Use Plan indicates this currently developed area is planned as a commercial center and primary growth area. This area currently consists of both small and large commercial developments, including an automobile dealership, restaurants, gas stations, and other service-based establishments. There are also a

³ For more information on NCMIN, go to: <http://www.ncdot.gov/performance/reform/NCMINmaps/>.

number of other types of businesses in this area. Primarily commercial development is expected to occur along this corridor.

Linkages to Other Plans and Proposed Project History

The improvement proposal for US 220 Business/US 311/NC 704 directly connects to the US 220 and US 311 recommended improvements.

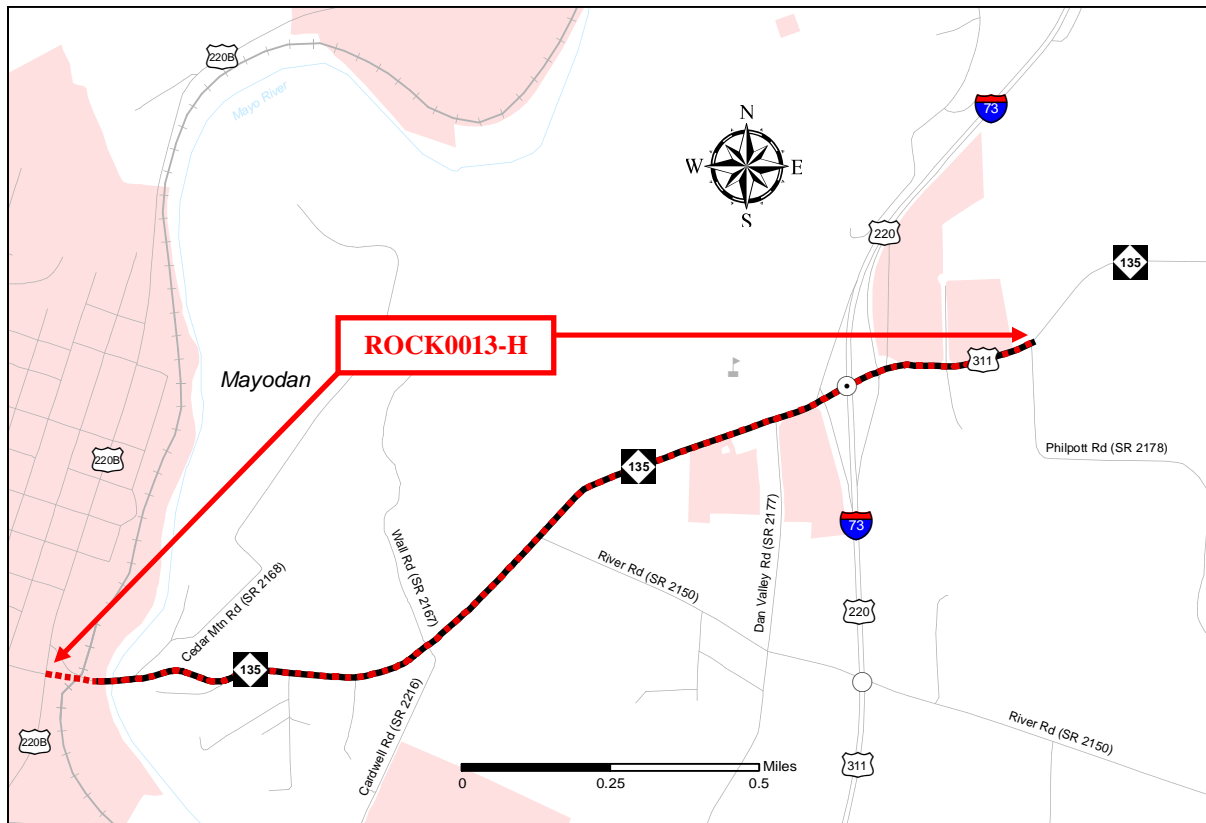
The 2001 Madison/Mayodan Thoroughfare Plan recommended widening US 220 Business/US 311/NC 704 to three lanes with center turn lane from US 220 Business/NC 704 (Market Street) to US 220 to improve safety and capacity.

Multi-modal Considerations

There are no other modes of transportation associated with the proposed project.

Public/ Stakeholder Involvement

Respondents to the Goals & Objectives (G&O) survey conducted for the CTP most frequently identified US 220 Business when asked where they were concerned with traffic safety and/or crashes.



Identified Problem

NC 135 is projected to be near or over capacity by 2040 from Philpott Road (SR 2178) to US 220 Business. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved.

Justification of Need

NC 135 is a major southwest-northeast facility connecting the town of Mayodan with US 220 and other rural parts of northern Rockingham County, including the city of Eden. The facility is a vital artery in moving people and goods from Mayodan to Eden and ultimately connecting this area to Greensboro and Martinsville, Virginia via US 220.

NC 135 is currently a two lane facility with 12 foot lanes from US 220 Business to Cedar Mountain Road (SR 2168) and a three lane facility with 12 foot lanes and a center turn lane from Cedar Mountain Road to US 220. US 311/NC 135 is a three lane facility with 12 foot lanes and a center turn lane from US 220 to 0.1 miles west of Philpott Road (SR 2178), and a two lane facility with 12 foot lanes from 0.1 miles west of Philpott Road (SR 2178) to Philpott Road (SR 2178). It is part of the regional tier of the NC Multimodal Investment Network (NCMIN). Regional tier facilities connect major population centers and serve local land use.

By 2040 this stretch of NC 135 is projected to be over capacity from US 220 Business to Cedar Mountain Road (SR 2168), near capacity from Cedar Mountain Road (SR 2168) to Dan Valley Road (SR 2177), and over capacity from Dan Valley Road (SR 2177) to Philpott Road (SR 2178), based on providing a LOS D. The Annual Average Daily Traffic (AADT) volumes on along the aforementioned sections of NC 135 are as follows:

- From US 220 Business to Cedar Mountain Road (SR 2168), traffic is projected to increase from 8,100 vehicles per day (vpd) in 2013 to 12,800 vpd in 2040, compared to a LOS D capacity of 11,000 vpd;
- From Cedar Mountain Road (SR 2168) to Dan Valley Road (SR 2177), traffic is projected to increase from 8,200 vpd in 2013 to 13,500 vpd in 2040, compared to a LOS D capacity of 14,600 vpd;
- From Dan Valley Road (SR 2177) to US 220, traffic is projected to increase from 12,000 vpd in 2013 to 17,700 vpd in 2040, compared to a LOS D capacity of 14,600 vpd;
- From US 220 to Philpott Road (SR 2178), traffic is projected to increase from 16,000 vpd in 2013 to 24,400 vpd in 2040, compared to a LOS D capacity of 12,900 vpd.

Community Vision and Problem History

US 311/NC 135 is the primary southwest-north east route that connects the town of Mayodan to US 220 and the city of Eden. This area of Mayodan is mostly commercial and industrial in nature between US 220 Business and Philpott Road (SR 2178), with Dalton L. McMichael High School located between Dan Valley Road (SR 2177) and US 220. Providing access to these developments while maintaining a high level of mobility on this facility is a challenge, especially during peak hours. 'Road Connectivity and Safety' was one of the goals identified in the transportation vision developed for the CTP. One objective for this goal was the 'NC 135 Bridge replacement over US 220'.

This is the first time this deficiency has been identified on a transportation plan.

CTP Project Proposal

Project Description and Overview

The proposed project (Local ID No. ROCK0013-H) is to widen the facility to a four lane boulevard from US 220 Business to Philpott Road (SR 2178). The realignment of the NC 135/US 220 Business intersection is also recommended. Bicycle and pedestrian accommodations are recommended along the entire project.

A crash assessment performed during the development of the CTP identified the intersection at US 311/NC 135 and US 220 as experiencing a high number of crashes between January 1, 2006 and December 31, 2010. Refer to Chapter 1 of the CTP report for more detailed information on these locations. The proposed improvements will help to reduce congestion and improve mobility in this area.

Natural & Human Environmental Context

Based on planning level environmental assessment using available GIS data, the proposed project crosses the Mayo River and an active rail line with an at grade crossing near US 220 Business. The proposed project also crosses and/or is adjacent to state park lands along the Mayo River and north of NC 135. The Dalton L. McMichael High School is adjacent to the proposed project. The high school is located in the northwest quadrant of the NC 135/US 220 intersection. The realignment of NC 135 at the intersection of US 220 Business may potentially impact properties located in the immediate vicinity. Additionally, NCDOT's Structures Management Unit identified bridge #74 over US 220 as structurally deficient.

Relationship to Land Use Plans

The 2013 Mayodan Land Use Plan indicates this currently developing area is planned as a commercial and industrial area. This area currently consists of both small and large commercial developments, including a Wal-Mart, Lowes, fast-food restaurants, gas stations, and other service-based establishments. There are also a several industrial developments in this area, including Frontier Spinning Mills, McMichael Mills, and the Remington Arms Company. The gun manufacturer Sturm, Ruger & Co has plans to open a gun manufacturing plant on Cardwell Road, just south of NC 135. Primarily commercial and industrial development is expected to occur along this corridor.

Linkages to Other Plans and Proposed Project History

The proposed project directly connects to the recommended improvements on US 220. This project has not been included on any previous transportation plan.

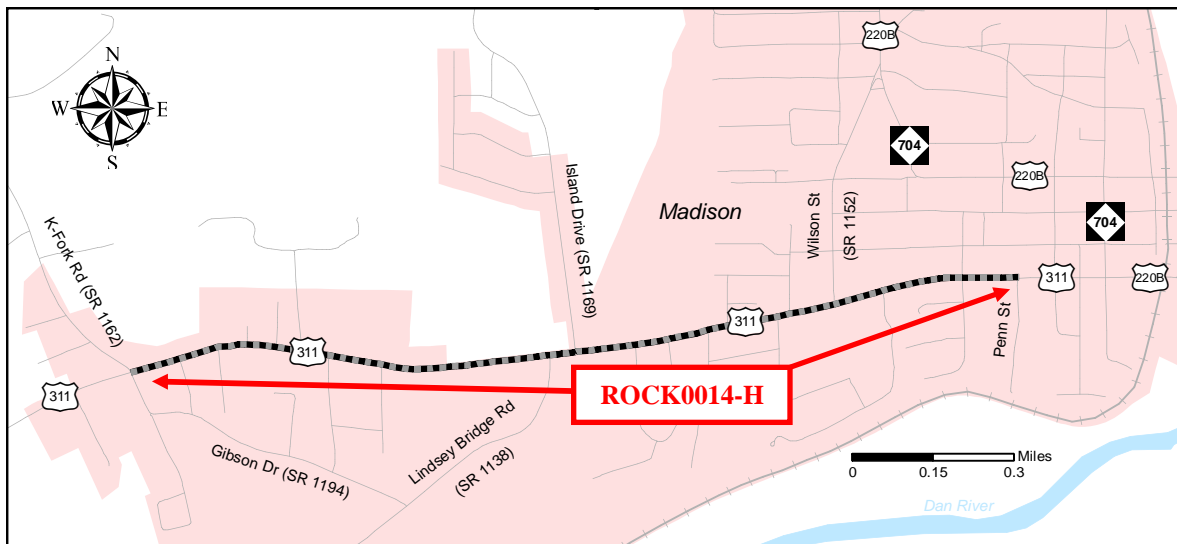
Multi-modal Considerations

The 2010 Regional Transit Development Plan⁴ (RTDP), which was developed by the Piedmont Authority for Regional Transportation (PART), includes a proposed transit route from Guilford County to Rockingham County, using US 220 to connect the two counties. A transit stop has been recommended near the US 220/US 311-NC 135 interchange. This recommended transit stop will allow citizens who live in northern and western Rockingham County to access the Greensboro urban area by transit, rather than automobile. However, this multi-modal feature does not significantly impact the traffic demand along this corridor. Bicycle and pedestrian projects are recommended along the entire project.

Public/ Stakeholder Involvement

Respondents to the Goals & Objectives (G&O) survey conducted for the CTP frequently identified NC 135 when asked where they were concerned with traffic safety and/or crashes.

⁴ For more information on the 2010 Regional Transit Development Plan, go to: <http://www.partnc.org/rtdp.html>



Identified Problem

US 311 is projected to be near or over capacity by 2040 from Penn Street to K-Fork Road (SR 1162). Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved.

Justification of Need

US 311 is a major southwest-northeast facility within the town of Madison, connecting it with other rural parts of Rockingham County and ultimately to the Winston-Salem area. US 311 is currently a three lane facility with 12 foot lanes and a center turn lane from US 220 Business/NC 704 to Penn Street, and a two lane facility with 12 foot lanes from Penn Street to K-Fork Road (SR 1162). It is part of the regional tier of the NC Multimodal Investment Network (NCMIN), connecting major population centers and serving local land use.

By 2040, US 311 is projected to be near or over capacity from Penn Street to K-Fork Road (SR 1162) based on providing a LOS D. Traffic is projected to increase in range from 6,700 vehicles per day (vpd) in 2013 to 13,100 vpd in 2040, compared to a LOS D capacity of 11,600 vpd.

Community Vision and Problem History

'Road Connectivity and Safety' was one of the goals identified in the transportation vision developed for the CTP. One objective for this goal was 'improved east-west highway connectivity and capacity'.

This route was previously identified as deficient in the 2001 Madison/Mayodan Thoroughfare Plan.

CTP Project Proposal

Project Description and Overview

The proposed project (Local ID: ROCK0014-H) is to widen the existing two lane facility to a three lane major thoroughfare with 12 foot lanes and a center turn lane from Penn Street to K-Fork Road (SR 1162). Bicycle and pedestrian accommodations are also recommended along this facility.

A crash assessment performed during the CTP identified the intersection at US 311 and Lindsey Bridge Road (SR 1138) as experiencing a high number of crashes between January 1, 2006 and December 31, 2010. Refer to Chapter 1 of the CTP report for more detailed information on this location. The proposed improvements to US 311 will help to reduce congestion and improve mobility in the area.

Natural & Human Environmental Context

Based on a planning level environmental assessment using available GIS data, this project is within the local watershed area. It also crosses two creeks, Big Beaver Island Creek and Little Beaver Island Creek, which are bridged wetland areas.

Relationship to Land Use Plans

The 2012 Madison Land Use Plan indicates this currently developing area is planned primarily as a residential area. This area currently consists of single-family and modular homes with scattered small commercial developments. There are two large industrial developments, Pine Hall Brick and Synergy Recycling, located just off US 311 on Gibson Drive (SR 1194). Primarily residential development is expected to occur along this corridor, with industrial development expected just off US 311 along Gibson Drive (SR 1194) and K-Fork Road (SR 1162).

Linkages to Other Plans and Proposed Project History

The proposed project connects to the recommended improvements on US 220 Business/NC 704.

The 2001 Madison/Mayodan Thoroughfare Plan recommended widening US 311 to three lanes with a center turn lane from K-Fork Road (SR 1162) to US 220 Business/NC 704 (Market Street) to improve safety and capacity.

Multi-modal Considerations

The 2005 Regional Bicycle Study proposed a new route (Route 1) in Rockingham County, which passes through Madison using US 311. As part of this recommendation, bicycle accommodations are recommended to be added from Lonesome Road to Lindsey Bridge Road (SR 1138).

Sidewalks currently exist along both sides of US 311 from US 220 Business/NC 704 to Lonesome Road. As part of the proposed project, sidewalks are recommended to be extended on both sides of US 311 from Lonesome Road to Island Drive Road (SR 1169).

Public/ Stakeholder Involvement

Respondents to the Goals & Objectives (G&O) survey conducted for the CTP frequently identified US 311 when asked where they were concerned with traffic safety and/or crashes.

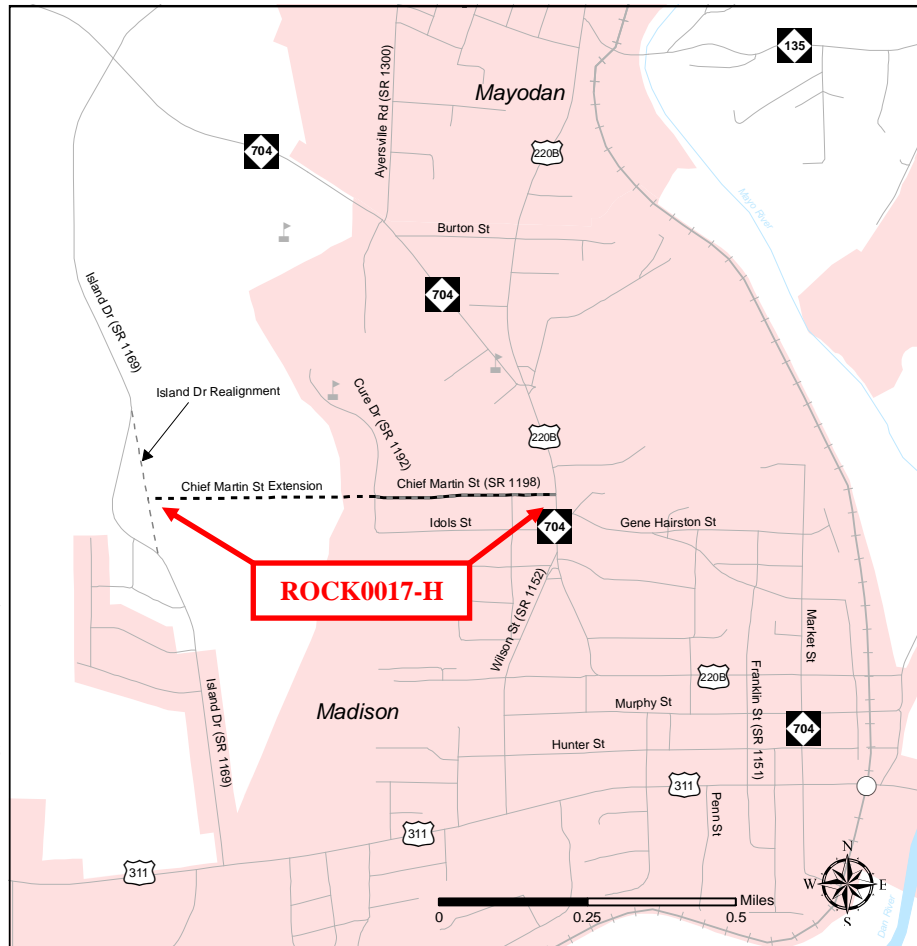
Chief Martin Street (SR 1198) Proposed Improvements **Local ID: ROCK0017-H**
from Island Drive (SR 1169) to US 220 Business/NC 704 **Last Updated: 9/23/2013**

Identified Problem

There is a lack of east-west radial facilities in southern Madison. Improvements are needed to provide better east-west connectivity and mobility in southern Madison.

Justification of Need

Chief Martin Street (SR 1198) is a local road in the southwestern Madison that currently terminates at Cure Drive (SR 1192). It is a two lane facility with 10 foot lanes. Chief Martin Street (SR 1198) connects residents of both Madison and Mayodan to the Rockingham



Square Shopping Center, a State Employees' Credit Union, John Dillard Elementary School, and other residences. Currently, Chief Martin Street (SR 1198) is the only entrance to this area, causing delays at the intersection of Chief Martin Street (SR 1198) and US 220 Business/NC 704. Additionally, by 2040, US 311 will be over capacity from Island Drive (SR 1169) to Wilson Street (SR 1152).

Community Vision and Problem History

This route was previously identified as deficient in the 2001 Madison/Mayodan Thoroughfare Plan.

CTP Project Proposal

Project Description

The proposed project (Local ID: ROCK0019-H) is to construct a two lane extension of Chief Martin Street (SR 1198) with 11 foot lanes from Cure Drive (SR 1192) to Island Drive (SR 1169) and to widen the existing Chief Martin Street (SR 1198) to 11 foot lanes from Cure Drive (SR 1192) to US 220 Business/NC 704. The proposed project

also includes pedestrian accommodations and is recommended to be classified as a minor thoroughfare.

The proposed improvements will help to reduce congestion and improve mobility and connectivity in the area. Creating this connection will allow residents west of Madison to access the town's commercial area without accessing US 311 and NC 704 in downtown Madison. It will also help to decrease traffic on US 311 and NC 704 between Island Drive (SR 1169) and US 220 Business/NC 704.

Relationship to Land Use Plans

The 2012 Madison Land Use Plan indicates this currently rural area is planned primarily as a residential area. This area currently consists of a single-family neighborhood along Island Drive (SR 1169) and other scattered single-family housing. Chief Martin Street (SR 1198) connects residents of both Madison and Mayodan to Rockingham Square Shopping Center, a State Employees' Credit Union, John Dillard Elementary School, and other residences. Primarily traditional residential development is expected to occur along this corridor, with industrial development expected just off US 311 along Gibson Drive (SR 1194) and K-Fork Road (SR 1162).

Linkages to Other Plans and Proposed Project History

The proposed project connects to the recommended improvements for US 220 Business/NC 704 and Island Drive (SR 1169).

The 2001 Madison/Mayodan Thoroughfare Plan recommended the extension of Chief Martin Street (SR 1198) from Cure Drive (SR 1192) to Island Drive (SR 1169).

Natural & Human Environmental Context

Based on a planning level environmental assessment using available GIS data, this project is within the local watershed. It also crosses a natural heritage element occurrence and a wetland area, Big Beaver Island Creek. There are also utility transmission lines adjacent to the proposed project. It is also in close proximity to the John Dillard Elementary School which is located at the end of Cure Drive (SR 1192).

Multi-modal Considerations

As part of the proposed project, sidewalks are recommended to be constructed on both sides of Chief Martin Street (SR 1198) from Cure Drive (SR 1192) to US 220 Business/NC 704. This would better connect the John W. Dillard Elementary School, Rockingham Square Shopping Center, and other businesses and residences to existing sidewalks along US 220 Business/NC 704. The proposed sidewalks will also connect directly to the proposed multi-use path along Cure Drive (SR 1192).

Public/ Stakeholder Involvement

Respondents to the Goals & Objectives (G&O) survey conducted for the CTP identified the Chief Martin Street Extension as a direct route that was most desired from Island Drive (SR 1169) to US 220 Business/NC 704.

US 220 (Future I-73), Local ID: ROCK0004-H

US 220 through the planning area does not meet the future mobility needs in the central North Carolina.

US 220 is a major north-south corridor in Rockingham County, connecting Madison and Mayodan with Stoneville and other rural areas in the western half of the county. US 220 is intended to provide mobility in Rockingham County and connectivity to Martinsville, Virginia and Greensboro, and ultimately connecting Southwest Virginia to Central North Carolina.

US 220 is currently a four lane expressway from US 220 Business to Carlton Road (SR 2337). US 220 is designated as an interstate (I-73) on NCDOT's Strategic Highway Corridor Vision (SHC) Plan which was adopted on September 2, 2004. It is part of the statewide tier of the NCMIN and is a Strategic Highway Network (STRAHNET) route. STRAHNET routes are important to the United States' strategic defense policy and provide defense access, continuity, and emergency capabilities for defense purposes.

By 2040, the facility is projected to be near capacity from US 311/NC 704 south to Carlton Road (SR 2237) based on providing a LOS D. Traffic is projected to increase in range from 21,000 to 23,000 vpd in 2013 to a range of 46,000 to 48,900 vpd in 2040, compared to a capacity of 54,800 vpd.

