2015 City of Marion
Comprehensive Transportation Plan

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Comprehensive Transportation Plan

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In Cooperation with: McDowell County
City of Marion
Isothermal Rural Planning Organization

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Executive Summary

In July of 2012, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and the city of Marion initiated a study to cooperatively develop the Marion Comprehensive Transportation Plan (CTP). 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 2015. 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 city and NCDOT. Refer to Chapter 2 for information on the implementation process.

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

- **US 70:** The proposed project consist of adding a right turn lane on US 70 (eastbound) to McDowell High School Road (SR 1301) and widening the road to five lanes from Roby Conley Road to Resistoflex Road (SR 1221). Additionally, a traffic signal is recommended to be evaluated at the intersection of US 70 and Roby Conley Road (1197) since left turn movements from Roby Conley Road (1197) are difficult due to limited visibility and high traffic volumes.

- **US 70 Bypass:** The proposed facility is a north-south route on the east side of Marion from US 70/US 221 Business to NC 226. This new facility would serve as a bypass route for existing US 70, which currently goes through the downtown area. Grade separations are recommended over all railroad crossings.

- **US 221:** The proposed project includes upgrading the existing roadway to a four lane divided boulevard with 12 foot lanes and a speed limit of 50.

- **US 221 Business:** The proposed project includes widening the existing facility to three lanes with sidewalks on each side from US 221/NC 226 to Georgia Avenue.

- **McDowell High School Road (SR 1301) Interchange:** The existing grade separation at US 221 and McDowell High School Road (SR 1301) is recommended to be converted to an interchange. This proposed interchange would serve to alleviate some of the traffic on US 70 and provide traffic relief for McDowell High School and West McDowell Middle School.

- **Proposed Connector from W McDowell High School Road (SR 1301) to Roby Conley Road (SR 1197):** The new connector is recommended to be constructed as a minor thoroughfare, with two 12 foot lanes. The new connector road would serve to alleviate some of the traffic on US 70, provide better access to US 221, and provide an alternative route to residents west and south of the schools.

- **Sugar Hill Road (SR 1001):** The proposed project includes widening the existing facility to a five lane roadway with sidewalks on each side.

Adopted by:

City of Marion
Date: April 21, 2015

NCDOT
Date: June 4, 2015

Endorsed by:

Isothermal RPO
Date: April 1, 2015

Recommended by:

Transportation Planning Branch
Date: May 15, 2015

Catawba River

Marion

226
221
70
BUS 221
40

See the 2013 McDowell County CTP

NOTES:
There is no Bicycle Map (Sheet 4) included in this plan. The upcoming City of Marion Bicycle Plan will be incorporated into the CTP in a subsequent plan update.

Legend

- Airport
- Schools
- Rivers and Streams
- Roads
- Railroad
- Municipal Limits
- Planning Boundary