The proposed project (Local ID ROCK0004-H) is to improve the existing four lane expressway to a four lane freeway from US 220 Business north of Mayodan to Carlton Road (SR 2337) south of Madison, including the construction of a new interchange at Sardis Church Road (SR 1128). The proposed improvements to US 220 will help to reduce congestion between US 311/NC 704 and Carlton Road (SR 2337). Additionally, it will fulfill the SHC Vision Plan, which recommends US 220 be upgraded to interstate standards and designated I-73 from the Greensboro MPO to Roanoke, Virginia.

Based on a planning level environmental assessment using available GIS data, this project crosses several wetland areas.

This route was previously identified as deficient in the 2010 Rockingham County Comprehensive Transportation Plan and was recommended to improve the existing four lane expressway to a four lane freeway from Virginia to NC 68, including the construction of a new interchange at Sardis Church Road (SR 1128).

Minor Widening Improvements

The following routes do not have capacity issues, but are recommended to be upgraded to improve narrow lane widths, roadway alignment and/or to accommodate bicycles.

- **NC 704, Local ID ROCK0015-H**– From Stokes County to Ayersville Road (SR 1300), widen the two 10 foot lanes to 12 foot lanes with paved shoulders. Sidewalks are also recommended on the north side of this facility from 0.2 miles west of Ayersville Road (SR 1300) to Ayersville Road (SR 1300).

- **Ayersville Road (SR 1300), Local ID ROCK0016-H** – From NC 770 at the northern planning boundary to Main Street (SR 1302), widen the two 11 foot lanes to 12 foot lanes with paved shoulders.
- **Ellisboro Road (SR 1100), Local ID ROCK0018-H** – From Rierson Road (SR 1143) to Gideon Grove Church Road (SR 1129) at the southern planning boundary, widen the two 11 foot lanes to 12 foot lanes with paved shoulders. Bicycle accommodations are recommended along this facility.
- **Island Drive (SR 1169), Local ID ROCK0019-H**– Widen Island Drive (SR 1169) from 10 foot lanes to 12 foot lanes with paved shoulders from NC 704 to US 311. Island Drive (SR 1169) is also recommended to be realigned at the proposed Chief Martin Street (SR 1198) extension (Local ID: ROCK0017-H) for a safer intersection and be re-designated as NC 704. Island Drive (SR 1169) provides a more direct route from US 311 to industrial areas in western Mayodan along NC 704 and Turner Road (SR 1169). Once this redesignation takes place, Island Drive (SR 1169) will become NC 704 and be re-designated as an other major thoroughfare and existing NC 704 will become NC 704 Business through downtown Madison.
- **Lindsey Bridge Road (SR 1138), Local ID ROCK0020-H** – From US 311 to the Stokes County, widen the two 11 foot lanes to 12 foot lanes with paved shoulders. Bicycle accommodations are recommended from US 311 to Rierson Road (SR 1143).
- **Rierson Road (SR 1143), Local ID ROCK0021-H** – From Lindsey Bridge Road (SR 1138) to Ellisboro Road (SR 1100), widen from two 10 foot lanes to two 11 foot lanes with paved shoulders. Bicycle accommodations are recommended along this facility.
- **River Road (SR 2150), Local ID ROCK0022-H** – From NC 135 to Grogan Road (SR 2153) at the eastern planning boundary, widen from two 10 foot lanes to two 11 foot lanes with four foot paved shoulders to accommodate bicycles.
- **Will Turner Road (SR 1169), Local ID ROCK0023-H** – From Ayersville Road (SR 1300) to NC 704, add two five foot shoulders to accommodate bicycles.

PUBLIC TRANSPORTATION & RAIL

A public transportation and rail assessment was completed during the development of the CTP. There are no recommended improvements associated with the rail mode. However, a need was identified for Rockingham County to coordinate with the NCDOT Rail Division, the Winston-Salem Metropolitan Planning Organization (MPO), and Stokes County on a potential passenger rail route from Winston-Salem to the Western Rockingham CTP planning area using the Norfolk-Southern railway. While no passenger rail has served the Western Rockingham CTP area for many years, there was once a passenger rail stop in Mayodan near Washington Street (SR 1302). This would be ideal for a proposed stop on a proposed passenger rail route from the Winston-Salem MPO to the Western Rockingham CTP planning area. Further coordination is recommended to determine if providing passenger rail service to the area is feasible.

Currently, there are no fixed route bus services from western Rockingham County to the Triad metropolitan area. Many residents in Rockingham County commute to the Triad metropolitan area each day for work, shopping, higher education opportunities, and medical purposes. The primary purpose of proposing transit service is to provide another mode of transportation into the Triad metropolitan area.

US 220 Transit Improvements, Local ID: ROCK0001-T

The CTP project proposal is to provide public transit along US 220 in western Rockingham County. It is recommended that a fixed-route bus service be developed through the Piedmont Authority for Regional Transportation (PART) on US 220 between the US 220/NC 135 interchange near Mayodan and continuing into Guilford County. It is also recommended that park-and-ride lots be constructed near the US 220/NC 135 interchange near Mayodan and the proposed interchange at US 220 and Sardis Church Road (SR 1128).

Countywide Flexible Fixed Route

During the development of the CTP, a need was also identified for Rockingham County Public Access Transportation, a private non-profit group operating under the Rockingham County Council of Aging, Inc., to pursue development of a flexible fixed route service throughout the county to connect with the proposed Rockingham County PART route stops. Further coordination is recommended to determine if providing this service is feasible.

BICYCLE

The 2005 Regional Bicycle Study published by the Piedmont Triad Rural Planning Organization recommends improvements to bicycle routes throughout Rockingham County. The primary purpose of recommending additional bicycle route improvements is to better connect facilities in the Western Rockingham CTP planning area to the 2005 Rockingham County Regional Bicycle Study. On-road bicycle facilities that have been identified as needing improvement are shown in the Bicycle Map.

The 2013 Rockingham County Pathways Plan identified recommended greenways for bicycles and pedestrians throughout the county. These features are shown on the Bicycle and Pedestrian Maps as recommended multi-use paths.

In addition to the on-road bicycle facilities and multi-use paths from the above plans, the CTP recommends the following on-road bicycle facilities to improve connectivity and mobility in the greenway system:

NC 135, Local ID ROCK0009-B – From River Road (SR 2150) to Philpott Road (SR 2178).

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 minimum 5 foot bike lanes or 14 foot wide shoulder lanes.
- Shoulder sections require a minimum of 4 foot paved shoulder.
- All bridges along the roadways where bike facilities are recommended shall be equipped with 54 inch railings.

PEDESTRIAN

The Piedmont Triad Rural Planning Organization completed the 2007 Regional Sidewalk Inventory for the municipalities of Rockingham County, including Madison and Mayodan. These features are shown on the Pedestrian Map as existing sidewalks or sidewalks that need improvement. The 2013 Rockingham County Pathways Plan identified recommended greenways for bicycles and pedestrians throughout the county. These features are shown on the Bicycle and Pedestrian Maps as recommended multi-use paths.

During the development of the Western Rockingham CTP, several facilities were identified as needing new sidewalks. These facilities are identified below.

Sidewalks – Needs Improvement (Sidewalks needed on one side of a facility)

- **US 220 Business: Local ID ROCK0013-P** – From NC 135 to 0.1 miles north of Burton Street and US 220 Business/NC 704 from NC 704 to 0.2 miles south of Wilson Street (SR 1152)
- **NC 704: Local ID ROCK0014-P** – From 0.2 miles west of Ayersville Road (SR 1300) to US 220 Business
- **Adams Street, Local ID ROCK0015-P** – From 3rd Avenue to US 220 Business
- **Ayersville Road (SR 1300), Local ID ROCK0016-P** – From Blackburn Street to NC 704
- **E. Decatur Street, Local ID ROCK0019-P** – From US 220 Business/NC 704 to Dalton Street
- **Franklin Street (SR 1151), Local ID ROCK0021-P** – From Hunter Street to US 311
- **Hunter Street, Local ID ROCK0022-P** – From Kuykendall Street to Dalton Avenue
- **Washington Street (SR 1302) Local ID ROCK0023-P** – From 5th Avenue to US 220 Business

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

- **US 220 Business, ROCK0013-P**, – From 0.1 miles north of Burton Street to NC 704
- **US 311, ROCK0014-H** – From Lonesome Road to Island Drive (SR 1169)
- **NC 135, ROCK0013-H** – From US 220 Business to Philpott Road (SR 2178)
- **Ayersville Road (SR 1300), ROCK0016-P** – From Main Street (SR 1305) to Blackburn Street
- **Burton Street, ROCK0017-P** – From NC 704 to US 220 Business
- **Chief Martin Street (SR 1198), ROCK0018-P** – From US 220 Business/NC 704 to Cure Drive (SR 1192)
- **W. Decatur Street, ROCK0020-P** – From Wilson Street (SR 1152) to US 220 Business/NC 704
- **Hunter Street, ROCK0022-P** – From Kuykendall Street to the proposed greenway
- **Washington Street (SR 1302), ROCK0023-P** – From Ayersville Road (SR 1300) to 5th Avenue
- **Wilson Road (SR 1152), ROCK0024-P** – From US 220 Business/NC 704 to US 311

APPENDICES

Appendix A Resources and Contacts

Local Planning Organization

Piedmont Triad Rural Planning Organization (www.ptrc.org)

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

2216 W. Meadowview Road, Suite 201 Greensboro, NC 27407 (336) 294-4950

North Carolina Department of Transportation

Customer Service Office

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

1-877-DOT-4YOU (1-877-368-4968)

<http://www.ncdot.gov/contact/>

Secretary of Transportation

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

1501 Mail Service Center

Raleigh, NC 27699-1501

(919) 707-2800

Board of Transportation

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

1501 Mail Service Center

Raleigh, NC 27699-1501

(919) 707-2820

Highway Division 7 (<https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx>)

1584 Yanceyville Street

Greensboro, NC 27415-4996

(336) 334-3637

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

Contact the following NCDOT divisions and units¹ for:

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

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

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

Other State Government Offices

Department of Commerce – Division of Community Assistance

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

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

Appendix B

Comprehensive Transportation Plan Definitions

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

Highway Map

The "[*NCDOT Facility Type –Control of Access Definitions*](#)" document provides a visual depiction of facility types for the following CTP classification.

Facility Type Definitions

❖ Freeways

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

❖ Expressways

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

❖ **Boulevards**

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

❖ **Other Major Thoroughfares**

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

❖ **Minor Thoroughfares**

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

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

Other Highway Map Definitions

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

Public Transportation and Rail Map

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

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

- ❖ **Operational Strategies** – Plans geared toward the non-single occupant vehicle. This includes but is not limited to HOV lanes or express bus service.
- ❖ **Rail Corridor** – Locations of railroad tracks that are either active or inactive tracks. These tracks were used for either freight or passenger service.
 - Active – rail service is currently provided in the corridor; may include freight and/or passenger service
 - Inactive – right of way exists; however, there is no service currently provided; tracks may or may not exist
 - Recommended – It is desirable for future rail to be considered to serve an area.
- ❖ **High Speed Rail Corridor** – Corridor designated by the U.S. Department of Transportation as a potential high speed rail corridor.
 - Existing – Corridor where 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

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improvements. Improvements do not include re-paving or other maintenance activities but may include: filling in gaps, widening sidewalks, or meeting ADA (Americans with Disabilities Act) requirements.

- ❖ **Sidewalk-Recommended** – At the systems level, it is desirable for a recommended highway facility to accommodate pedestrian transportation **or** to add sidewalks on an existing facility where no sidewalks currently exist. The highway should be designed and built to safely accommodate pedestrian traffic.
- ❖ **Off Road-Existing** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.
- ❖ **Off Road-Needs Improvement** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way that will not adequately serve future pedestrian needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), improved horizontal or vertical alignment, and meeting ADA requirements.
- ❖ **Off Road-Recommended** – A facility needed to accommodate only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.
- ❖ **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- ❖ **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.
- ❖ **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- ❖ **Existing Grade Separation** – Locations where existing “Off Road” facilities and “Multi-use Paths” are physically separated from existing highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.
- ❖ **Proposed Grade Separation** – Locations where “Off Road” facilities and “Multi-use Paths” are recommended to be physically separated from existing or recommended highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

Appendix C

CTP Inventory and Recommendations

Assumptions/ Notes:

- ❖ **Local ID:** This Local ID is the same as the one used for the Prioritization Project Submittal Tool. If a TIP project number exists it is listed as the ID. Otherwise, the following system is used to create a code for each recommended improvement: the first 4 letters of the county name is combined with a 4 digit unique numerical code followed by '-H' for highway, '-T' for public transportation, '-R' for rail, '-B' for bicycle, '-M' for multi-use paths, or '-P' for pedestrian modes. If a different code is used along a route it indicates separate projects will probably be requested. Also, upper case alphabetic characters (i.e. 'A', 'B', or 'C') are included after the numeric portion of the code if it is anticipated that project segmentation or phasing will be recommended.
- ❖ **Jurisdiction:** Jurisdictions listed are based on municipal limits, county boundaries, and MPO Metropolitan Planning Area Boundaries (MAB), as applicable.
- ❖ **Existing Cross-Section:** Listed under 'Total Width (ft)' is the approximate width of the roadway from edge of pavement to edge of pavement and under 'Lane Width (ft)' is the approximate width of a single lane based on centerline/ edge line markings. Listed under 'Lanes' is the total number of lanes, with 'D' if the facility is divided, and 'OW' if it is a one-way facility.
- ❖ **Existing ROW:** The estimated existing right-of-way is based on NCDOT's roadway characteristics shapefile. These right-of-way amounts are approximate and may vary.
- ❖ **Existing and Proposed Capacity:** The estimated capacities are given in vehicles per day (vpd) based on LOS D for existing facilities and LOS C for new facilities. These capacity estimates were developed based on the 2000 Highway Capacity Manual using the Transportation Planning Branch's LOS D Standards for Systems Level Planning, as documented in Chapter 1.
- ❖ **Existing and Proposed Volumes,** given in vehicles per day (vpd), are estimates only based on a systems-level analysis. The '2040 Volume 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 Volume with CTP' is an estimate of the volume in 2040 with all proposed CTP improvements assumed to be in place. The '2040 Volume with CTP' is shown in bold if it exceeds the proposed capacity, indicating an unmet need. For additional information about the assumptions and techniques used to develop the AADT volume estimates, refer to Chapter 1.
- ❖ **Proposed Cross-section:** The CTP recommended cross-sections are listed by code; for depiction of the cross-section, refer to Appendix D. An entry of 'ADQ' indicates the existing facility is adequate and there are no improvements recommended for the given mode as part of the CTP.

- ❖ **CTP Classification:** The CTP classification is listed, as shown on the adopted CTP Maps (see Figure 1). Abbreviations are F= freeway, E= expressway, B= boulevard, Maj= other major thoroughfare, Min= minor thoroughfare.
- ❖ **Tier:** Tiers are defined as part of the North Carolina Multimodal Investment Network (NCMIN). Abbreviations are Sta= statewide tier, Reg= regional tier, Sub= subregional tier.
- ❖ **Proposals for Other Modes:** If there is an improvement recommended for another mode of transportation that relates to the given recommendation, it is indicated by an alphabetic code (H= highway, T= public transportation, R= rail, B= bicycle, P= pedestrian, and M= multi-use path).

CTP INVENTORY AND RECOMMENDATIONS

| HIGHWAY | | | | | | | | | | | | | | | | | | | | |
|------------|--------------------|--|--|-------------------|---------------|----------------------|-------|-----------------|----------|-------------------|-------------------------|-------------|----------------------|----------------------|-------------------------|---------------|----------|----------------------------|------|------------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | CTP Classifi- cation | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross-Section | ROW (ft) | | | |
| ROCK0004-H | I-73/US 220 | Northern PAB | US 311/NC 135 | Rockingham County | 2.2 | 48 | 4D | 12 | 200 | 60 | 54800 | 13000 | 23000 | 23000 | 58000 | 4A | 250 | F | Sta | |
| ROCK0004-H | I-73/US 220/US 311 | US 311/NC 135 | US 220 BUS/US 311/NC 704 | Rockingham County | 2.9 | 48 | 4D | 12 | 200 | 60 | 54800 | 19500 | 38700 | 37300 | 58000 | 4A | 250 | F | Sta | T |
| ROCK0004-H | I-73/US 220 | US 220 BUS/US 311/NC 704 | Ellisboro Rd (SR 1110) | Rockingham County | 0.4 | 48 | 4 | 12 | 200 | 55 | 54800 | 23000 | 46900 | 51100 | 58000 | 4A | 250 | F | Sta | T |
| ROCK0004-H | I-73/US 220 | Ellisboro Rd (SR 1110) | Baggage Rd (SR 2319)/Eastern PAB | Rockingham County | 2.5 | 48 | 4 | 12 | 200 | 55 | 54800 | 23000 | 47500 | 51100 | 58000 | 4A | 250 | F | Sta | T |
| ROCK0004-H | I-73/US 220 | Baggage Rd (SR 2319)/Eastern PAB | Sardis Church Rd (SR 1128) | Rockingham County | 0.6 | 48 | 4 | 12 | 200 | 55 | 54800 | 23000 | 48900 | 51100 | 58000 | 4A | 250 | F | Sta | T |
| ROCK0004-H | I-73/US 220 | Sardis Church Rd (SR 1128) | Southern PAB | Rockingham County | 0.2 | 38 | 4 | 12 | 200 | 55 | 54800 | 21000 | 46000 | 46000 | 58000 | 4A | 250 | F | Sta | T |
| | | | | | | | | | | | | | | | | | | | | |
| | US 220 BUS | Northern PAB | 0.2 miles south of Mayo Mtn Rd (SR 1313) | Rockingham County | 2.7 | 24 | 2 | 12 | 60 | 55 | 14600 | 3700 | 5300 | 5300 | ADQ | ADQ | ADQ | Maj | Reg | |
| | US 220 BUS | 0.2 miles south of Mayo Mtn Rd (SR 1313) | Jackson St | Mayodan | 0.4 | 44 | 2 | 12 | 60 | 35 | 11600 | 5100 | 7200 | 7200 | ADQ | ADQ | ADQ | Maj | Reg | |
| | US 220 BUS | Jackson St | Main St (SR 1305) | Mayodan | 0.3 | 37 | 2 | 12 | 60 | 20 | 10100 | 5600 | 8900 | 8200 | ADQ | ADQ | ADQ | Maj | Reg | |
| | US 220 BUS | Main St (SR 1305) | 0.1 miles north of NC 135 | Mayodan | 0.2 | 44 | 2 | 12 | 60 | 20 | 10100 | 7000 | 9900 | 10200 | ADQ | ADQ | ADQ | Maj | Reg | B |
| | US 220 BUS | 0.1 miles north of NC 135 | NC 135 | Mayodan | 0.1 | 48 | 2 | 12 | 60 | 35 | 11100 | 7000 | 9900 | 10200 | ADQ | ADQ | ADQ | Maj | Reg | B |
| | US 220 BUS | NC 135 | 0.1 miles south of NC 135 | Mayodan | 0.1 | 50 | 3 | 12 | 60 | 35 | 22200 | 9900 | 14800 | 16400 | ADQ | ADQ | ADQ | Maj | Reg | B P |
| | US 220 BUS | 0.1 miles south of NC 135 | 0.5 miles south of NC 135 | Mayodan | 0.4 | 50 | 4 | 12 | 60 | 35 | 22200 | 9900 | 14800 | 16400 | ADQ | ADQ | ADQ | Maj | Reg | B P |
| | US 220 BUS | 0.5 miles south of NC 135 | NC 704 | Madison | 0.4 | 50 | 5 | 10 | 60 | 35 | 25500 | 9900 | 14400 | 15900 | ADQ | ADQ | ADQ | Maj | Reg | B P |
| | | | | | | | | | | | | | | | | | | | | |
| | US 220 BUS/NC 704 | NC 704 | 0.1 miles south of NC 704 | Madison | 0.1 | 50 | 5 | 10 | 60 | 35 | 25500 | 15000 | 21300 | 24600 | ADQ | ADQ | ADQ | Maj | Reg | B P |
| | US 220 BUS/NC 704 | 0.1 miles south of NC 704 | Chief Martin St (SR 1198) | Madison | 0.1 | 48 | 5 | 10 | 60 | 35 | 25500 | 15000 | 18400 | 21600 | ADQ | ADQ | ADQ | Maj | Reg | B P |

| HIGHWAY | | | | | | | | | | | | | | | | | | | | |
|------------|--------------------------|--|--|-------------------|------------|----------------------|-------|-----------------|----------|-------------------|-------------------------|-------------|----------------------|----------------------|-------------------------|---------------|----------|--------------------|------|---------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | CTP Classification | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross-Section | ROW (ft) | | | |
| | US 220 BUS/NC 704 | Chief Martin St (SR 1198) | Gene Hairson St | Madison | 0.1 | 48 | 5 | 10 | 60 | 35 | 25500 | 12000 | 17000 | 19900 | ADQ | ADQ | ADQ | Maj | Reg | B P |
| | US 220 BUS/NC 704 | Gene Hairson St | Wilson St (SR 1152) | Madison | 0.1 | 48 | 4 | 10 | 60 | 35 | 25500 | 10000 | 14200 | 13700 | ADQ | ADQ | ADQ | Maj | Reg | P |
| | US 220 BUS/NC 704 | Wilson St (SR 1152) | 0.2 miles south of Wilson St (SR 1152) | Madison | 0.2 | 48 | 3 | 12 | 60 | 35 | 12900 | 7500 | 10600 | 10500 | ADQ | ADQ | ADQ | Maj | Reg | P |
| | US 220 BUS/NC 704 | 0.2 miles south of Wilson St (SR 1152) | Market St (SR 1199) | Madison | 0.5 | 48 | 2 | 12 | 60 | 35 | 11600 | 7000 | 10500 | 10200 | ADQ | ADQ | ADQ | Maj | Reg | |
| | US 220 BUS/NC 704 | Market St (SR 1199) | US 311 | Madison | 0.2 | 48 | 2 | 12 | 60 | 20 | 11000 | 5700 | 8800 | 8700 | ADQ | ADQ | ADQ | Maj | Reg | |
| | | | | | | | | | | | | | | | | | | | | |
| ROCK0012-H | US 220 BUS/US 311/NC 704 | US 220 BUS/NC 704 | 0.2 miles west of Mineral Springs Rd (SR 1145) | Madison | 0.2 | 48 | 2 | 12 | 60 | 35 | 11600 | 12000 | 18600 | 20200 | 31600 | 4C | 110 | B | Reg | |
| ROCK0012-H | US 220 BUS/US 311/NC 704 | 0.2 miles west of Mineral Springs Rd (SR 1145) | Mineral Springs Rd (SR 1145) | Madison | 0.2 | 28 | 2 | 12 | 60 | 35 | 11600 | 12000 | 18700 | 20200 | 31600 | 4C | 110 | B | Reg | |
| ROCK0012-H | US 220 BUS/US 311/NC 704 | Mineral Springs Rd (SR 1145) | I-73/US 220 | Madison | 1.0 | 28 | 2 | 12 | 60 | 35 | 11600 | 11000 | 17000 | 18400 | 31600 | 4C | 110 | B | Reg | |
| | | | | | | | | | | | | | | | | | | | | |
| | US 311/NC 135 | Eastern PAB | Philpott Rd (SR 2178) | Rockingham County | 1.6 | 24 | 2 | 12 | 60 | 55 | 15100 | 7400 | 12600 | 12600 | ADQ | ADQ | ADQ | Maj | Reg | |
| ROCK0013-H | US 311/NC 135 | 0.3 miles east of Philpott Rd (SR 2178) | 0.1 miles east of Philpott Rd (SR 2178) | Mayodan | 0.4 | 24 | 2 | 12 | 60 | 35 | 11600 | 7400 | 12600 | 14000 | 31600 | 4C | 80 | B | Reg | |
| ROCK0013-H | US 311/NC 135 | Philpott Rd (SR 2178) | I-73/US 220 | Mayodan | 0.4 | 36 | 3 | 12 | 60 | 35 | 12900 | 16000 | 23900 | 23900 | 31600 | 4C | 80 | B | Reg | |
| | | | | | | | | | | | | | | | | | | | | |
| | US 311 | US 220 BUS/NC 704 | Penn St | Madison | 0.2 | 42 | 3 | 12 | - | 35 | 12900 | 6700 | 9900 | 10800 | ADQ | ADQ | 80 | Maj | Reg | P |
| ROCK0014-H | US 311 | Penn St | Wilson St (SR 1152) | Madison | 0.4 | 37 | 2 | 12 | - | 35 | 11600 | 6700 | 9600 | 10300 | 12900 | 3B | 80 | Maj | Reg | P |
| ROCK0014-H | US 311 | Wilson St (SR 1152) | Island Dr (SR 1169) | Madison | 0.6 | 24 | 2 | 12 | 130 | 35 | 11600 | 9100 | 12900 | 13000 | 12900 | 3B | 80 | Maj | Reg | B P |
| ROCK0014-H | US 311 | Island Dr (SR 1169) | Lindsey Bridge Rd (SR 1138) | Madison | 0.1 | 52 | 3 | 12 | 130 | 35 | 12900 | 8000 | 11200 | 13200 | 12900 | 3A | 80 | Maj | Reg | B |