N W E S

0 0.25 0.5 1 1.5 Miles

Sheet 1 of 5

Base map date: 03-12-2014

Refer to CTP document for more details

Marion

McDowell County
North Carolina

Comprehensive Transportation Plan

Plan date: March 10, 2015

Inset A

See the 2013 McDowell County CTP

Miles
0 0.25 0.5 1 1.5

N
W E
S

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

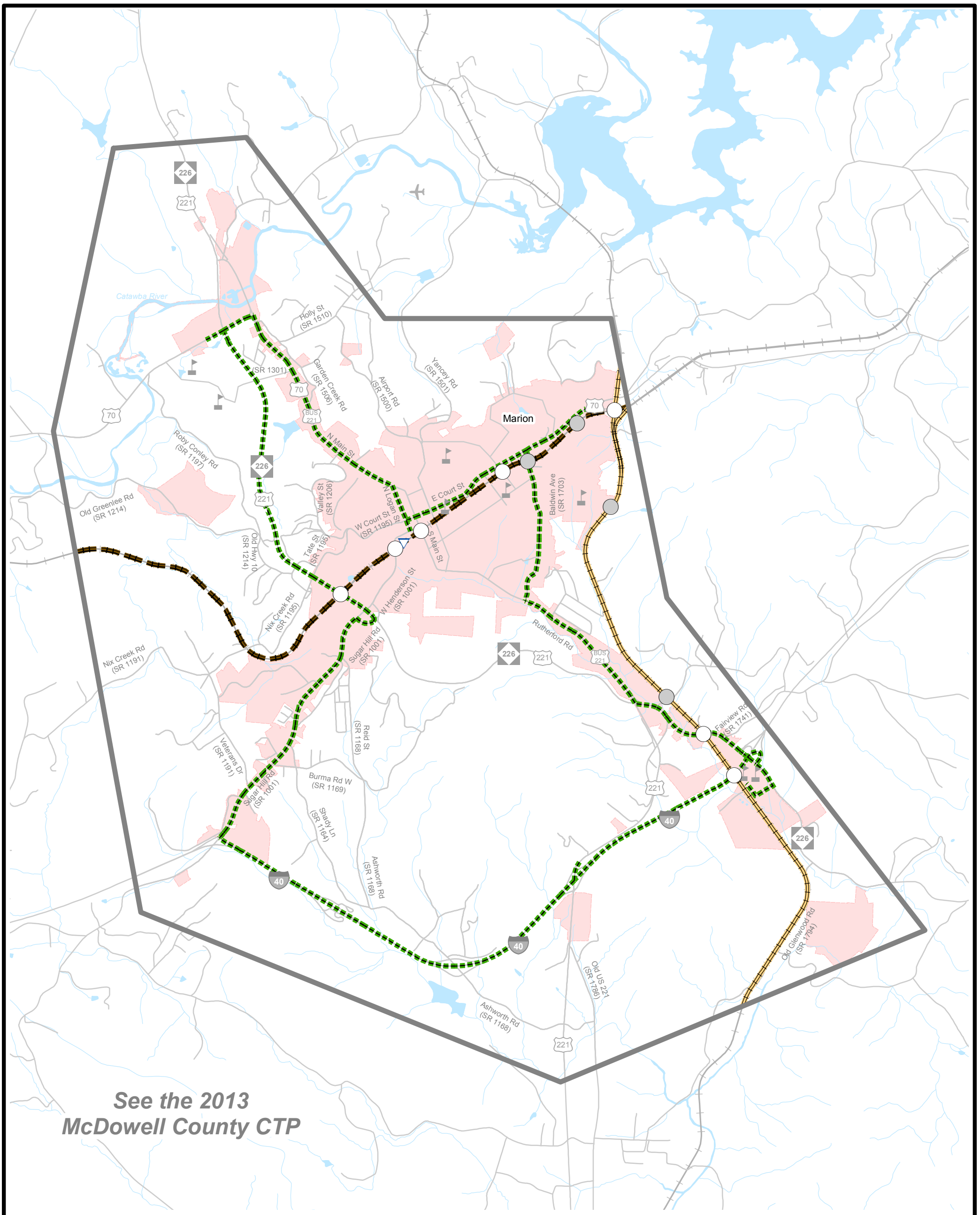
Base map date: 03-12-2014

Refer to CTP document for more details

Highway Map

Marion
Comprehensive Transportation Plan

Plan date: March 10, 2015



See the 2013 McDowell County CTP

Bus Routes
- Existing
- Needs Improvement
- Recommended

Rail Corridor
- Active
- Inactive
- Recommended

Multimodal Connector
- Existing
- Recommended

Fixed Guideway
- Existing
- Needs Improvement
- Recommended

High Speed Rail Corridor
- Existing
- Recommended

Park and Ride Lot
- Existing
- Recommended

Operational Strategies
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

N W E S

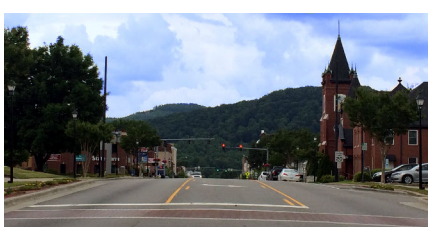
0 0.25 0.5 1 1.5 Miles

Sheet 3 of 5

Base map date: 03-12-2014

Refer to CTP document for more details

Public Transportation and Rail Map



Marion Comprehensive Transportation Plan

Plan date: March 10, 2015

Inset A

Inset A

Marion

0 0.25 0.5 Miles

0 0.25 0.5 1 1.5 Miles

See the 2013 McDowell County CTP

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 5 of 5

Base map date: 03-12-2014

Refer to CTP document for more details

Pedestrian Map

Marion
Comprehensive Transportation Plan

Plan date: March 10, 2015

1. Analysis of the Existing and Future Transportation System

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

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

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

1.1 Analysis Methodology and Data Requirements

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

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

Roadway System Analysis

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

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

[1] *For more information on the STC, go to:*
https://connect.ncdot.gov/projects/planning/Pages/NCTransportationNetwork.aspx

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

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

In the development of this plan, travel demand was projected from 2012 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 Marion City Council on February 17, 2015. 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 in Figure 3 are an estimate of the traffic 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[2] (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;

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

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

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

LOS D indicates "practical capacity" of a roadway, or the capacity at which the public begins to 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