| HIGHWAY | | | | | | | | | | | | | | | | | | | | | |
|------------|----------|---|---|-------------------|------------|----------------------|-------|-----------------|----------|-------------------|-------------------------|-------------|----------------------|----------------------|-------------------------|---------------|----------|-----|---------------------|------|---------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | | CTP Classifi-cation | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross-Section | ROW (ft) | | | | |
| ROCK0014-H | US 311 | Lindsey Bridge Rd (SR 1138) | K-Fork Rd (SR 1162)/Gibson Dr (SR 1194) | Madison | 1.0 | 24 | 2 | 12 | 100 | 35 | 11600 | 7000 | 9300 | 10500 | 12900 | 3A | 80 | Maj | Reg | | |
| | US 311 | K-Fork Rd (SR 1162)/Gibson Dr (SR 1194) | 0.3 miles west of K-Fork Rd (SR 1162)/Gibson Dr (SR 1194) | Madison | 0.3 | 24 | 2 | 12 | 100 | 35 | 11600 | 5700 | 8200 | 8200 | ADQ | ADQ | ADQ | Maj | Reg | | |
| | US 311 | 0.3 miles west of K-Fork Rd (SR 1162)/Gibson Dr (SR 1194) | 1.0 miles north of Stoke County | Rockingham County | 1.8 | 24 | 2 | 12 | 100 | 45 | 14600 | 4000 | 6000 | 6000 | ADQ | ADQ | ADQ | Maj | Reg | | |
| | US 311 | 1.0 miles north of Stoke County | Stokes County | Madison | 1.0 | 24 | 2 | 12 | 100 | 45 | 14600 | 3200 | 4800 | 4800 | ADQ | ADQ | ADQ | Maj | Reg | | |
| | | | | | | | | | | | | | | | | | | | | | |
| ROCK0013-H | NC 135 | US 220 BUS | 0.2 miles east of US 220 BUS | Mayodan | 0.2 | 26 | 2 | 12 | - | 35 | 11000 | 8100 | 12800 | 13100 | 31600 | 4C | 110 | B | Reg | B P | |
| ROCK0013-H | NC 135 | 0.2 miles east of US 220 BUS | Cardwell Rd (SR 2216) | Mayodan | 0.7 | 40 | 3 | 12 | 60-100 | 35 | 14600 | 8100 | 12900 | 13200 | 31600 | 4C | 110 | B | Reg | B P | |
| ROCK0013-H | NC 135 | Cardwell Rd (SR 2216) | River Road (SR 2150) | Mayodan | 0.3 | 36 | 3 | 12 | 80 | 35 | 14600 | 7900 | 12300 | 11700 | 31600 | 4C | 110 | B | Reg | B P | |
| ROCK0013-H | NC 135 | River Rd (SR 2150) | Dan Valley Rd (SR 2177) | Mayodan | 0.6 | 36 | 3 | 12 | 80 | 35 | 14600 | 8200 | 13500 | 12800 | 31600 | 4C | 110 | B | Reg | B P | |
| ROCK0013-H | NC 135 | Dan Valley Rd (SR 2177) | I-73/US 220 | Mayodan | 0.2 | 36 | 3 | 12 | 60 | 35 | 14600 | 12000 | 18500 | 17700 | 31600 | 4C | 110 | B | Reg | B P | |
| | | | | | | | | | | | | | | | | | | | | | |
| ROCK0015-H | NC 704 | Stokes County | Cardinal Rd (SR 1165) | Mayodan | 1.5 | 20 | 2 | 10 | 100 | 55 | 11800 | 3200 | 4000 | 4000 | 12400 | 2B | 60 | Maj | Reg | | |
| ROCK0015-H | NC 704 | Cardinal Rd (SR 1165) | Case School Rd (SR 1324) | Mayodan | 0.4 | 20 | 2 | 10 | 100 | 55 | 11800 | 3500 | 4600 | 4500 | 12400 | 2B | 60 | Maj | Reg | | |
| ROCK0015-H | NC 704 | Case School Rd (SR 1324) | 0.4 miles west of Island Dr/Will Turner Rd (SR 1169) | Mayodan | 0.8 | 20 | 2 | 10 | 100 | 55 | 11800 | 3800 | 4900 | 4900 | 12400 | 2B | 60 | Maj | Reg | | |
| ROCK0015-H | NC 704 | 0.4 miles west of Island Dr/Will Turner Rd (SR 1169) | Island Dr/Will Turner Rd (SR 1169) | Mayodan | 0.4 | 32 | 2 | 10 | 100 | 55 | 11800 | 4800 | 6300 | 6200 | 12400 | 2B | 60 | Maj | Reg | | |
| ROCK0015-H | NC 704 | Island Dr/Will Turner Rd (SR 1169) | 0.1 miles west of Ayersville Rd (SR 1300) | Mayodan | 0.6 | 20 | 2 | 10 | 100 | 55 | 11800 | 5200 | 7000 | 5500 | 12400 | 2B | 60 | Maj | Reg | | |

| HIGHWAY | | | | | | | | | | | | | | | | | | | | |
|------------|---------------------------|---|---|--------------|------------|----------------------|-------|-----------------|----------|-------------------|-------------------------|-------------|----------------------|----------------------|-------------------------|---------------|----------|--------------------|------|---------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | CTP Classification | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross-Section | ROW (ft) | | | |
| | NC 704 | 0.1 miles west of Ayersville Rd (SR 1300) | Ayersville Rd (SR 1300) | Mayodan | 0.1 | 52 | 5 | 11 | 100 | 35 | 26000 | 5200 | 7000 | 5500 | ADQ | ADQ | ADQ | Maj | Reg | P |
| | NC 704 | Ayersville Rd (SR 1300) | US 220 BUS | Madison | 0.5 | 52 | 5 | 11 | - | 35 | 26000 | 6600 | 9400 | 8200 | ADQ | ADQ | ADQ | Maj | Reg | P |
| | NC 704 | I-73/US 220 | Eastern PAB | Madison | 2.7 | 24 | 2 | 12 | 100 | 55 | 12400 | 4900 | 6500 | 7400 | ADQ | ADQ | ADQ | Maj | Reg | |
| | | | | | | | | | | | | | | | | | | | | |
| ROCK0016-H | Ayersville Rd (SR 1300) | Northern PAB | Park Rd (SR 1321) | Mayodan | 2.6 | 22 | 2 | 11 | - | 55 | 12400 | 1500 | 2200 | 2200 | ADQ | 2B | 60 | Min | Sub | B |
| ROCK0016-H | Ayersville Rd (SR 1300) | Park Rd (SR 1321) | 0.5 miles north of Will Turner Rd (SR 1169) | Mayodan | 1.2 | 22 | 2 | 11 | - | 55 | 12400 | 2600 | 3600 | 3600 | ADQ | 2B | 60 | Min | Sub | B |
| ROCK0016-H | Ayersville Rd (SR 1300) | 0.5 miles north of Will Turner Rd (SR 1169) | Will Turner Rd (SR 1169) | Mayodan | 0.5 | 24 | 2 | 12 | - | 35 | 11600 | 2600 | 3500 | 3500 | ADQ | 2B | 60 | Min | Sub | B |
| ROCK0016-H | Ayersville Rd (SR 1300) | Will Turner Rd (SR 1169) | Main St (SR 1305) | Mayodan | 0.2 | 24 | 2 | 12 | - | 35 | 11000 | 3900 | 5200 | 4900 | ADQ | 2B | 60 | Min | Sub | B |
| | Ayersville Rd (SR 1300) | Main St (SR 1305) | Washington St (SR 1302) | Mayodan | 0.2 | 24 | 2 | 12 | - | 35 | 11000 | 3400 | 4900 | 4900 | ADQ | ADQ | ADQ | Min | Sub | |
| | Ayersville Rd (SR 1300) | Washington St (SR 1302) | 0.3 miles north of NC 704 | Mayodan | 0.3 | 24 | 2 | 12 | - | 25 | 11000 | 4400 | 5600 | 5400 | ADQ | ADQ | ADQ | Min | Sub | P |
| | Ayersville Rd (SR 1300) | 0.3 miles north of NC 704 | NC 704 | Mayodan | 0.3 | 36 | 2 | 12 | - | 35 | 11000 | 4400 | 5500 | 5500 | ADQ | ADQ | ADQ | Min | Sub | P |
| | | | | | | | | | | | | | | | | | | | | |
| | Cardinal Rd (SR 1165) | NC 704 | K-Fork Rd (SR 1162) | Mayodan | 0.9 | 20 | 2 | 10 | 60 | 55 | 11800 | 1400 | 2100 | 2100 | ADQ | ADQ | ADQ | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| | Case School Rd (SR 1324) | Park Rd (SR 1321) | NC 704 | Mayodan | 1.6 | 20 | 2 | 10 | - | 45 | 11800 | 800 | 1000 | 1000 | ADQ | ADQ | ADQ | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| | Cardwell Rd (SR 2216) | NC 135 | End | Mayodan | 0.5 | 18 | 2 | 9 | 60 | 55 | 10500 | 500 | 3700 | 3700 | ADQ | ADQ | ADQ | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| ROCK0017-H | Chief Martin St (SR 1198) | US 220 BUS/NC 704 | Cure Dr (SR 1192) | Madison | 0.4 | 20 | 2 | 10 | - | 35 | 10200 | 600 | 900 | 4400 | 10200 | 2B | 60 | Min | Sub | P |
| ROCK0017-H | Chief Martin St Ext | Cure Dr (SR 1192) | Island Dr (SR 1169) | Madison | 0.5 | - | - | - | - | - | - | - | | 4100 | 10200 | 2B | 60 | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| | Dan Valley Rd (SR 2177) | NC 135 | River Rd (SR 2150) | Mayodan | 0.5 | 22 | 2 | 11 | - | 55 | 12400 | 4100 | 5400 | 5400 | ADQ | ADQ | ADQ | Min | Sub | |

| HIGHWAY | | | | | | | | | | | | | | | | | | | | | |
|------------|-------------------------|---------------------------------------|---------------------------------------|--------------|------------|----------------------|-------|-----------------|----------|-------------------|-------------------------|-------------|----------------------|----------------------|-------------------------|---------------|----------|-----|--------------------|------|---------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | | CTP Classification | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross-Section | ROW (ft) | | | | |
| | Dan Valley Rd (SR 2177) | River Rd (SR 2150) | 0.2 miles south of River Rd (SR 2150) | Mayodan | 0.2 | 22 | 2 | 11 | - | 55 | 12400 | 3500 | 5300 | 5400 | ADQ | ADQ | ADQ | Min | Sub | | |
| | Dan Valley Rd (SR 2177) | 0.2 miles south of River Rd (SR 2150) | 0.2 miles north of Decatur St | Madison | 1.3 | 22 | 2 | 11 | - | 45 | 11800 | 3500 | 5300 | 5400 | ADQ | ADQ | ADQ | Min | Sub | | |
| | Dan Valley Rd (SR 2177) | 0.2 miles north of Decatur St | Decatur St | Madison | 0.2 | 22 | 2 | 11 | - | 35 | 9500 | 3500 | 5300 | 5400 | ADQ | ADQ | ADQ | Min | Sub | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | E Decatur St | US 220 BUS/NC 704 | Dan Valley Rd (SR 2177) | Madison | 0.2 | 20 | 2 | 10 | - | 35 | 9500 | 3500 | 5000 | 5100 | ADQ | ADQ | ADQ | Min | Sub | P | |
| | | | | | | | | | | | | | | | | | | | | | |
| | Ellisboro Rd (SR 1110) | I-73/US 220 BUS | Mineral Springs Rd (SR 1145) | Madison | 1.9 | 22 | 2 | 11 | - | 55 | 12400 | 2000 | 3300 | 1700 | ADQ | ADQ | ADQ | Min | Sub | | |
| | Ellisboro Rd (SR 1110) | Mineral Springs Rd (SR 1145) | Rierson Rd (SR 1143) | Madison | 0.8 | 22 | 2 | 11 | - | 55 | 12400 | 2400 | 4000 | 2200 | ADQ | ADQ | ADQ | Min | Sub | | |
| ROCK0018-H | Ellisboro Rd (SR 1110) | Rierson Rd (SR 1143) | Sardis Church Rd (SR 1128) | Madison | 0.2 | 22 | 2 | 11 | - | 55 | 12400 | 4400 | 8200 | 5400 | 12400 | 2A | 60 | Min | Sub | B | |
| ROCK0018-H | Ellisboro Rd (SR 1110) | Sardis Ch Rd (SR 1128) | Southern PAB | Madison | 0.4 | 22 | 2 | 11 | - | 55 | 12400 | 3300 | 5800 | 5800 | 12400 | 2A | 60 | Min | Sub | B | |
| | | | | | | | | | | | | | | | | | | | | | |
| | Gene Hairson St | US 220 Bus/NC 704 | Market St (SR 1199) | Madison | 0.5 | 18 | 2 | 9 | - | 35 | 9500 | 1500 | 2200 | 2200 | ADQ | ADQ | ADQ | Min | Sub | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | Gibson Dr (SR 1194) | US 311 | Lindsey Bridge Rd (SR 1138) | Madison | 0.7 | 20 | 2 | 10 | - | 35 | 9500 | 2100 | 4500 | 2700 | ADQ | ADQ | ADQ | Min | Sub | | |
| | | | | | | | | | | | | | | | | | | | | | |
| ROCK0019-H | Island Dr (SR 1169) | NC 704 | 0.4 miles north of US 311 | Madison | 1.4 | 20 | 2 | 10 | - | 55 | 11800 | 3200 | 3900 | 2100 | 12400 | 2A | 60 | Min | Sub | B | |
| ROCK0019-H | Island Dr (SR 1169) | 0.4 miles north of US 311 | US 311 | Madison | 0.4 | 20 | 2 | 10 | - | 35 | 9500 | 2600 | 3700 | 3600 | 10200 | 2A | 60 | Min | Sub | B | |
| | | | | | | | | | | | | | | | | | | | | | |
| | K-Fork Rd (SR 1162) | Stokes County | Cardinal Rd (SR 1165) | Madison | 0.8 | 20 | 2 | 10 | - | 55 | 11800 | 1200 | 1800 | 1800 | ADQ | ADQ | ADQ | Min | Sub | | |
| | K-Fork Rd (SR 1162) | Cardinal Rd (SR 1165) | 0.3 miles north of US 311 | Madison | 1.1 | 20 | 2 | 10 | - | 55 | 11800 | 1900 | 2600 | 2700 | ADQ | ADQ | ADQ | Min | Sub | | |
| | K-Fork Rd (SR 1162) | 0.3 miles north of US 311 | US 311 | Madison | 0.3 | 20 | 2 | 10 | - | 35 | 9500 | 2000 | 2900 | 2900 | ADQ | ADQ | ADQ | Min | Sub | | |
| | | | | | | | | | | | | | | | | | | | | | |

| HIGHWAY | | | | | | | | | | | | | | | | | | | | |
|------------|------------------------------|---|---|--------------|---------------|------------------------|-------|-----------------------|-------------|-------------------------|-------------------------------|----------------|-----------------------|-------------------------------|-------------------------------|-------------------|-------------|----------------------------|------|------------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | CTP Classifi- cation | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross- Section | ROW (ft) | | | |
| ROCK0020-H | Lindsey Bridge Rd (SR 1138) | US 311 | Gibson Dr (SR 1194) | Madison | 0.5 | 24 | 2 | 12 | - | 35 | 10200 | 3000 | 4600 | 5400 | 10200 | 2A | 60 | Min | Sub | B |
| ROCK0020-H | Lindsey Bridge Rd (SR 1138) | Gibson Dr (SR 1194) | 0.3 miles south of Gibson Dr (SR 1194) | Madison | 0.3 | 24 | 2 | 12 | - | 35 | 10200 | 3500 | 6400 | 6100 | 10200 | 2A | 60 | Min | Sub | B |
| ROCK0020-H | Lindsey Bridge Rd (SR 1138) | 0.3 miles south of Gibson Dr (SR 1194) | Rierson Rd (SR 1143) | Madison | 0.4 | 22 | 2 | 11 | - | 55 | 12400 | 3500 | 6400 | 6100 | 10200 | 2A | 60 | Min | Sub | B |
| ROCK0020-H | Lindsey Bridge Rd (SR 1138) | Rierson Rd (SR 1143) | Sardis Church Rd (SR 1128) | Madison | 2.5 | 20 | 2 | 10 | - | 55 | 11800 | 1000 | 1700 | 2000 | 12400 | 2A | 60 | Min | Sub | |
| ROCK0020-H | Lindsey Bridge Rd (SR 1138) | Sardis Ch Rd (SR 1128) | 1.0 miles east of Stokes County Boundary | Madison | 0.5 | 20 | 2 | 10 | - | 55 | 11800 | 1300 | 2400 | 2400 | 12400 | 2A | 60 | Min | Sub | |
| ROCK0020-H | Lindsey Bridge Rd (SR 1138) | 1.0 miles east of Stokes County Boundary | Stokes County Boundary | Madison | 1.0 | 20 | 2 | 10 | 60 | 55 | 11800 | 1000 | 2000 | 2000 | 12400 | 2A | 60 | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| | Main St (SR 1305) | Ayersville Rd (SR 1300) | US 220 BUS | Mayodan | 0.6 | 46 | 2 | 12 | - | 35 | 10200 | 3000 | 3400 | 2900 | ADQ | ADQ | ADQ | Min | Sub | B |
| | | | | | | | | | | | | | | | | | | | | |
| | Market St (SR 1199) | End | Gene Hairson St | Madison | 0.2 | 20 | 2 | 10 | - | 35 | 10200 | 500 | 600 | 600 | ADQ | ADQ | ADQ | Min | Sub | |
| | Market St (SR 1199) | Gene Hairson St | US 220 BUS/NC 704 | Madison | 0.5 | 20 | 2 | 10 | - | 35 | 10200 | 1000 | 1200 | 1200 | ADQ | ADQ | ADQ | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| | Mineral Springs Rd (SR 1145) | US 220 BUS/US 311/NC 704 | 0.2 miles south of US 220 BUS/US 311/NC 704 | Madison | 0.2 | 20 | 2 | 10 | - | 35 | 9500 | 900 | 1500 | 1600 | ADQ | ADQ | ADQ | Min | Sub | |
| | Mineral Springs Rd (SR 1145) | 0.2 miles south of US 220 BUS/US 311/NC 704 | 1.4 miles north of Ellisboro Rd (SR 1110) | Madison | 1.7 | 18 | 2 | 9 | - | 55 | 10500 | 900 | 1400 | 2000 | ADQ | ADQ | ADQ | Min | Sub | |
| | Mineral Springs Rd (SR 1145) | 1.4 miles north of Ellisboro Rd (SR 1110) | Ellisboro Rd (SR 1110) | Madison | 1.4 | 20 | 2 | 10 | - | 55 | 11800 | 900 | 1500 | 2200 | ADQ | ADQ | ADQ | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |
| | Park Rd (SR 1321) | Case School Rd (SR 1324) | Ayersville Rd (SR 1300) | Mayodan | 1.3 | 20 | 2 | 10 | - | 55 | 11800 | 700 | 900 | 900 | ADQ | ADQ | ADQ | Min | Sub | |
| | | | | | | | | | | | | | | | | | | | | |

| HIGHWAY | | | | | | | | | | | | | | | | | | | | |
|------------|----------------------------|-----------------------------|---------------------------------|--------------|---------------|----------------------|-------|--------------------|-------------|-------------------------|-------------------------------|----------------|-----------------------|-------------------------------|-------------------------------|-------------------|-------------|----------------------------|------|------------------------------|
| Local ID | Facility | Section | | Jurisdiction | Dist. (mi) | 2013 Existing System | | | | | | | 2040 Proposed System | | | | | CTP Classifi- cation | Tier | Proposals for Other Modes |
| | | From | To | | | Total Width (ft) | Lanes | Lane Width (ft) | ROW (ft) | Speed Limit (mph) | Existing Capacity (vpd) | 2013 Volume | 2040 Volume E+C | 2040 Volume with CTP | Proposed Capacity (vpd) | Cross- Section | ROW (ft) | | | |
| ROCK0021-H | Rierson Rd (SR 1143) | Lindsey Bridge Rd (SR 1138) | Ellisboro Rd (SR 1110) | Madison | 2.3 | 20 | 2 | 10 | 60 | 55 | 11800 | 2400 | 4500 | 4000 | 12400 | 2B | ADQ | Min | Sub | B |
| ROCK0022-H | River Rd (SR 2150) | NC 135 | Dan Valley Rd (SR 2177) | Mayodan | 0.5 | 20 | 2 | 10 | 60 | 55 | 11800 | 1100 | 2500 | 2700 | ADQ | 2B | ADQ | Min | Sub | B |
| ROCK0022-H | River Rd (SR 2150) | Dan Valley Rd (SR 2177) | Grogan Rd (SR 2153)/Eastern PAB | Mayodan | 2.7 | 22 | 2 | 11 | - | 55 | 12400 | 2600 | 5900 | 5800 | ADQ | 2B | 60 | Min | Sub | B |
| | Sardis Church Rd (SR 1128) | Lindsey Bridge Rd (SR 1138) | Ellisboro Rd (SR 1110) | Madison | 1.9 | 20 | 2 | 10 | 60 | 55 | 11800 | 1200 | 2000 | 1600 | ADQ | ADQ | ADQ | Min | Sub | |
| | Sardis Church Rd (SR 1128) | Ellisboro Rd (SR 1110) | I-73/US 220 | Madison | 1.8 | 20 | 2 | 10 | 60 | 55 | 11800 | 2200 | 4300 | 5600 | ADQ | ADQ | ADQ | Min | Sub | |
| | Washington St (SR 1302) | Ayersville Rd (SR 1300) | US 220 BUS | Mayodan | 0.4 | 36 | 2 | 12 | - | 35 | 10200 | 2500 | 3400 | 3300 | ADQ | ADQ | ADQ | Min | Sub | P |
| ROCK0023-H | Will Turner Rd (SR 1169) | Ayersville Rd (SR 1300) | NC 704 | Mayodan | 1.0 | 24 | 2 | 12 | 60 | 35 | 10200 | 2300 | 2900 | 2400 | 10200 | 2A | ADQ | Min | Sub | B |
| | Wilson Rd (SR 1152) | US 220B/NC 704 | US 311 | Madison | 0.6 | 36 | 2 | 12 | - | 35 | 10200 | 4900 | 7000 | 6300 | ADQ | ADQ | ADQ | Min | Sub | P |

PUBLIC TRANSPORTATION AND RAIL

| PUBLIC TRANSPORTATION ¹ | | | | | | | |
|------------------------------------|---|--|-------------------|---------------|-----------------|-----------------|-------------|
| Local ID | Facility/ Route | Section (From - To) | Speed Limit (mph) | Distance (mi) | Existing System | Proposed System | Other Modes |
| | | | | | Type | Type | |
| MDMD0001-T | Rockingham County PART Route 1 Bus Route | US 220 (US 311/NC 135 Interchange) - PART Hub | 55 to 60 | 10.5 | | Bus | H |

| RAIL | | | | | | | | | | | | |
|----------|---------------------------|------------------------------------|-------|-------------------|---------------|-----------------|----------|----------------|-----------------|----------|----------------|-------------|
| Local ID | Facility/ Route | Section (From - To) | Class | Speed Limit (mph) | Distance (mi) | Existing System | | | Proposed System | | | Other Modes |
| | | | | | | Type | ROW (ft) | Trains per day | Type | ROW (ft) | Trains per day | |
| | Norfolk-Southern (R-Line) | W. Roanoke, VA - Winston-Salem, NC | I | 25-35 | 123.2 | Freight | Varies | 11 to 13 | | | | |

BICYCLE AND PEDESTRIAN¹

| BICYCLE | | | | | | | | |
|------------|-----------------|-------------------------------------|------------------|---|-------|-----------------|---------------|----------------|
| Local ID | Facility/ Route | Section (From - To) | Distance (mi) | Existing System | | Proposed System | | Other Modes |
| | | | | Cross-Section | | Type | Cross-Section | |
| | | | | (ft) | lanes | | | |
| | | | | | | | | |
| ROCK0009-B | US 311/NC 135 | I-73/US 220 - Philpott Rd (SR 2178) | 0.6 | Concurrent with US 311/NC 135 - See Highway Table | | | | H P |
| | | | | | | | | |
| ROCK0009-B | NC 135 | River Rd (SR 2150) - I-73/US 220 | 0.8 | Concurrent with NC 135 - See Highway Table | | | | H P |

¹For further documentation of bicycle and pedestrian facilities and proposals, refer to: Regional Bicycle Study (PTRPO - 2005), and the 2013 Rockingham County Pathways Plan and Report (PTRPO - 2013)

| PEDESTRIAN | | | | | | | | |
|------------|-------------------------|--|------------------|--|----------------|-----------------|----------------|----------------|
| Local ID | Facility/ Route | Section (From - To) | Distance (mi) | Existing System | | Proposed System | | Other Modes |
| | | | | Type | Side of Street | Type | Side of Street | |
| | US 220 BUS | Jackson St - Main St (SR 1305) | 0.3 | Sidewalks | Both | | | H |
| | US 220 BUS | Main St (SR 1305) - 0.1 miles north of NC 135 | 0.2 | Sidewalks | Both | | | H B |
| ROCK0013-P | US 220 BUS | NC 135 - 0.1 miles north of Burton St | 0.5 | Sidewalks | West | Sidewalks | East | H B |
| | US 220 BUS | 0.1 miles north of Burton St - NC 704 | 0.4 | | | Sidewalks | Both | H B |
| ROCK0013-P | US 220 BUS/NC 704 | NC 704 - Gene Hairson ST | 0.3 | Sidewalks | West | Sidewalks | East | H B |
| ROCK0013-P | US 220 BUS/NC 704 | Gene Hairson St - 0.2 miles S of Wilson St (SR 1152) | 0.3 | Sidewalks | East | Sidewalks | West | H |
| | US 220 BUS/NC 704 | 0.2 miles south of Wilson St (SR 1152) | 0.5 | Sidewalks | Both | | | H |
| | US 220 BUS/NC 704 | Market St (SR 1199) - US 311 | 0.2 | Sidewalks | Both | | | H |
| | US 311 | US 220 BUS/NC 704 - Lonesome Rd | 0.7 | Sidewalks | Both | | | H |
| ROCK0014-H | US 311 | Lonesome Rd -Lindsey Bridge Rd (SR 1138) | 0.5 | Concurrent with US 311 - See Highway Table | | | | H B |
| ROCK0013-H | NC 135 | US 220 BUS - Philpott Rd (SR 2178) | 2.4 | Concurrent with NC 135 - See Highway Table | | | | H B |
| ROCK0014-P | NC 704 | 0.2 miles west of Ayersville Rd (SR 1300) - US 220 Bus | 0.7 | Sidewalks | South | Sidewalks | North | H |
| ROCK0015-P | Adams St | 3rd Ave - US 220 BUS | 0.1 | Sidewalks | North | Sidewalks | South | |
| ROCK0016-P | Ayersville Rd (SR 1300) | Main St (SR 1305) - Blackburn St | 0.4 | | | Sidewalks | Both | H |
| ROCK0016-P | Ayersville Rd (SR 1300) | Blackburn St - NC 704 | 0.4 | Sidewalks | West | Sidewalks | East | H |
| ROCK0017-P | Burton St | NC 704 - US 220 BUS | 0.2 | | | Sidewalks | Both | |

| PEDESTRIAN | | | | | | | | |
|------------|---------------------------|---|---------------|-----------------|----------------|-----------------|----------------|-------|
| Local ID | Facility/ Route | Section (From - To) | Distance (mi) | Existing System | | Proposed System | | Other |
| | | | | Type | Side of Street | Type | Side of Street | Modes |
| ROCK0018-P | Chief Martin St (SR 1198) | US 220 BUS/NC 704 - Cure Dr (SR 1192) | 0.4 | | | Sidewalks | Both | H |
| | | | | | | | | |
| ROCK0019-P | E Decatur St | US 220 BUS/NC 704 - Dalton St | 0.1 | Sidewalks | South | Sidewalks | North | H |
| | | | | | | | | |
| ROCK0020-P | W Decatur St | Wilson St (SR 1152) - US 220 BUS/NC 704 | 0.2 | | | Sidewalks | Both | |
| | Franklin St (SR 1151) | US 220 BUS/NC 704 - Hunter St | 0.2 | Sidewalks | Both | | | B |
| ROCK0021-P | Franklin St (SR 1151) | Hunter St - US 311 | 0.1 | Sidewalks | East | Sidewalks | West | |
| | | | | | | | | |
| ROCK0022-P | Hunter St | Proposed Greenway - Kuykendall St | 0.7 | | | Sidewalks | Both | |
| ROCK0022-P | Hunter St | Kuykendall St - Dalton St | 0.5 | Sidewalks | North | Sidewalks | South | |
| | | | | | | | | |
| | Main St (SR 1305) | Ayersville Rd (SR 1300) - US 220 BUS | 0.6 | Sidewalks | Both | | | H B |
| | E Main St | US 220 BUS - 1st Ave | 0.1 | Sidewalks | Both | | | |
| | | | | | | | | |
| | Murphy St | Franklin St (SR 1151) - US 220 BUS/NC 704 | 0.1 | Sidewalks | Both | | | |
| | Murphy St (SR 2177) | US 220 BUS/NC 704 - Dalton St | 0.1 | Sidewalks | Both | | | |
| | | | | | | | | |
| ROCK0023-P | Washington St (SR 1302) | Ayersville Rd (SR 1300) - 5th Ave | 0.2 | | | Sidewalks | Both | H |
| ROCK0023-P | Washington St (SR 1302) | 5th Ave - US 220 BUS | 0.2 | Sidewalks | North | Sidewalks | South | H |
| | | | | | | | | |
| ROCK0024-P | Wilson Rd (SR 1152) | US 220 BUS/NC 704 - US 311 | 0.6 | | | Sidewalks | Both | H |

¹For further documentation of bicycle and pedestrian facilities and proposals, refer to: Sidewalk Inventory (PTRPO - 2007), and the Rockingham County Pathways Plan and Report (PTRPO - 2013)

Appendix D

Typical Cross Sections

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

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

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

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

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

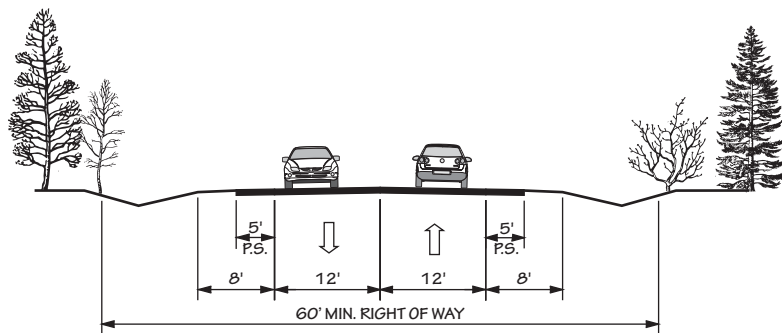
² For more information on prioritization, go to: <https://connect.ncdot.gov/projects/planning/Pages/StrategicPrioritization.aspx>.

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

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

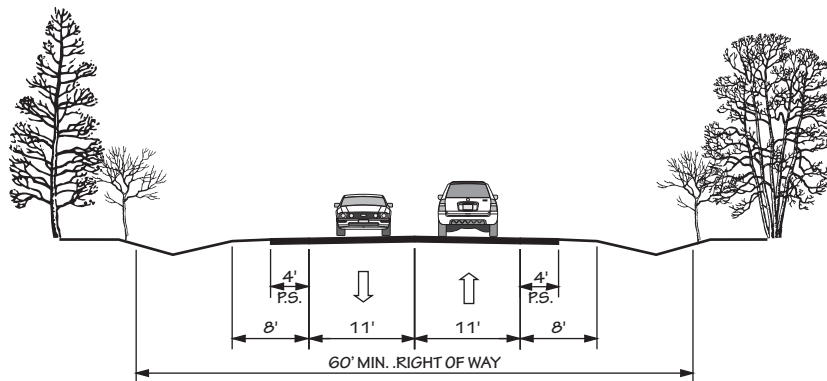
FIGURE 7 "TYPICAL" HIGHWAY CROSS SECTIONS

2A



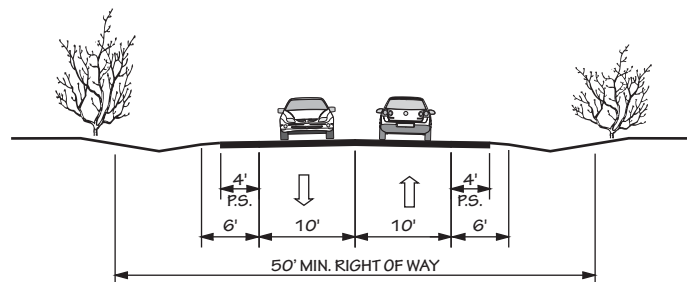
2 LANE UNDIVIDED WITH PAVED SHOULDERS
POSTED SPEED 55 MPH

2B



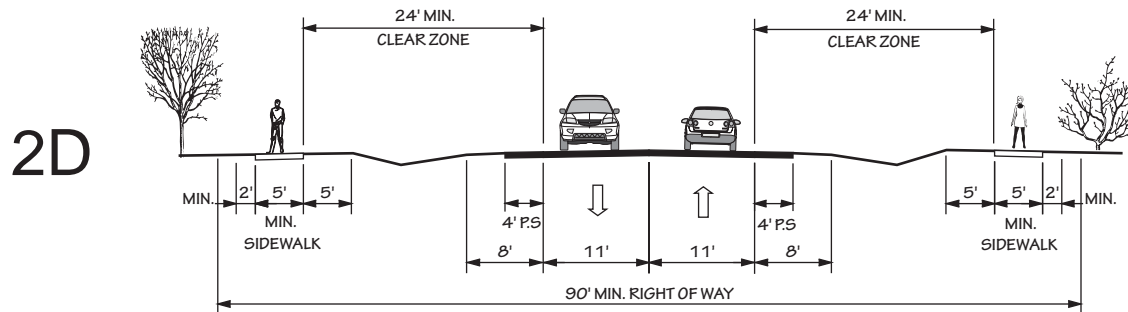
2 LANES UNDIVIDED
POSTED SPEED 45 MPH OR LESS

2C

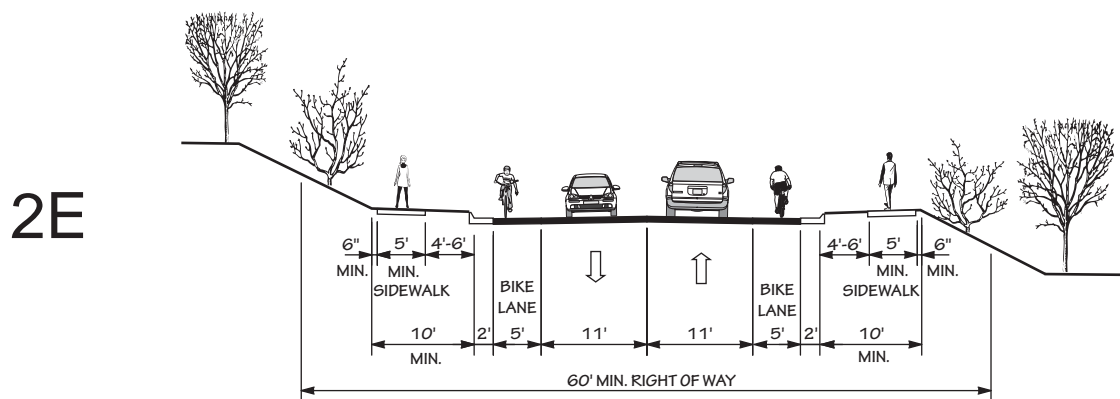


2 LANE UNDIVIDED WITH PAVED SHOULDERS
POSTED SPEED 25 - 35 MPH

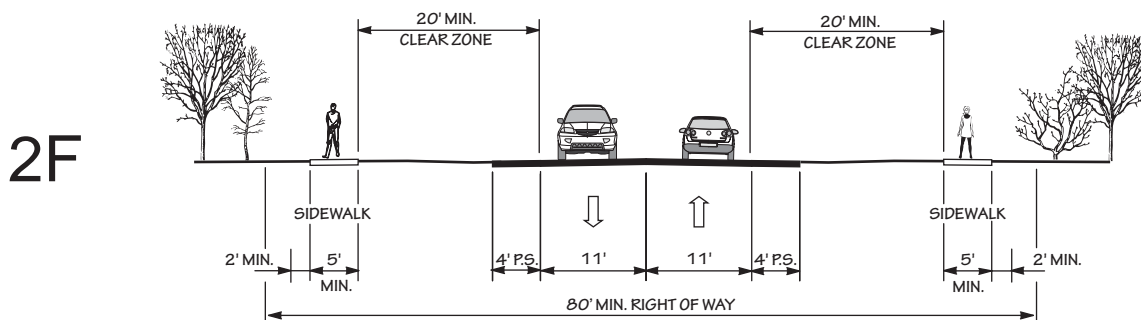
“TYPICAL” HIGHWAY CROSS SECTIONS



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

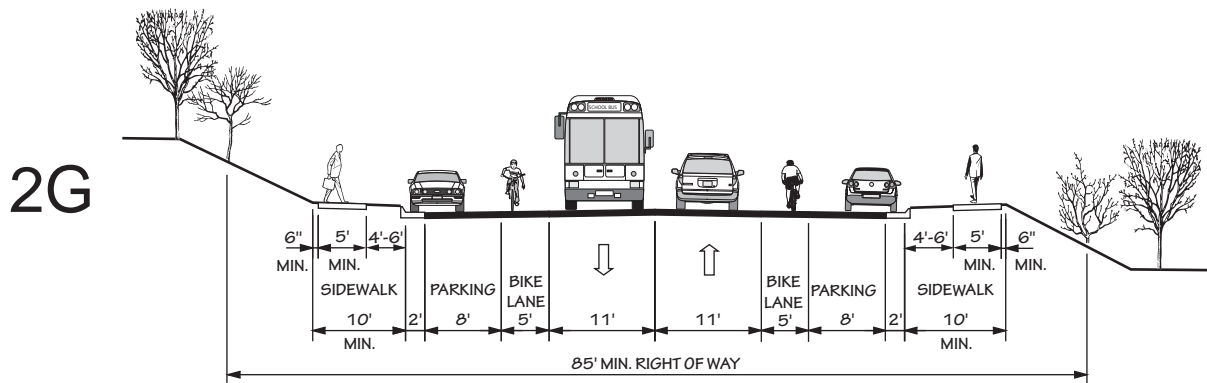


2 LANE UNDIVIDED WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH

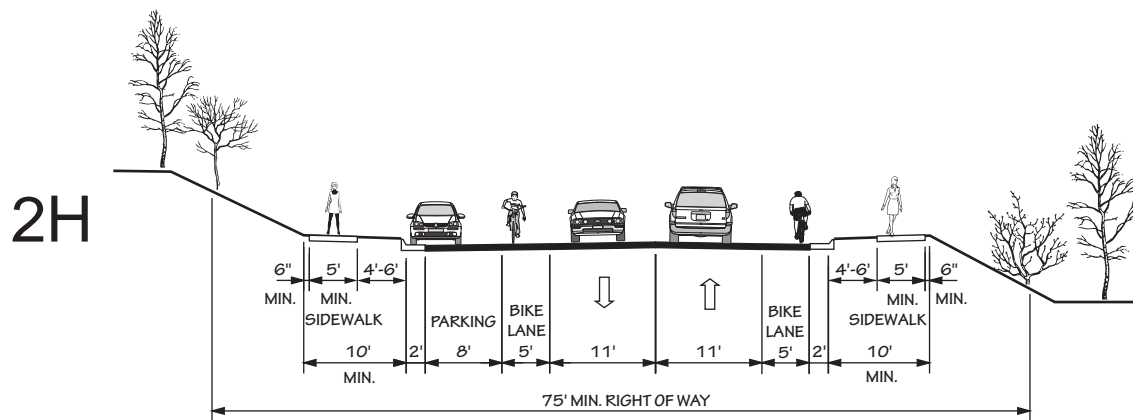


2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS
IN CEMA COUNTIES
POSTED SPEED 25-45 MPH

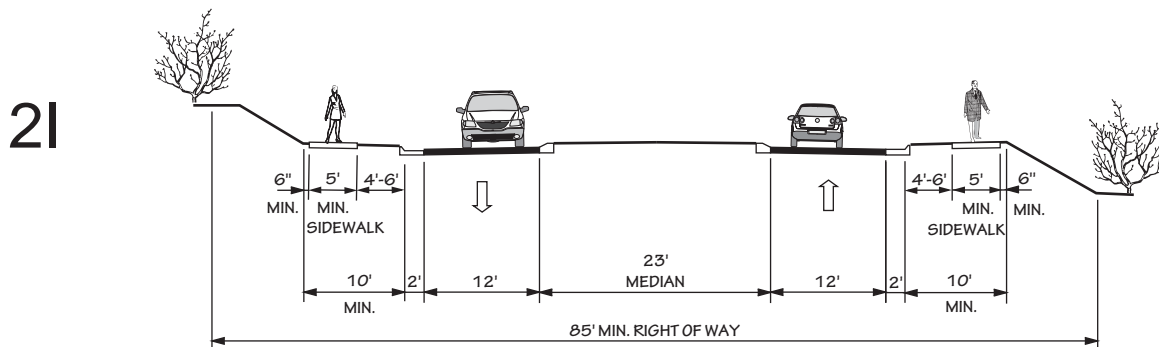
“TYPICAL” HIGHWAY CROSS SECTIONS



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



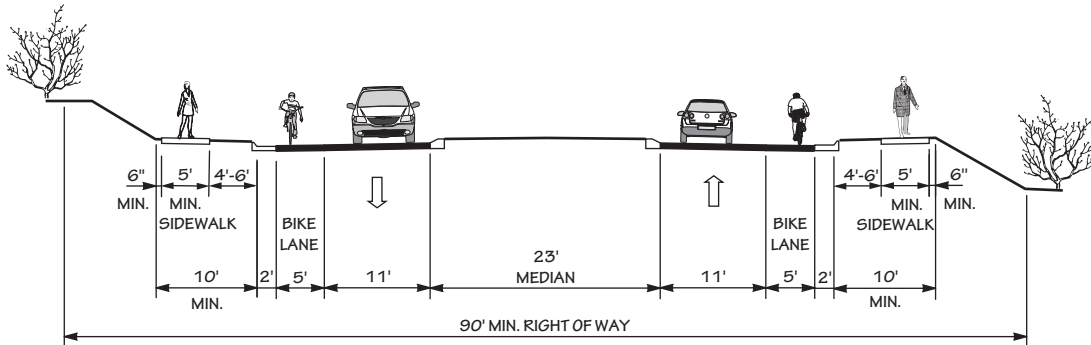
2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING ONE SIDE,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH



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

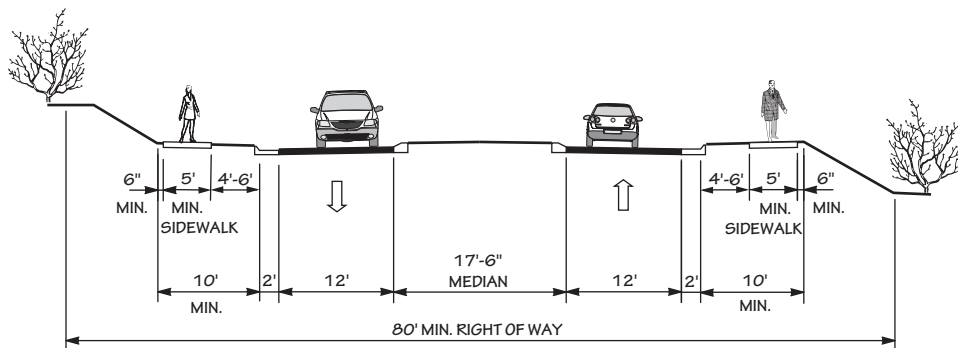
“TYPICAL” HIGHWAY CROSS SECTIONS

2J



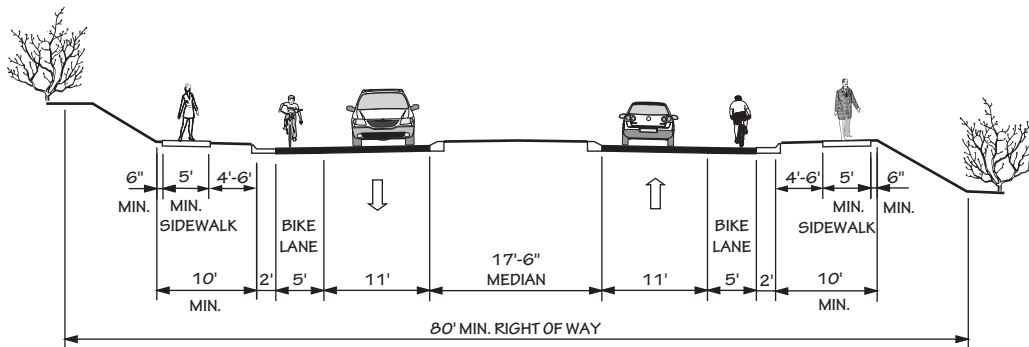
**2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER,
BIKE LANES, AND SIDEWALKS**
POSTED SPEED 25-45 MPH

2K



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

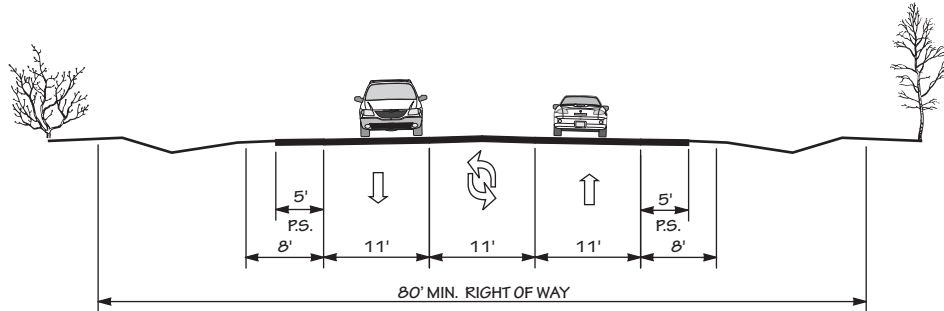
2L



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

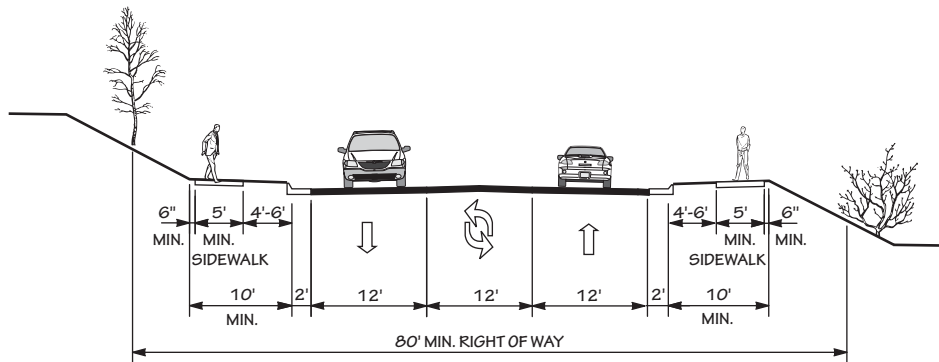
“TYPICAL” HIGHWAY CROSS SECTIONS

3A



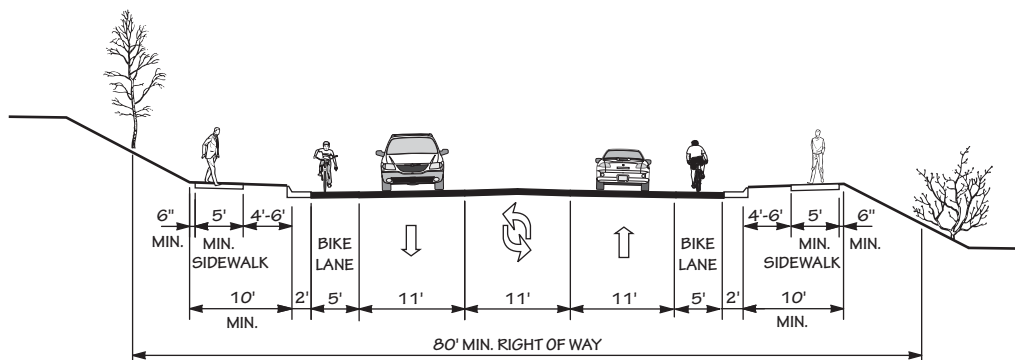
2 LANE WITH TWO WAY LEFT TURN LANE, AND PAVED SHOULDERS
POSTED SPEED 25-55 MPH

3B



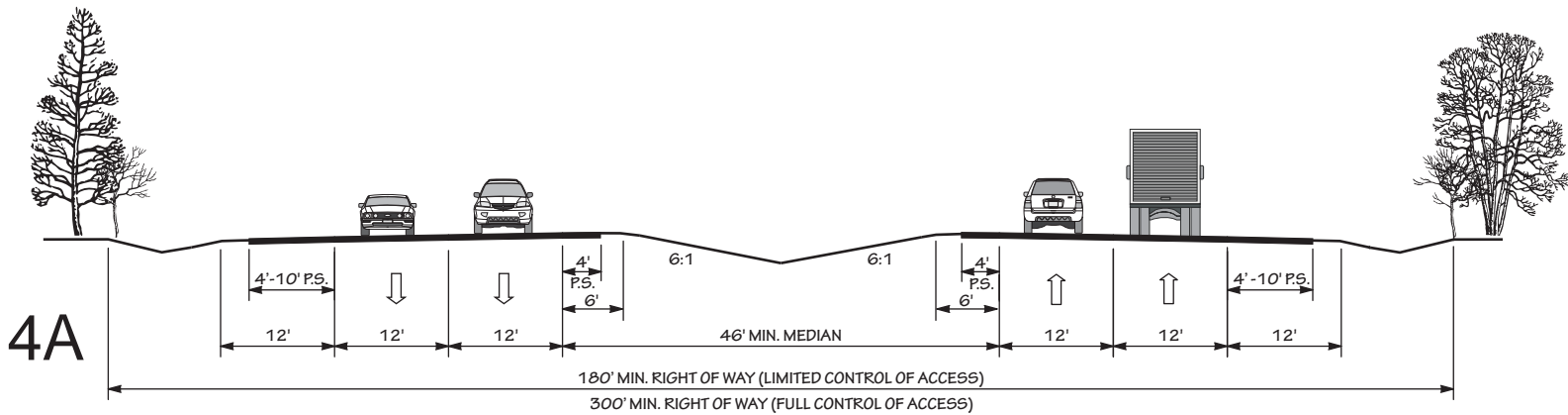
2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER,
AND SIDEWALKS
POSTED SPEED 25-45 MPH

3C

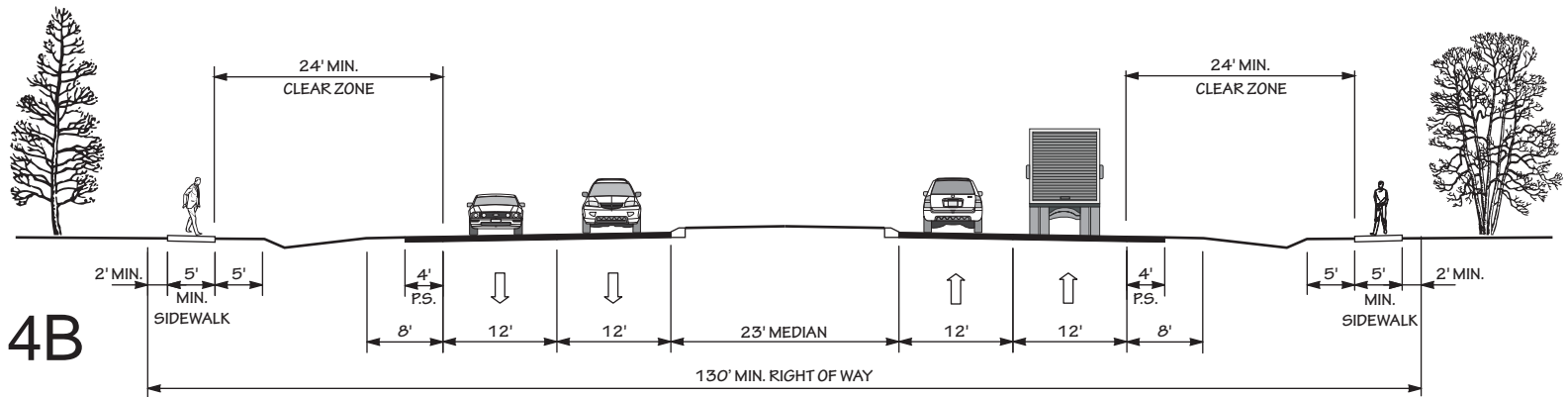


2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 25-45 MPH

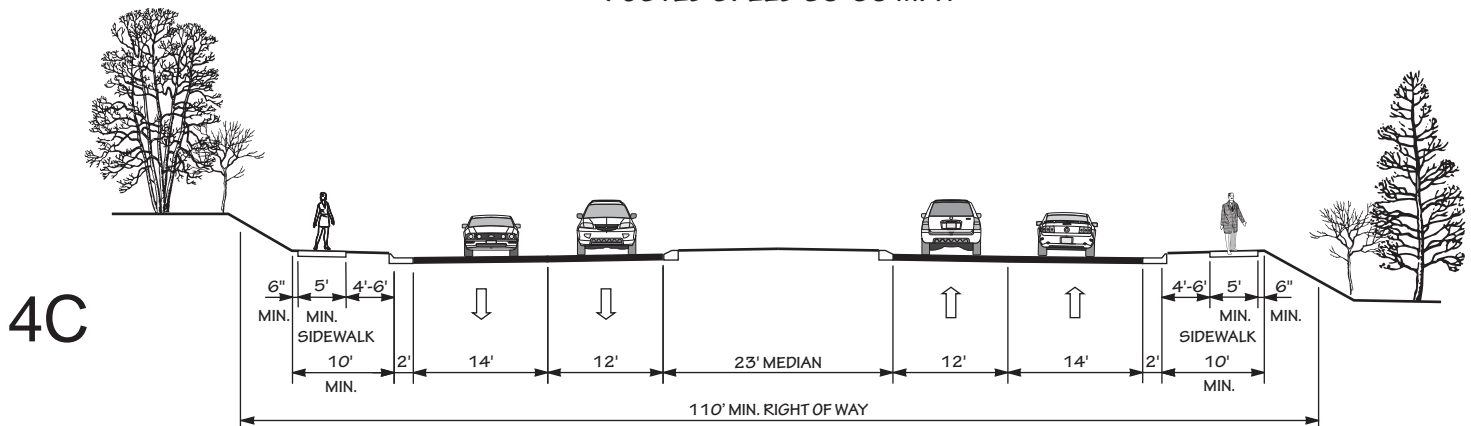
“TYPICAL” HIGHWAY CROSS SECTIONS



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

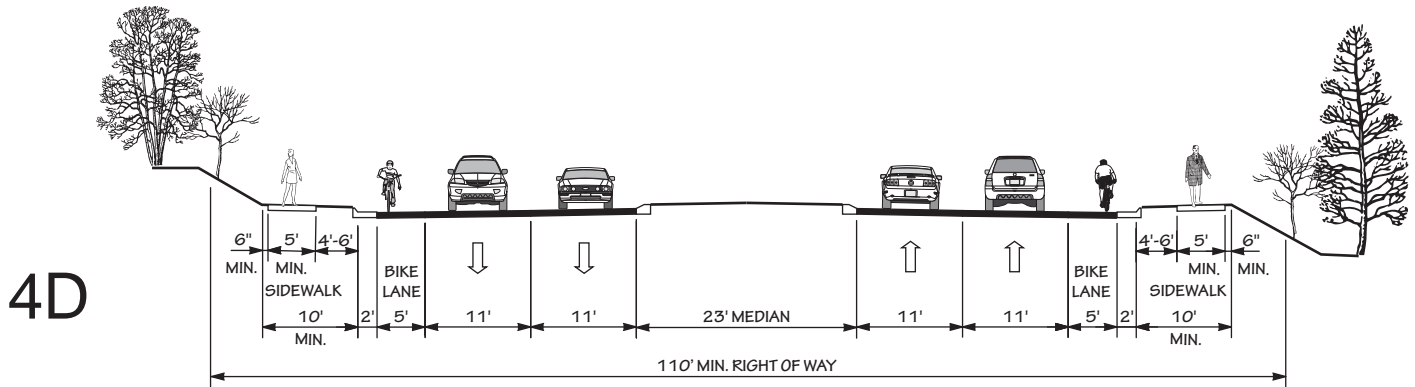


4 LANE DIVIDED (23' RAISED MEDIAN) WITH PAVED SHOULDERS AND SIDEWALKS
POSTED SPEED 35-55 MPH

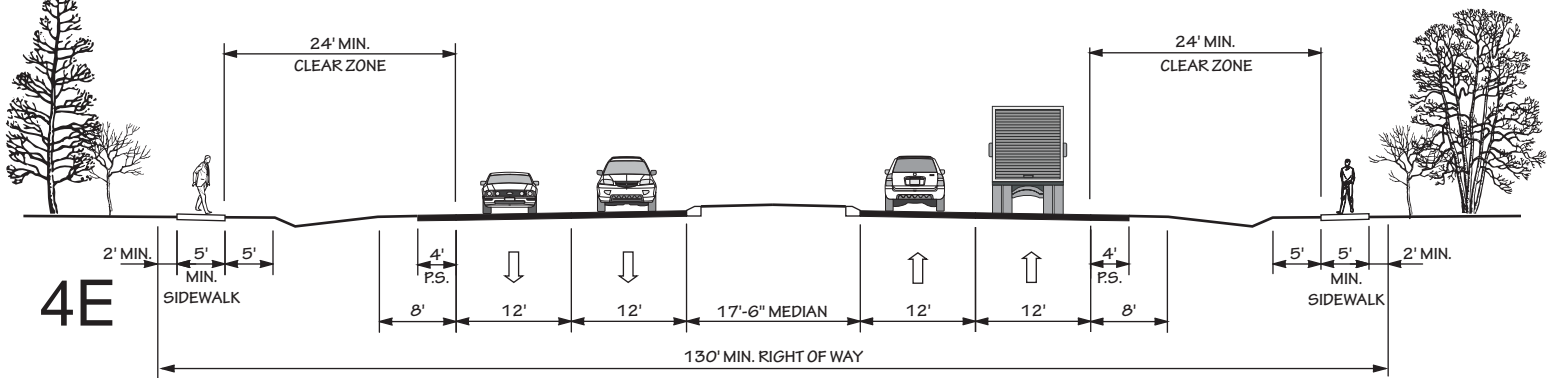


4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH

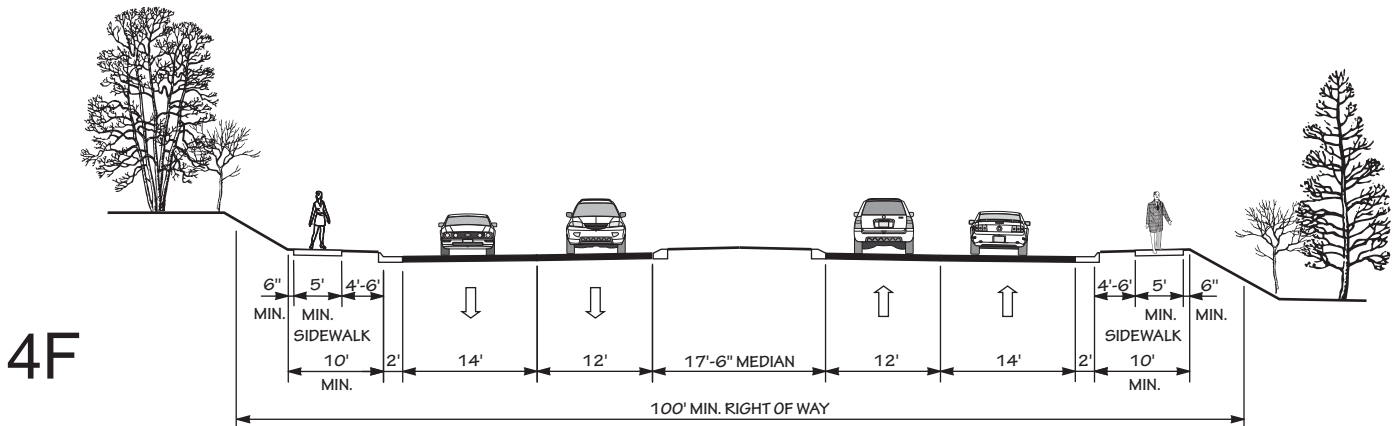
“TYPICAL” HIGHWAY CROSS SECTIONS



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

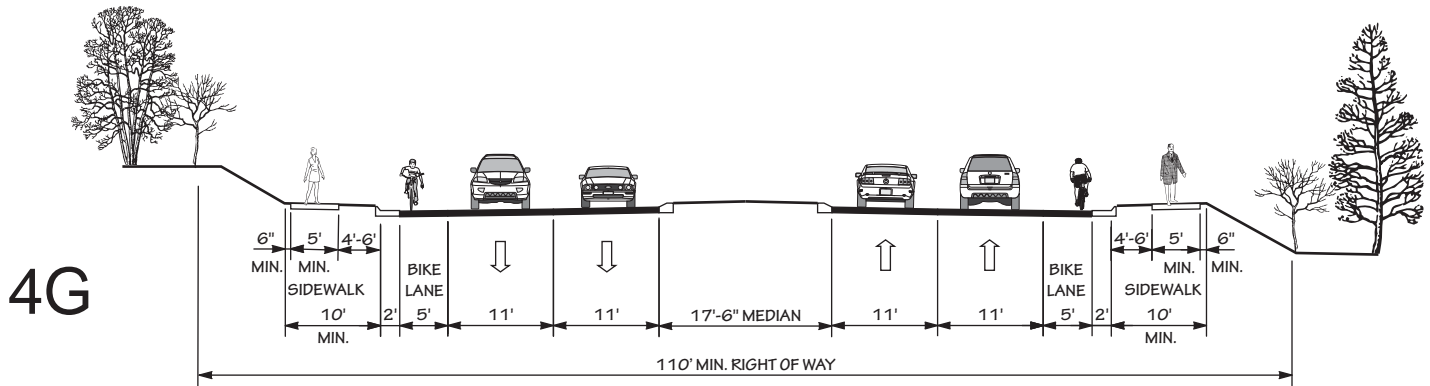


**4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH
PAVED SHOULDERS AND SIDEWALKS
POSTED SPEED 35-55 MPH**

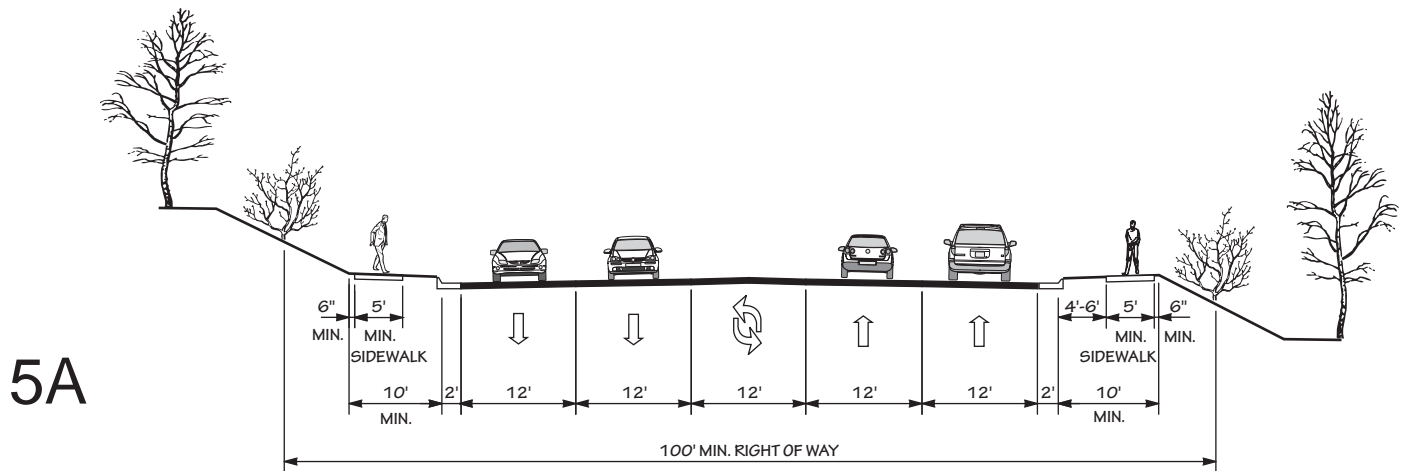


**4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER,
WIDE OUTSIDE LANES AND SIDEWALKS
POSTED SPEED 35-45 MPH**

“TYPICAL” HIGHWAY CROSS SECTIONS

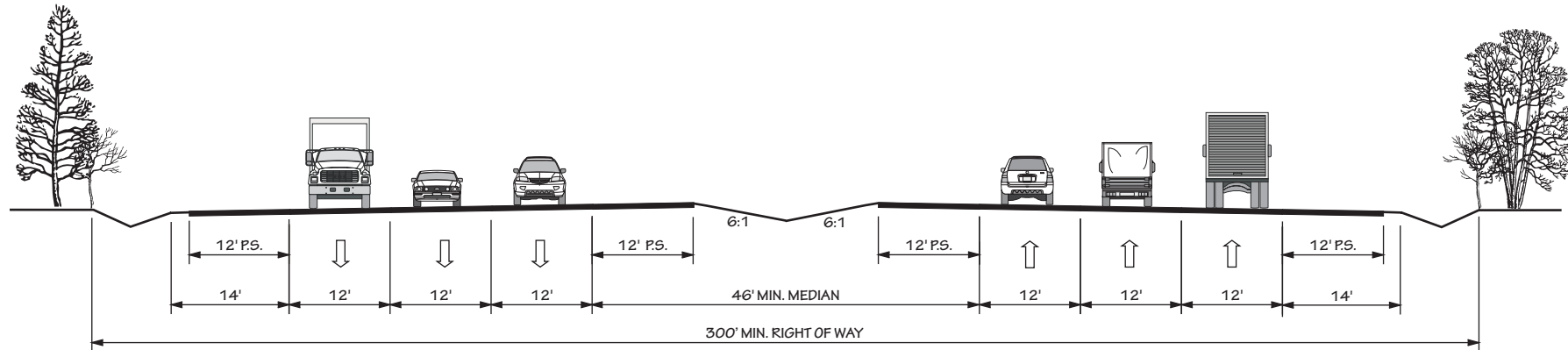


**4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER,
BIKE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH**

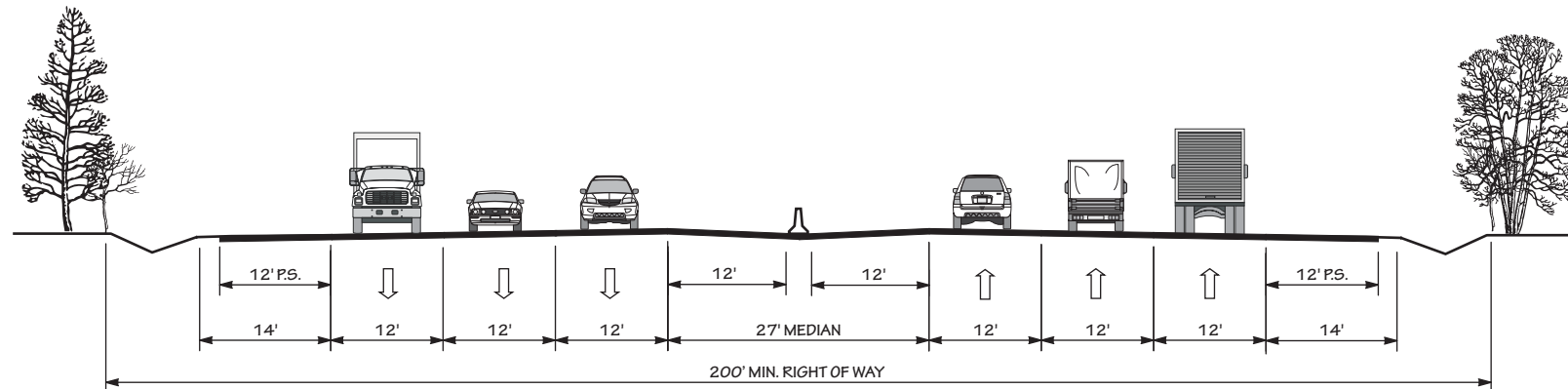


**4 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER,
AND SIDEWALKS
POSTED SPEED 35-45 MPH**

“TYPICAL” HIGHWAY CROSS SECTIONS

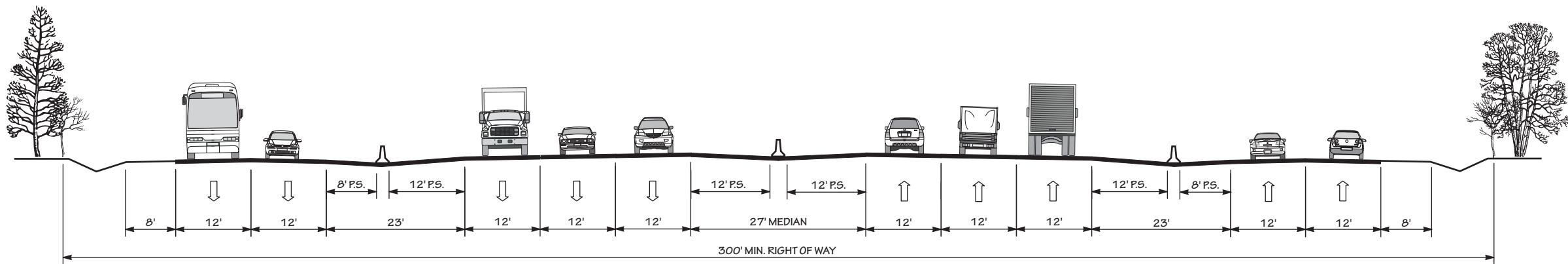


6A 6 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS
POSTED SPEED 45-70 MPH

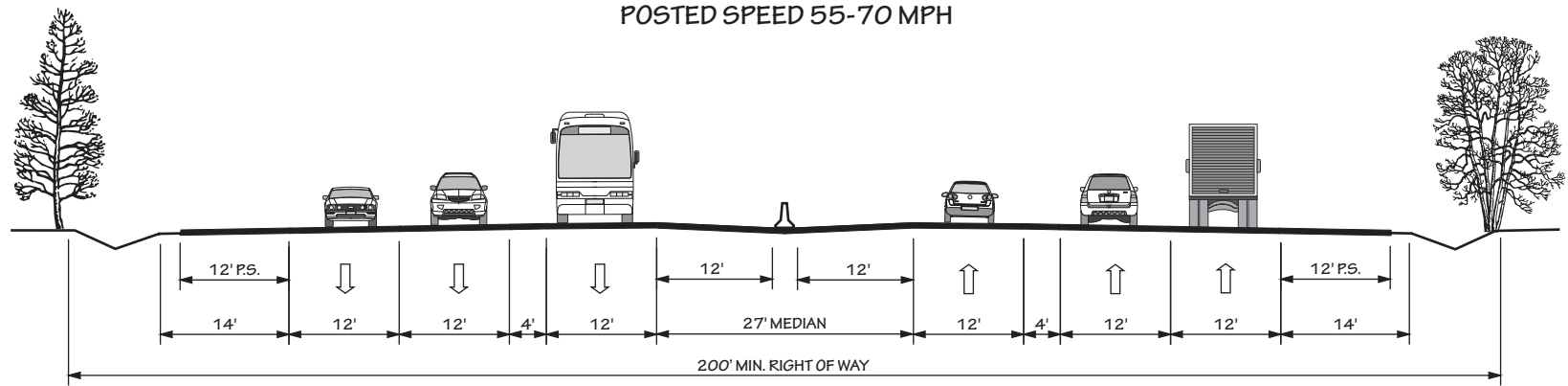


6B 6 LANE DIVIDED (27' MEDIAN WITH JERSEY BARRIER)
WITH PAVED SHOULDERS
POSTED SPEED 55-70 MPH

“TYPICAL” HIGHWAY CROSS SECTIONS

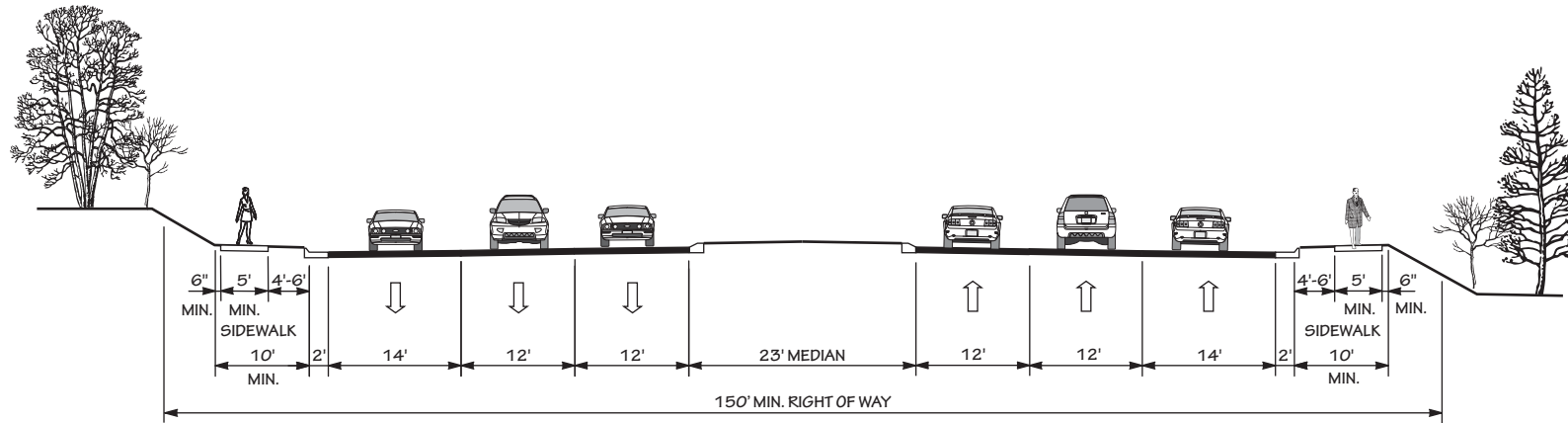


6C 6 LANE FREEWAY (27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS
AND 2 LANE ONE-WAY SERVICE ROADS EACH SIDE
POSTED SPEED 55-70 MPH



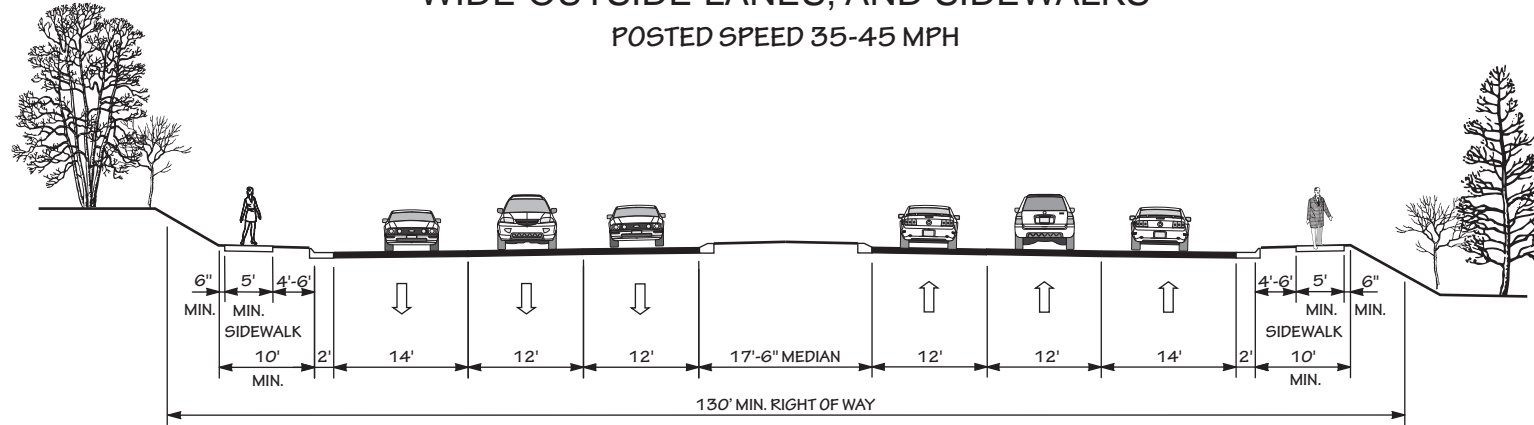
6D 6 LANE FREEWAY (4 GENERAL PURPOSE LANES, 2 MANAGED LANES, AND 27' MEDIAN
WITH JERSEY BARRIER) WITH PAVED SHOULDERS
POSTED SPEED 55-70 MPH

“TYPICAL” HIGHWAY CROSS SECTIONS



6E

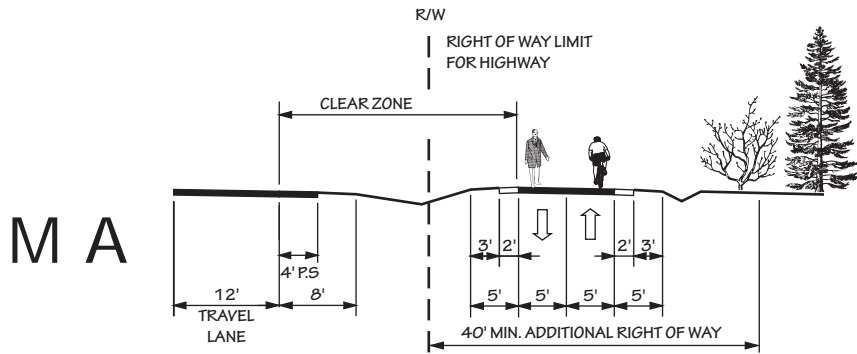
6 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER,
WIDE OUTSIDE LANES, AND SIDEWALKS
POSTED SPEED 35-45 MPH



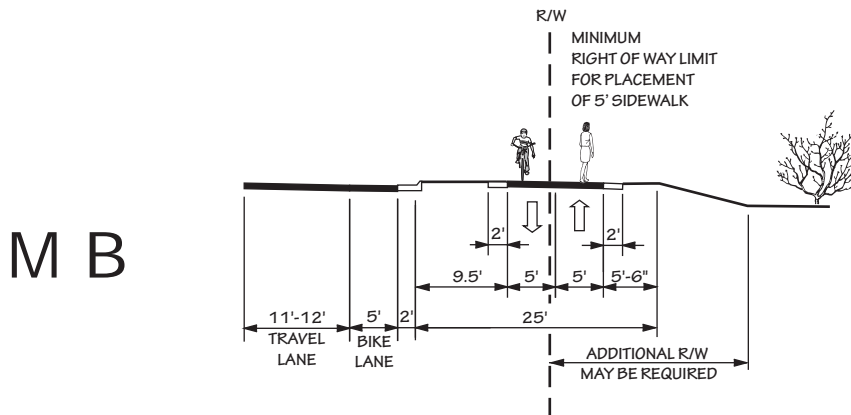
6F

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

“TYPICAL” HIGHWAY CROSS SECTIONS



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



MULTI - USE PATH ADJACENT TO CURB AND GUTTER

Appendix E

Level of Service Definitions

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

Design requirements for roadways vary according to the desired capacity and level of service. LOS D indicates “practical capacity” of a roadway, or the capacity at which the public begins to express dissatisfaction. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C on new facilities. The six levels of service are described below and illustrated in Figure 9.

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

Figure 8 - Level of Service Illustrations



LOS A



LOS B



LOS C



LOS D



LOS E



LOS F

Source: 2010 Highway Capacity Manual, Exhibit 11-4

Appendix F

Bridge Deficiency Assessment

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

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

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

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

A bridge must be classified as deficient in order to qualify for federal replacement funds. Additionally, the sufficiency rating must be less than 50% to qualify for replacement or less than 80% to qualify for rehabilitation under federal funding. Deficient bridges located on roads evaluated as a part of the CTP are listed in Table 4. For more details on deficient bridges within the planning area, contact the Structures Management Unit using the information in Appendix A.

Table 4 - Deficient Bridges

| Bridge Number | Facility | Feature | Condition | Local ID |
|---------------|------------------------------|---------------------|-----------|-----------------------|
| 27 | US 311 | Reed Creek | SD & FO | |
| 47 | Sardis Church Road (SR 1128) | Hogan's Creek | SD | B-4623 |
| 74 | NC 135 | US 220 | SD | ROCK0013-H |
| 123 | River Road (SR 2150) | US 220 | SD & FO | |
| 124 | Dan Valley Road (SR 2177) | Mayo River | SD & FO | ROCK0022-H B-5721* |
| 141 | Rierson Road (SR 1143) | Creek | SD & FO | ROCK0021-H |
| 143 | Park Road (SR 1321) | Beaver Island Creek | SD & FO | |
| 145 | Ayersville Road (SR 1300) | Prong Beaver Creek | SD & FO | ROCK0016-H |
| 249 | Cardinal Road (SR 1165) | Creek | SD | B-4965 |

*This bridge is not currently funded for replacement in the 2012 – 2018 TIP.

Appendix G

Socio-Economic Data Forecasting Methodology

The CTP Committee worked with NCDOT to estimate population growth, economic development potential, and land use trends to determine the potential impacts on the future transportation system in 2040. This data was endorsed by the Madison Board of Aldermen on December 10, 2012 and the Mayodan Town Council on December 13, 2012.

Before projecting the population and housing data to the future year of 2040, the current population and housing data must be determined. For the Western Rockingham CTP planning area, which includes the towns of Madison and Mayodan, the population and persons per household were derived from 2010 census data. It was then updated to reflect the number of dwelling units that had been added between 2010 and 2012. Using this data, the population was determined to be 11,367 and the number of dwelling units was determined to be 4,807.

Population and Housing Projections

In order to project the base year employment and population data, a target population was determined for the design year of 2040. Much like determining an interest rate, a population growth rate has to be determined. To do this, historic population data was gathered from the North Carolina Office of State Budget and Management for Rockingham County and the towns of Madison and Mayodan. Past trends in census data from 1980 to 2010 for Rockingham County and the towns of Madison and Mayodan as well as the southwestern section of Rockingham County were looked at along with the growth in population within the and western Rockingham planning area using 1990, 2000, and 2010 census data.

Population data is listed in Tables 5 and 6 below with the future information projected by the North Carolina Office of State Budget and Management.

Table 5: Population Data

| Location | 1980 | 1990 | 2000 | 2010 | 2012 | 2020 | 2030 |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| North Carolina | 5,880,095 | 6,632,448 | 8,046,491 | 9,575,665 | 9,765,229* | 10,616,077* | 11,631,895* |
| Rockingham County | 83,426 | 86,064 | 92,117 | 93,764 | 92,873* | 92,945* | 92,266* |
| Madison | 2,806 | 2,371 | 2,262 | 2,246 | 2,242* | 2,250* | 2,261** |
| Mayodan | 2,627 | 2,471 | 2,417 | 2,478 | 2,483* | 2,528** | 2,579** |

* Projections by the North Carolina State Data Center

** Projections by the NCDOT Transportation Planning Branch

Table 6: Western Rockingham Planning Area and Southwestern Rockingham County Population Data

| | 1990 Census | 2000 Census | 2010 Census |
|------------------------------|-------------|-------------|-------------|
| Western Planning Area | 11,200 | 11,166 | 11,367 |
| SW Rockingham Co. | 5,483 | 7,809 | 9,050 |

Using the known data, a growth rate was determined with the formula:

$$F = P (1+r)^N \text{ where:}$$

F = Future Population
r = Rate of Growth

P = Present Population
N = Number of Years

Growth rates for Rockingham County are shown in Table 7 below:

Table 7: Rockingham County Growth Rates

| Growth Rates Per Year | 1980-2010 | 1990-2010 | 2000-2010 |
|----------------------------------|------------------|------------------|------------------|
| North Carolina | 1.64% | 1.85% | 1.76% |
| Rockingham County | 0.39% | 0.43% | 0.18% |
| Madison Town Limits | -0.73% | -0.27% | -0.07% |
| Mayodan Town Limits | -0.02 | 0.01% | 0.25% |
| Western Rockingham Planning Area | N/A | 0.07% | 0.01% |
| SW Rockingham Co. | N/A | 2.59% | 1.49% |

The estimated growth rate for the 2001 Madison/Mayodan Thoroughfare Plan was 0.70% per year. As shown in Table 6, growth in the western planning area has been slow while growth in southwest Rockingham County is occurring at a higher rate due to its proximity to Greensboro. It is anticipated that growth will continue to spread to the western planning area, especially with the completion of TIP project R-2413 (I-73 from US 220 in southwest Rockingham County to the Piedmont Triad International Airport Connector [I-5110]). Comparing that growth rate with the Rockingham County growth rates, the Madison and Mayodan town limit growth rates, the western Rockingham planning area growth rates, and the southwestern Rockingham County growth rates, an overall growth rate of 0.50% per year was agreed upon and is calculated in Table 8 below:

Table 8: Western Rockingham Planning Area Projections

| Population Projection | 2020 | 2030 | 2040 |
|----------------------------------|-------------|-------------|-------------|
| Western Rockingham Planning Area | 11,948 | 12,559 | 13,201 |

To determine future housing, the western Rockingham planning area population developed above must be converted to dwelling units. To do this, past and projected persons/dwelling unit data for Rockingham County were graphed and a trend line was extended to the future year of 2040. This is displayed in Table 9 below:

Table 9: Rockingham County Household Data

| Year | Total Household Population | Total Households | Persons/Dwelling Unit |
|------|----------------------------|------------------|-----------------------|
| 1990 | 86,064 | 35,657 | 2.41 |
| 2000 | 92,117 | 36,989 | 2.49 |
| 2010 | 93,643 | 38,693 | 2.42 |
| 2020 | 92,945 | 39,400 | 2.36 |
| 2030 | 92,266 | 39,800 | 2.32 |
| 2040 | 91,605 | 40,200 | 2.28 |

Using the persons/dwelling unit data, the western Rockingham planning area households can be determined and is shown in Table 10 below:

Table 10: Western Rockingham Household Data

| Year | Population | Total Households | Persons/Dwelling Unit |
|------|------------|------------------|-----------------------|
| 2010 | 11,367 | 4,807 | 2.37 |
| 2020 | 11,948 | 5,063 | 2.36 |
| 2030 | 12,559 | 5,413 | 2.32 |
| 2040 | 13,201 | 5,790 | 2.28 |

These houses were then distributed throughout the western Rockingham planning area. When completing the housing distribution, it should be kept in mind that there is a limited amount of land on which to build houses. Also, the Madison and Mayodan Land Use Plans indicate which areas within the planning area should be developed for housing. As the zoning density is reached, zones of high growth will peak and stabilize, some houses will drop from high trip generators, and some houses will not last 30 years. This is why each traffic analysis zone (TAZ) within the planning area must be considered on an individual basis. The planning area was divided into TAZs as shown in Figure 9.

Employment Projections

Employment figures for 2012 in the planning area were compiled and the final total was 4,825 jobs. To determine the number of future jobs in the planning area, a ratio was taken with the present number of jobs over the present population.

$$2012 \text{ Employment} / 2012 \text{ Population} = 4,825 / 11,367 = 0.4245$$

Comparing the current employment and population ratio with past studies, there has been a moderate decrease in the total employment, while the total population has stayed relatively the same. This could be explained by the continued closure of textile and furniture industries as well as other supporting industries over the past decades. Also, the western Rockingham planning area has become somewhat of a bedroom community for the greater Greensboro urban area.

While the employment to population ratio may continue to decrease, the rate is expected to level off and slowly increase from 2012 to 2040. Assuming slow and continued growth, the employment to population ratio as well as the total future employment is shown in Table 11 below:

Table 11: Planning Area Population to Employment Ratio

| Year | Population | Employment/Population Ratio | Employment |
|------|------------|-----------------------------|------------|
| 2012 | 11,367 | 0.4249 | 4,830 |
| 2020 | 11,948 | 0.4250 | 5,078 |
| 2030 | 12,559 | 0.4275 | 5,369 |
| 2040 | 13,201 | 0.4300 | 5,676 |

The same TAZs used to allocate housing are also used to allocate employment. Percentages from the North American Industry Classification System (NAICS) should be determined based on the existing employment types and the Madison and Mayodan Land Use Plans recommendations and expectations for the future. The existing breakdown is shown in Table 12 below:

Table 12: Current Employment Types

| 2012 | Employment | Percentage |
|----------------|------------|------------|
| Industry | 2,493 | 51.7% |
| Retail | 653 | 13.5% |
| Highway Retail | 328 | 6.8% |
| Service | 1,028 | 21.3% |
| Office | 328 | 6.8% |

Once these future projections are determined, the number of jobs for each classification can be calculated and are shown below in Tables 13 and 14:

Table 13: Projected Employment Types

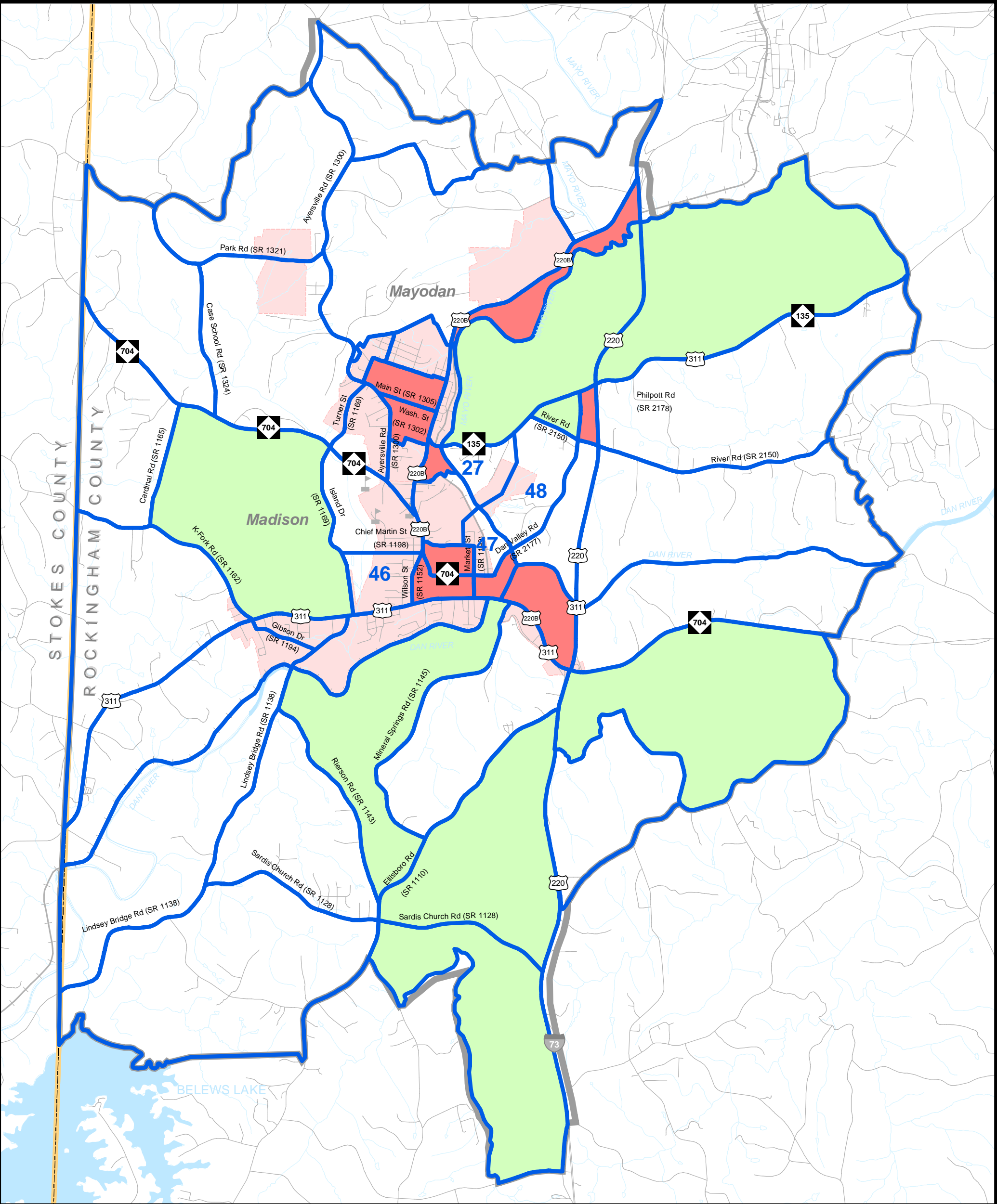
| 2020 | Employment | Percentage |
|----------------|------------|------------|
| Industry | 2,488 | 49% |
| Retail | 711 | 14% |
| Highway Retail | 406 | 8% |
| Service | 1,117 | 22% |
| Office | 356 | 7% |
| | | |
| 2030 | Employment | Percentage |
| Industry | 2,577 | 48% |
| Retail | 752 | 14% |
| Highway Retail | 483 | 9% |
| Service | 1,181 | 22% |
| Office | 376 | 7% |
| | | |
| 2040 | Employment | Percentage |
| Industry | 2,668 | 47% |
| Retail | 794 | 14% |
| Highway Retail | 568 | 10% |
| Service | 1,249 | 22% |
| Office | 397 | 7% |

Table 14: Total Projected Employment Growth

| Employment Type | Projected Employment Change 2012-2040 |
|------------------------|--|
| Industry | 175 |
| Retail | 141 |
| Highway Retail | 240 |
| Service | 226 |
| Office | 69 |

The CTP Committee identified areas in the planning area that would experience population growth rates higher or lower than the CTP study area average. TAZs (see Figure 9) identified as high growth potential were numbers 1, 5, 7, 8, 13, 22, 27, 38, and 48. Those identified as low growth potential were 12, 15, 24, 25, 29, 30, 33, 34, and 40. Accordingly, those with high growth potential attracted more trips than those identified as low growth areas.

Future employment conditions within the planning area were approved by the CTP Committee. This included approximate locations and intensity for proposed employment centers. Any anticipated heavy demand on the future transportation system as a result of these proposals is accounted for in projected traffic volumes. The projected employment growth areas were consistent with both the Madison (Figures 10 and 12) and Mayodan (Figures 11 and 13) Land Use Plans.



Traffic Analysis Zones

High Growth TAZs

Low Growth TAZ

County Boundary

Planning Boundary

Schools

Roads

Railroads

Water Bodies

Rivers and Streams

Municipal Boundary

00.250.511.5

Miles

N

W

E

S

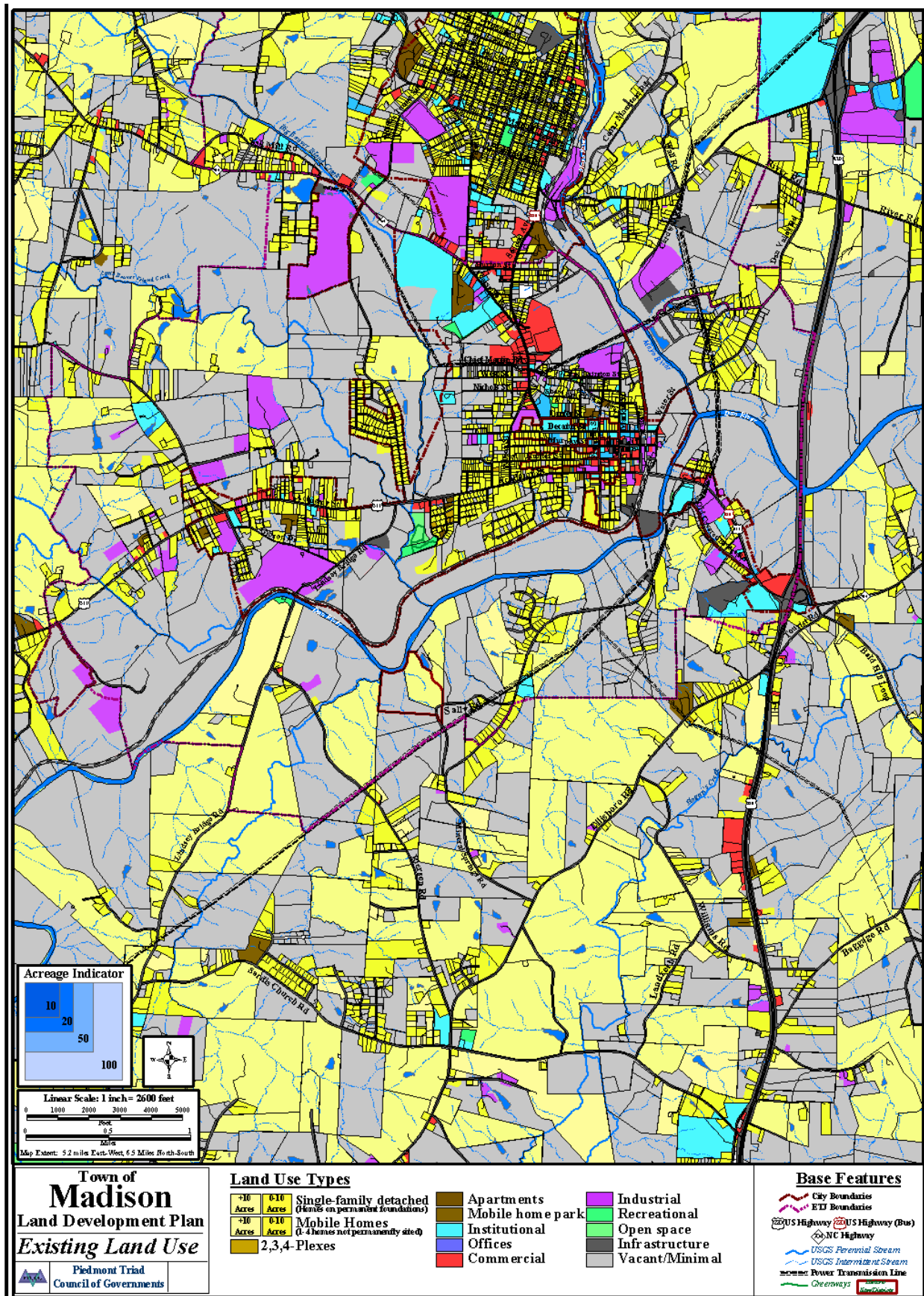
Base map date: October 2012

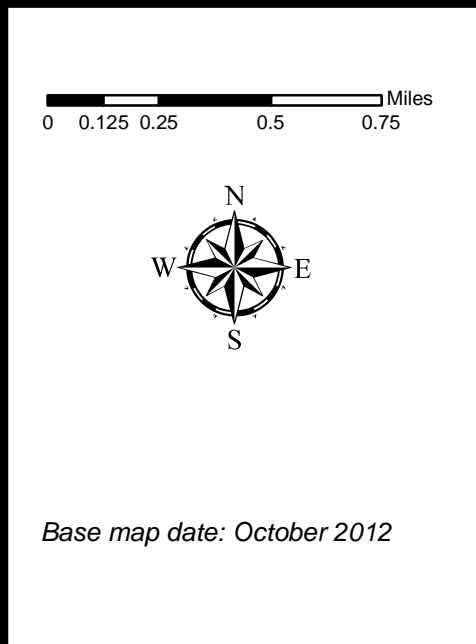
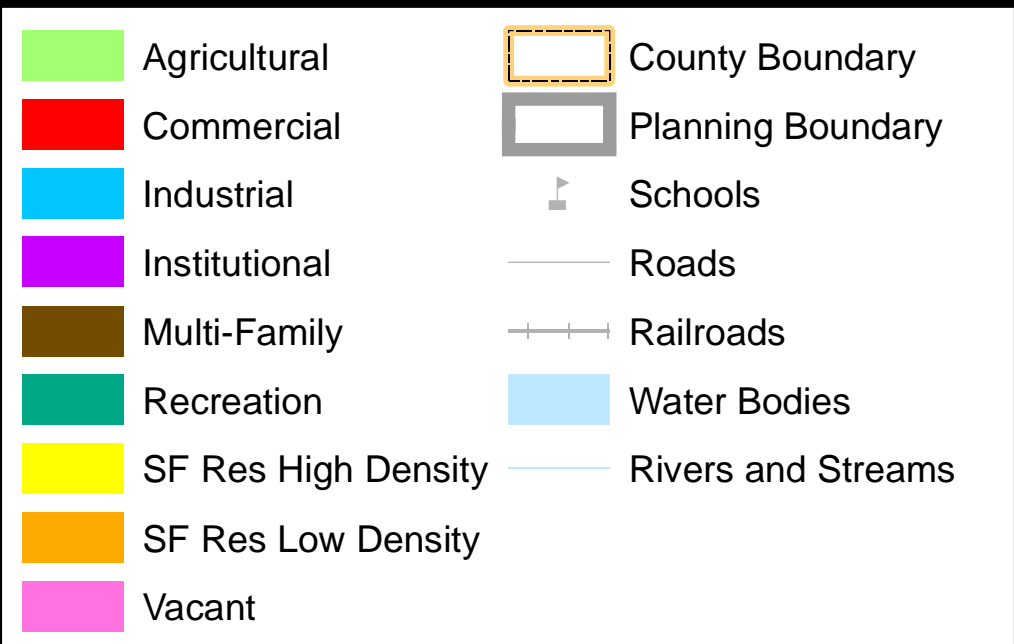
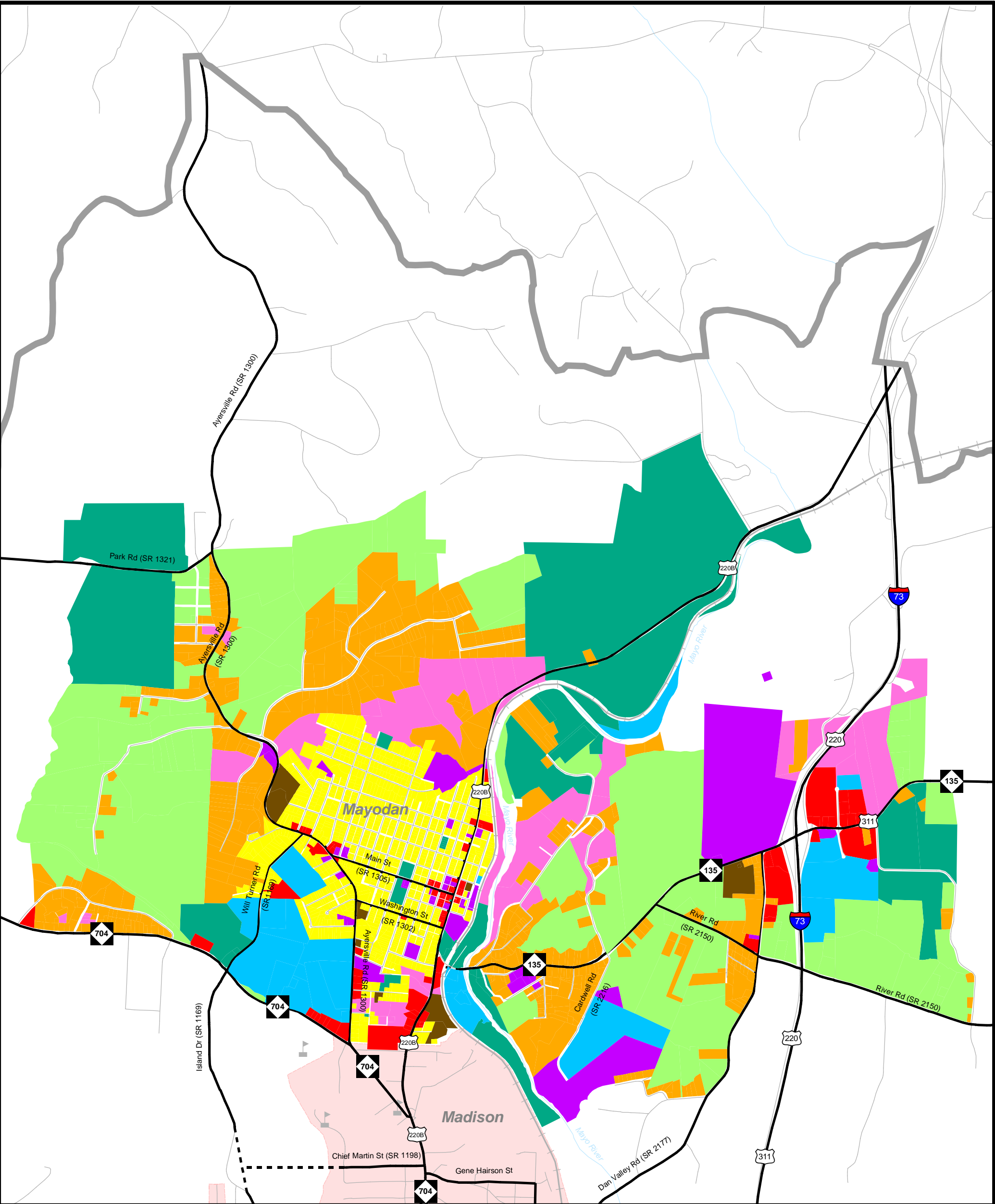
Figure 9 -
Traffic Analysis Zones

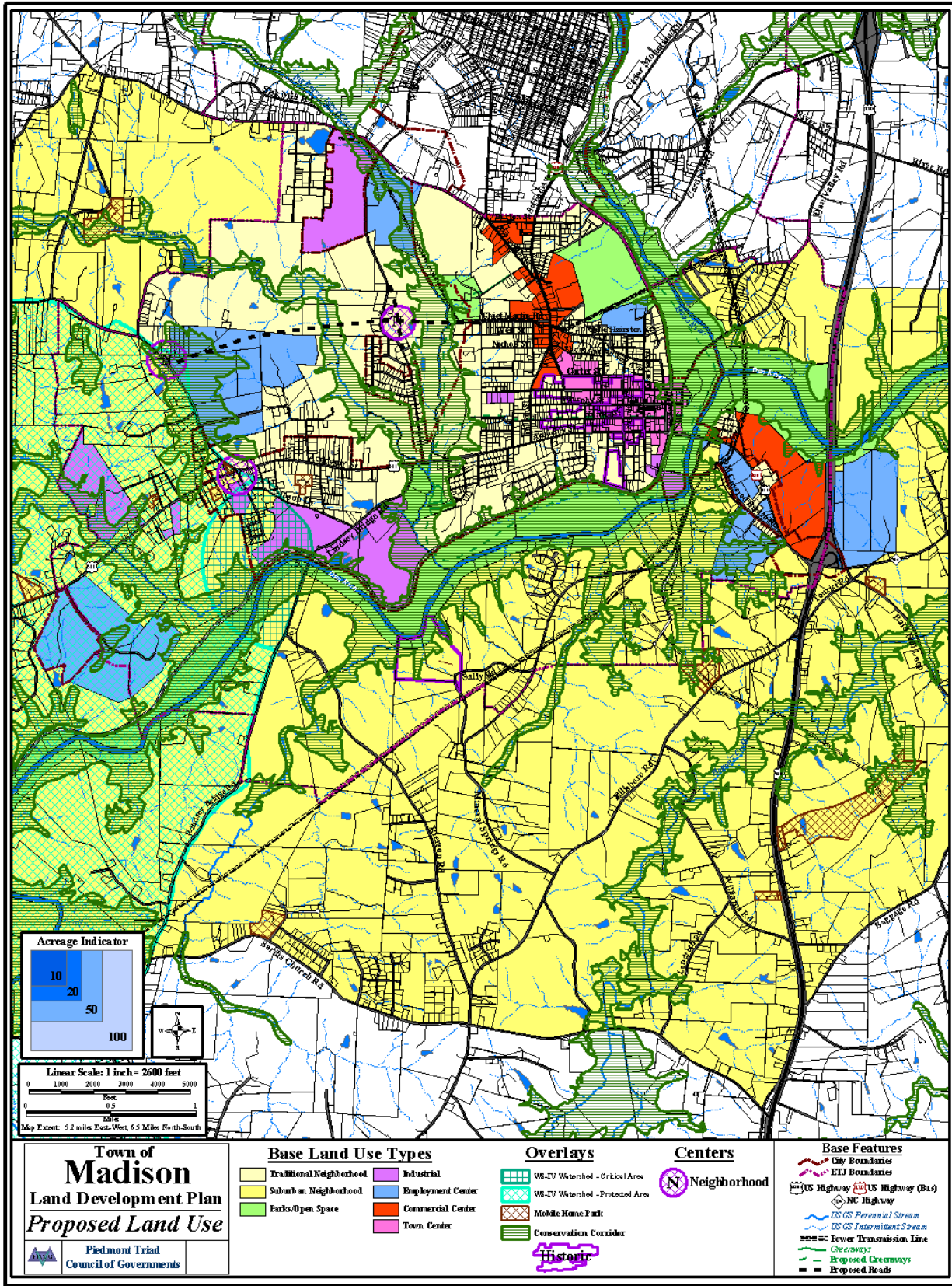
TOWN OF MADISON N.C.
CHARTERED 1873

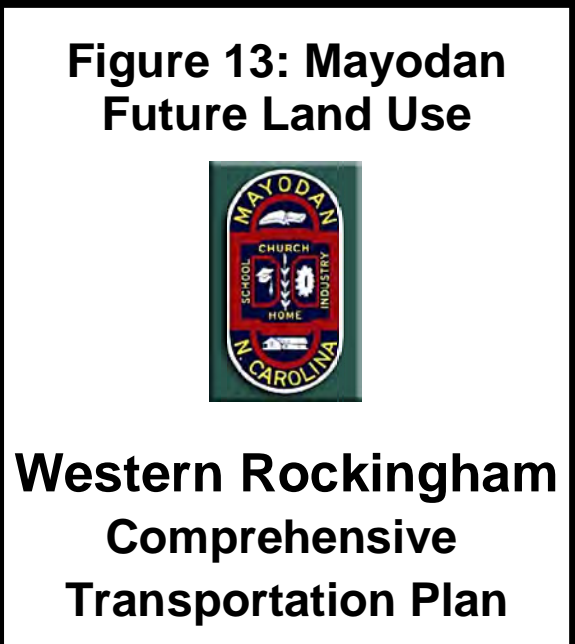
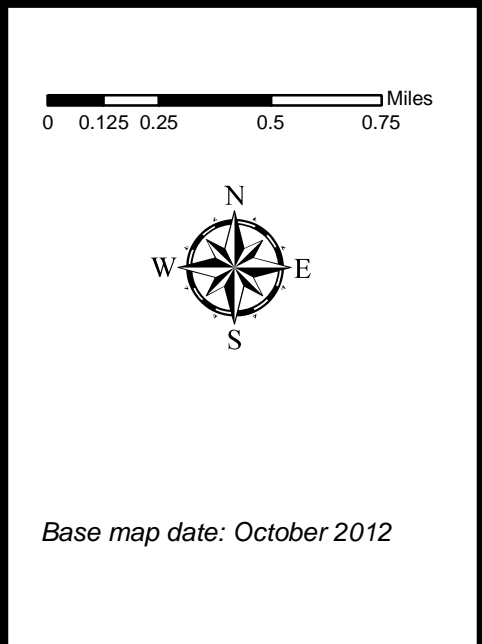
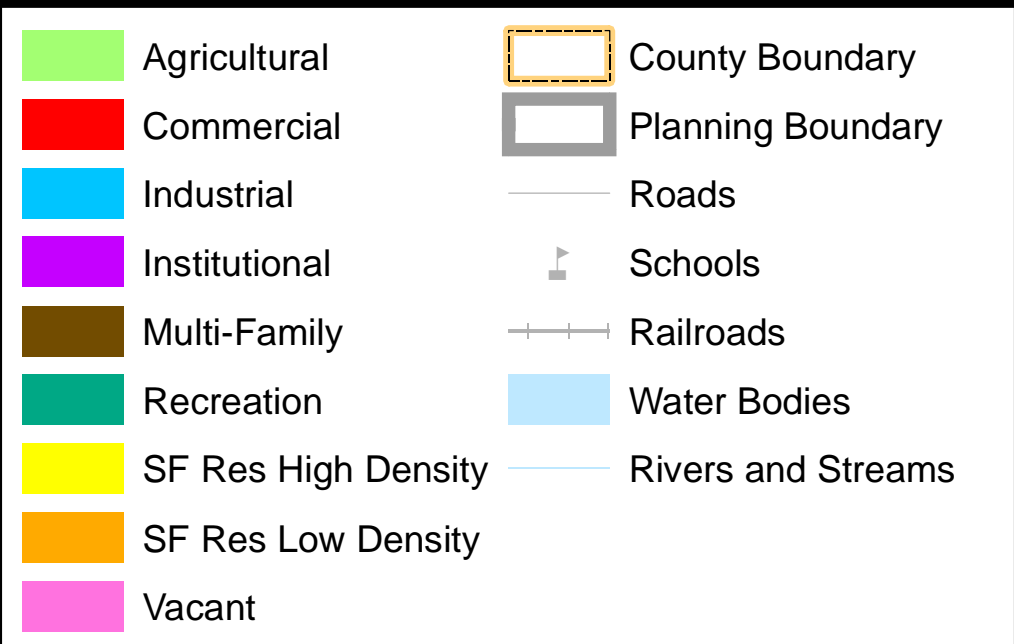
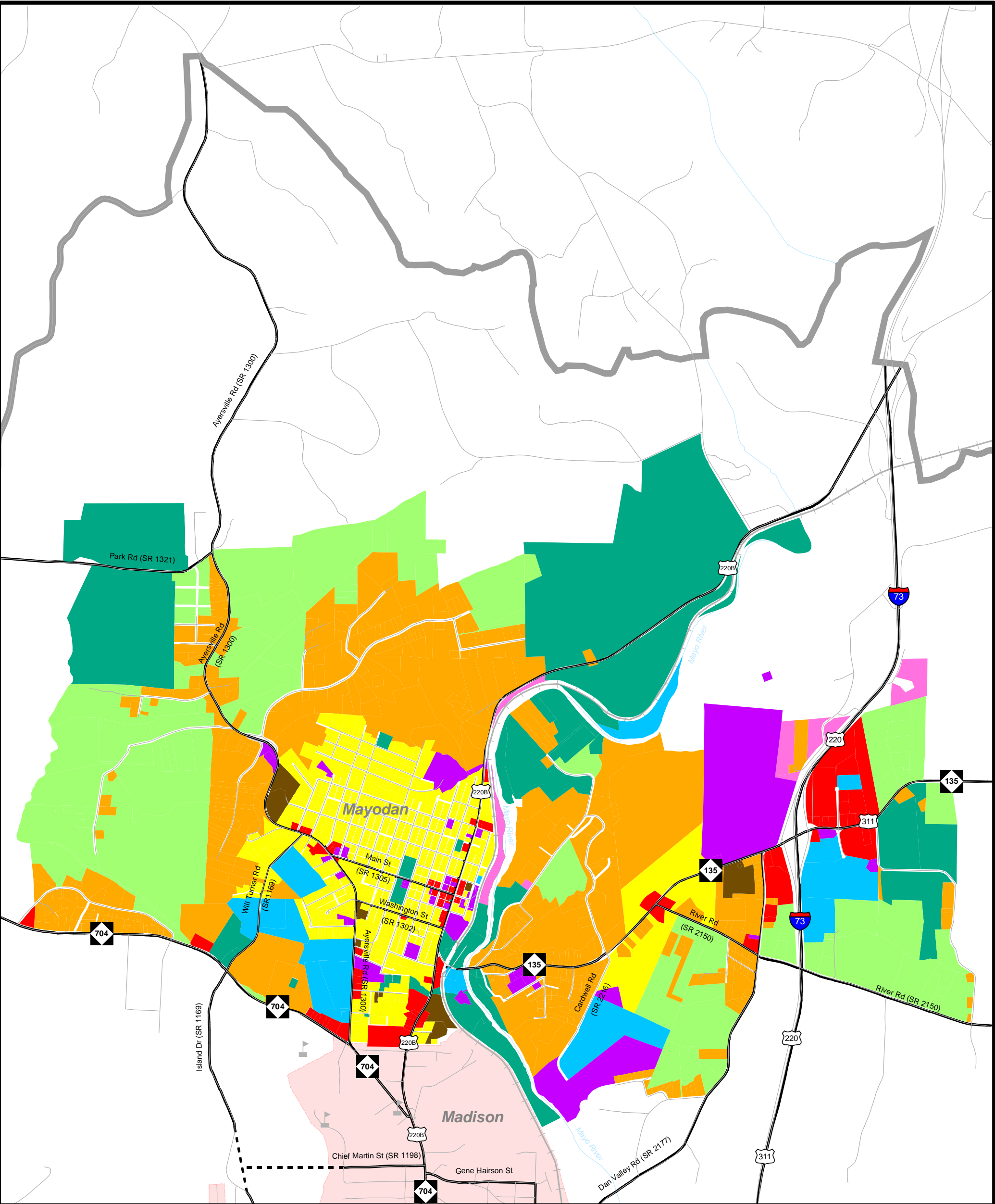
MAYODAN
SCHOOL
CHURCH
HOME
INDUSTRY
N. CAROLINA

Western Rockingham
Comprehensive
Transportation Plan









Appendix H

Public Involvement

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

List of CTP Steering Committee Members

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

CTP Committee Members:

- ❖ Art Gwaltney, Madison Board of Alderman
- ❖ Phil Harger, Mayodan Town Council
- ❖ Darrell Allred, Mayodan Town Council
- ❖ Bob Scott, Madison Town Manager
- ❖ Michael Brandt, Mayodan Town Manager
- ❖ Dixie Penn, Manager, Madison-Mayodan Recreation Department
- ❖ Anne Griffin, Executive Director, Western Rockingham Chamber of Commerce
- ❖ Lucas Carter, Rockingham County Planning Director
- ❖ Megan Odell, Rockingham County Transit Director
- ❖ Amy Roberts, Madison Planning Director
- ❖ Robin Yount, Rockingham County Tourism Director
- ❖ Bobby Norris, PE, NCDOT District Engineer
- ❖ Ed Lewis, NCDOT Division Planning Engineer
- ❖ Jesse Day, AICP, Piedmont Triad Rural Planning Organization

CTP Vision, Goals, Objectives and MOEs

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

The vision statement, goals and objectives reflect what is important for the area and defines any local preferences concerning the transportation system and community assets. The vision statement is the framework for the area's strategic planning. Goals

and objectives document how the area plans to fulfill its vision. The goals break down the vision statement into themes, while the objectives document how the area plans to make progress towards achieving each goal. MOEs are established to enable the area to track the progress of each objective.

Transportation Vision for 2040

The transportation network in 2040 will serve the local manufacturing and tourism based economy. Improved transit, pedestrian and bicycle connectivity and protection of the Mayo and Dan River watersheds will increase the quality of life for residents who are unable to drive. Improved east and west access to US 220 will benefit existing and future industrial and manufacturing customers, increasing safety and mobility for all road users. New development will require sidewalks and bicycle accommodation and encouraged in areas with existing infrastructure and services.

Transportation Goals for 2040

Transit

- Fixed route/Flex route transit service county-wide
- Passenger rail access for western Rockingham County

Road Connectivity and Safety

- East/West highway improved connectivity and capacity
- Additional transportation facilities that encourage economic development
- Improved access for industrial truck traffic from west side of Madison and Mayodan to US 220
- NC 135 Bridge replacement over US 220

Bicycle and Pedestrian

- More bicycle and pedestrian connectivity between Madison and Mayodan.
- Bicycle lanes, trails and sidewalk to Mayo River State Park
- Sidewalks and bicycle lanes with new development

Other

- Protection of existing watersheds

Goals and Objectives Survey

A G&O survey is a public involvement technique used to help identify an area's perception of transportation-related issues, identify concerns that should be addressed during the development of a CTP, and to help develop a vision for the community. The G&O survey is most appropriately implemented at the beginning of the transportation planning study. In addition to determining up front what is important to the citizens of the planning area, initiating the G&O survey early in the planning process allows the survey to serve as an introduction to the transportation planning process. The survey usually includes a brief introduction explaining what a transportation plan is and how the area can benefit from having one. The survey also includes a wide variety of questions

that is tailored to each area as appropriate. A summary of the Western Rockingham CTP G & O survey is given below.

Western Rockingham Transportation Survey for Rockingham County

The Towns of Madison and Mayodan are currently developing a comprehensive transportation plan for both jurisdictions. Working in cooperation with the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and the Piedmont Triad Rural Planning Organization (RPO), a long-range planning tool will be developed to identify major transportation improvements that will be needed over the next 25-30 years.

SECTION A. TRANSPORTATION GOALS AND OBJECTIVES

The questions in this section deal with the goals we want to meet for the transportation system in the Towns of Madison and Mayodan and surrounding areas.

1. How important are the following transportation goals?

| | Very Important | Important | Not Important |
|---|-----------------------|-------------------|----------------------|
| Increase access to park and ride lots (to car or van pool) | 27.3% (15) | 32.7% (18) | 40.0% (22) |
| Support economic growth | 80.7% (46) | 18.5% (10) | 1.8% (1) |
| Improve services for special needs populations (demand response services) | 50.9% (29) | 36.8% (21) | 12.3% (7) |
| Increase access to local and regional transit services | 49.1% (28) | 35.1% (20) | 15.8% (9) |
| Protect the environment | 56.4% (31) | 38.2% (21) | 5.5% (3) |
| Create a bicycle and pedestrian friendly community | 72.7% (40) | 18.2% (10) | 9.1% (5) |
| Improve automobile travel times | 29.8% (17) | 50.9% (29) | 19.3% (11) |
| Preserve community and rural character | 70.2% (40) | 24.6% (14) | 5.3% (3) |

2. There are several strategies that can be used to increase road capacity (e.g. volume of traffic a road can adequately handle). How important is it to use each of the following strategies on major roads in Madison and Mayodan and surrounding areas?

| | Very Important | Important | Not Important |
|---|-----------------------|-------------------|----------------------|
| Build additional travel lanes on main roads | 21.4% (12) | 48.2% (27) | 30.4% (17) |
| Make intersection improvements like turn lanes and better traffic signal timing | 63.2% (36) | 24.6% (14) | 12.3% (7) |

| | | | |
|---|------------|-------------------|------------|
| Control the number and location of driveways and cross streets that access main roads | 28.1% (16) | 49.1% (28) | 22.8% (13) |
| Control the location of left turns with medians | 26.3% (15) | 43.9% (25) | 29.6% (17) |
| Other: <ul style="list-style-type: none"> • Address middle left-turn lanes on NC 704 • Address too many driveways along US 220 Business • Improve walking connectivity between Mayodan and Wal-Mart/Lowes • Signal synchronization • Improved bikeways • Mark 4-way stops with a light and warning • Add sidewalks and bike-lanes (system wide) • Route NC 704 bypass onto Island Drive | | | |

SECTION B. TRAFFIC CONCERNS

The questions in this section deal with concerns you might have with safety, traffic congestion and connectivity.

3. Are you concerned with traffic safety or crashes in the county or your community?

Yes – 66.0% (35) No – 34% (18)

If yes, please describe the location with road name and cross street, including the specific safety concern. ***The top three responses are given below.***

- US 220 Business and NC 135, including the Madison-Mayodan Recreation Dept. (Mayodan)
- US 220 Business (Madison and Mayodan)
- Wilson St (Madison)

4. Is truck traffic a problem in Madison and Mayodan?

Yes – 30.0% (15) **No – 70% (35)**

The top two responses are given below.

- US 311 (Madison)
- Trucks from industrial areas along US 311 do damage to downtown roads and corners (Madison)

5. When traveling in and around Mayodan and Madison, do you find that you often have to go out of your way to get to your destination because a direct route does not exist or it is too congested?

Yes, No Direct Route – 19.6% (11) Yes, Congested – 10.7% (6) **No – 69.9% (39)**

The top two responses are given below.

- Chief Martin St – Suggesting to extend to Island Drive to connect with US 220 Bus (Madison)
- Lack of traffic signal synchronization (Madison and Mayodan)

SECTION C. ROAD ACCESSIBILITY

This section deals with access to major roads that link Rockingham County to places in or just outside the region.

6. What destinations would you most like to have improved access to? Please rank each area by how important improvements are needed.

| | Very | Somewhat | Not | Rating Average |
|--|-------------------|-------------------|-------------------|-----------------------|
| Martinsville, VA area | 10.9% (5) | 41.3% (19) | 47.8% (22) | 1.78 |
| Stuart, VA area | 7.0% (3) | 44.2% (19) | 48.8% (21) | 1.67 |
| Greensboro area | 57.1% (28) | 30.6% (15) | 12.2% (6) | 3.78 |
| Winston-Salem area | 43.8% (21) | 41.7% (20) | 14.6% (7) | 3.44 |
| Reidsville | 35.4% (17) | 39.6% (19) | 25.0% (12) | 2.96 |
| Eden | 35.4% (17) | 37.5% (18) | 27.1% (13) | 2.90 |
| Other (please specify): Alamance County, Stokes County, Surry County, Shiloh Airport, Danville, VA, Mount Airy, Stoneville, Wentworth | | | | |

7. What road corridors would you most like to have improved access to reach your destinations? Please rank each area by how critically you believe improvements are needed.

| | Very | Somewhat | Not | Rating Average |
|----------------------|-------------------|-------------------|-------------------|-----------------------|
| US 220 (Future I-73) | 77.6% (38) | 8.2% (4) | 14.3% (7) | 4.12 |
| US 29 (Future I-785) | 22.2% (10) | 35.6% (16) | 42.2% (19) | 2.18 |
| Interstate 40 | 46.8% (22) | 27.7% (13) | 25.5% (12) | 3.17 |
| Interstate 85 | 33.3% (15) | 28.9% (13) | 37.8% (17) | 2.53 |
| US 311 | 37.5% (18) | 35.4% (17) | 27.1% (13) | 2.94 |
| US 158 | 32.6% (15) | 39.1% (18) | 28.3% (13) | 2.80 |
| NC 135 | 50.0% (25) | 28.0% (14) | 22.0% (11) | 3.34 |

| | | | | |
|---|------------|-------------------|-------------------|------|
| NC 770 | 26.5% (13) | 36.7% (18) | 36.7% (18) | 2.43 |
| Ayersville Road | 25.0% (12) | 39.6% (19) | 35.4% (17) | 2.44 |
| NC 704 | 36.0% (18) | 42.0% (21) | 22.0% (11) | 3.06 |
| Other (please specify): <ul style="list-style-type: none"> • NC 65 • NC 68 • Ellisboro Road | | | | |

SECTION D. OTHER MODES

The new transportation plan will include recommendations for pedestrian, bicycle and transit facilities in greater Rockingham County and the Town of Madison and Mayodan.

8. We would like to know about your walking habits. Do you walk regularly for any of the following reasons? Please select all that apply.

| Reasons for Walking Regularly | Response Percent | Response Count |
|-------------------------------|------------------|----------------|
| Fitness or exercise | 88.0% | 44 |
| School | 2.0% | 1 |
| Get to work | 4.0% | 2 |
| Shopping errands | 42.0% | 21 |
| Restaurant | 36.0% | 18 |
| Entertainment/event | 34.0% | 17 |
| Social visit | 54.0% | 27 |
| Walk the dog | 46.0% | 23 |
| Walk the baby | 2.0% | 1 |

9. What areas would you identify as a priority for sidewalks or trails to be constructed or improved? Please select all that apply.

Sidewalks – 75.6% Trails – 60.0%

The top five responses are given below.

- Along the Mayo and Dan Rivers (River Trails)
- US 220 Business from Mayodan to downtown Madison – Complete the sidewalk network between the towns on this route
- US 220 Business to Mayo River State Park
- Wilson Street (Madison)
- US 311 from K-Fork Road to Madison

10. We would like to know about your bicycling habits. Do you frequently participate in the types of cycling activities listed below? Please select all that apply.

| | Response Percent | Response Count |
|--|------------------|----------------|
| Would participate if facilities (shoulders/bike lanes) existed | 39.2% | 20 |
| Don't bicycle | 51.0% | 26 |
| On-road cycling for recreation | 25.5% | 13 |
| Commuting | 7.8% | 4 |
| On-road cycling for errands | 9.8% | 5 |
| Off-road single-track (mountain biking) | 7.8% | 4 |
| Off-road greenway or trail | 15.7% | 8 |
| Group rides/tours | 13.7% | 7 |
| Other: <ul style="list-style-type: none"> No safe place to ride (would not go on a major highway) There are no bike lanes for bicycling | | |

11. If facilities or accommodations were available for bicycling, which of these destinations would you consider riding to? Indicate all that apply.

| | Response Percent | Response Count |
|--|------------------|----------------|
| School | 9.1% | 3 |
| Work | 24.2% | 8 |
| Shopping/errands | 69.7% | 23 |
| Restaurant | 54.5% | 18 |
| Entertainment/special visit | 75.8% | 25 |
| Social visit | 75.8% | 25 |
| Other: <ul style="list-style-type: none"> Trails for exercise/fitness Park, Rec center Downtown, store | | |

12. What areas would you identify as a priority for bicycle facilities to be constructed or improved?

The top four responses are given below.

- NC 135 to US 220 Bypass/Walmart (Mayodan)
- US 220 Business (Madison and Mayodan)
- Farris Memorial Park (and off road trails) to Mayo River State Park (Mayodan)
- River trails along Dan and Mayo Rivers (Madison and Mayodan)

13. Would you use the transit services listed below, if they were provided? If so, how frequently?

| | Yes | Possibly | No |
|-------------------------------------|-------------------|-----------------|-------------------|
| Bus service around County | 35.4% (17) | 14.6% (7) | 50.0% (24) |
| Bus service to Greensboro | 34.0% (16) | 14.9% (7) | 51.1% (24) |
| Bus service to Winston-Salem | 31.1% (14) | 8.9% (4) | 60.0% (27) |
| Park and ride lot (to car/van pool) | 18.6% (8) | 9.3% (4) | 72.1% (31) |
| Passenger Rail service | 59.6% (28) | 12.8% (6) | 27.7% (13) |
| Other | 30.0% (3) | 0.0% (0) | 70.0% (7) |

| | More than once/week | Once/week | Once/month | Every few months |
|-------------------------------------|----------------------------|------------------|-------------------|-------------------------|
| Bus service around county | 53.3% (8) | 13.3% (2) | 20.0% (3) | 13.3% (2) |
| Bus service to Greensboro | 26.7% (4) | 40.0% (6) | 13.3% (2) | 20.0% (3) |
| Bus service to Winston-Salem | 18.2% (2) | 27.3% (3) | 27.3% (3) | 27.3% (3) |
| Park and ride lot (to car/van pool) | 30.0% (3) | 10.0% (1) | 30.0% (3) | 30.0% (3) |
| Passenger rail service | 33.3% (7) | 14.3% (3) | 19.0% (4) | 33.3% (7) |
| Other | 50.0% (2) | 0.0% (0) | 0.0% (0) | 50.0% (2) |

Other destinations/responses

- Passenger Rail service to Raleigh
- Golf cart/ATV
- Transit is costly and not necessary with proper road network

SECTION E. DEMOGRAPHICS

14. In what jurisdiction do you live?

| Jurisdiction | Response Percent | Response Count |
|--|-------------------------|-----------------------|
| Mayodan | 36.4% | 20 |
| Madison | 38.2% | 21 |
| Unincorporated Rockingham County | 5.5% | 3 |
| Another Rockingham County municipality | 9.1% | 5 |
| Outside Rockingham County | 10.9% | 6 |

15. What is your home zip code?

| Zip Code | Response Percent | Response Count |
|--------------------|-------------------------|-----------------------|
| 27027 (Mayodan) | 37.3% | 19 |
| 27025 (Madison) | 47.1% | 24 |
| 27048 (Stoneville) | 9.8% | 5 |
| 27357 (Stokesdale) | 2.0% | 1 |
| 27288 (Eden) | 0.0% | 0 |
| 27320 (Reidsville) | 0.0% | 0 |
| Other | 3.9% | 2 |

16. What is your age?

| Age | Response Percent | Response Count |
|--------------|-------------------------|-----------------------|
| Under 18 | 0.0% | 0 |
| 18-24 | 1.8% | 1 |
| 25-34 | 3.6% | 2 |
| 35-44 | 12.7% | 7 |
| 45-54 | 27.3% | 15 |
| 55-64 | 16.4% | 9 |
| 65-74 | 27.3% | 15 |
| 75 and older | 10.9% | 6 |

17. How would you classify your race?

| Race | Response Percent | Response Count |
|-----------------|-------------------------|-----------------------|
| White | 90.9% | 50 |
| Black | 7.3% | 4 |
| Hispanic | 1.8% | 1 |
| Asian | 0.0% | 0 |
| Native American | 0.0% | 0 |
| Other | 0.0% | 0 |

18. How many people, including yourself, live in your household?

| Number of People | Response Percent | Response Count |
|-------------------------|-------------------------|-----------------------|
| 1 | 25.5% | 14 |
| 2 | 36.4% | 20 |
| 3 | 23.6% | 13 |
| 4 | 5.5% | 3 |
| 5 | 1.8% | 1 |
| 6 | 5.5% | 3 |
| 7 | 1.8% | 1 |
| 8 or more | 0.0% | 0 |

19. What was your household income last year?

| Household Income | Response Percent | Response Count |
|-----------------------|------------------|----------------|
| Less than \$25,000 | 16.7% | 9 |
| \$25,000-\$49,999 | 29.6% | 16 |
| \$50,000-\$74,999 | 22.2% | 12 |
| \$75,000-\$99,999 | 11.1% | 6 |
| \$100,000 or more | 11.1% | 6 |
| Do not wish to answer | 9.3% | 5 |

20. How did you hear about this survey?

| | Response Percent | Response Count |
|---|------------------|----------------|
| Government Building | 10.9% | 6 |
| Retail Location | 0.0% | 0 |
| Church | 3.6% | 2 |
| Newspaper | 7.3% | 4 |
| Newsletter | 5.5% | 3 |
| School | 0.0% | 0 |
| E-mail | 27.3% | 15 |
| Other | 45.5% | 25 |
| <ul style="list-style-type: none">• Website• Friend/Neighbor/Relative• Town/other government employee• Meeting | | |

Public Meetings

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

Public Workshop #1 at the Mayodan United Methodist Church

The first public workshop took place at the Mayodan United Methodist Church on April 18, 2013 from 4:00-5:30 pm. This workshop introduced the CTP process, showed existing deficiencies in the transportation system, detailed expectations of the final plan. Sixteen citizens were in attendance. They were given copies of the Western Rockingham CTP goals and objectives survey to fill out and were asked what they saw as needs for the area. The main issues identified included:

- interest in pathways and trail development along the river corridor and between the towns and the Mayo River State Park and Farris Memorial Park;
- the safety of US 220 between the Dan River and the NC 135 exit and the NC 135 and Business 220 intersection;
- interest in more sidewalk connections in general;
- public transit service across the county.

Public Workshop #2 at the First Baptist Church in Madison

The second public workshop took place at the First Baptist Church in Madison on January 22, 2013 from 4:30-6:30 pm. This workshop detailed the draft recommendations for the Western Rockingham CTP. Seven citizens were in attendance. They were given the opportunity to look through the recommendations and give additional feedback. One comment was gathered about a potential on-road bicycle improvement, but it fell outside the planning area. No other comments were gathered at this meeting.

Public Hearings

Public hearings were held at the following jurisdictions in Rockingham County on the dates below:

- April 10, 2014 at 7:00 pm during the Madison Board of Aldermen Meeting
- April 14, 2014 at 7:00 pm during the Mayodan Town Council Meeting
- May 5, 2014 at 7:00 pm during the Rockingham County Commissioners Meeting