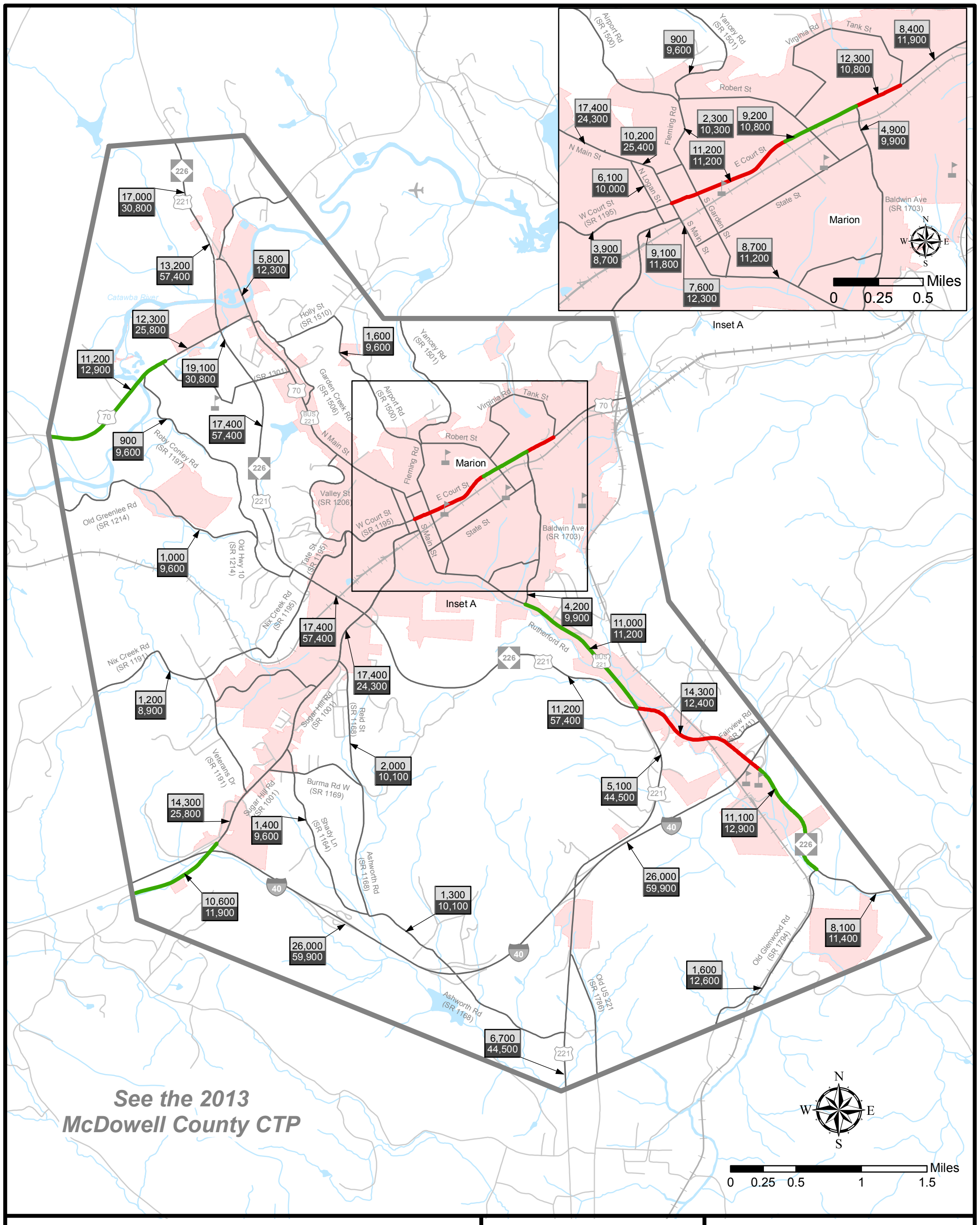
Traffic crashes are often used as an indicator for locating congestion and roadway problems. Crash patterns obtained from an analysis of crash data can lead to the identification of improvements that will reduce the number of crashes. The Traffic Safety Unit of NCDOT's Transportation Mobility and Safety 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 Marion CTP occurred between January 1, 2007 and December 31, 2011. During this period, a total of 35 intersections and 22 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. Eleven deficient bridges were identified on roads evaluated as part of the CTP and are illustrated in Figure 5. Of these, none are scheduled for improvement in the 2016 – 2025 TIP. However, six occur along roadways recommended for improvement in the CTP. As deficient bridges are replaced, every consideration should be given to proposed CTP recommendation and cross section associated with the recommendation. Table 3 in Appendix F gives a listing of the deficient bridges identified in the CTP and the ID number associated with CTP project proposal. Refer to Appendix F for more detailed bridge deficiency information.



Legend

2012 Volume
2012 Capacity

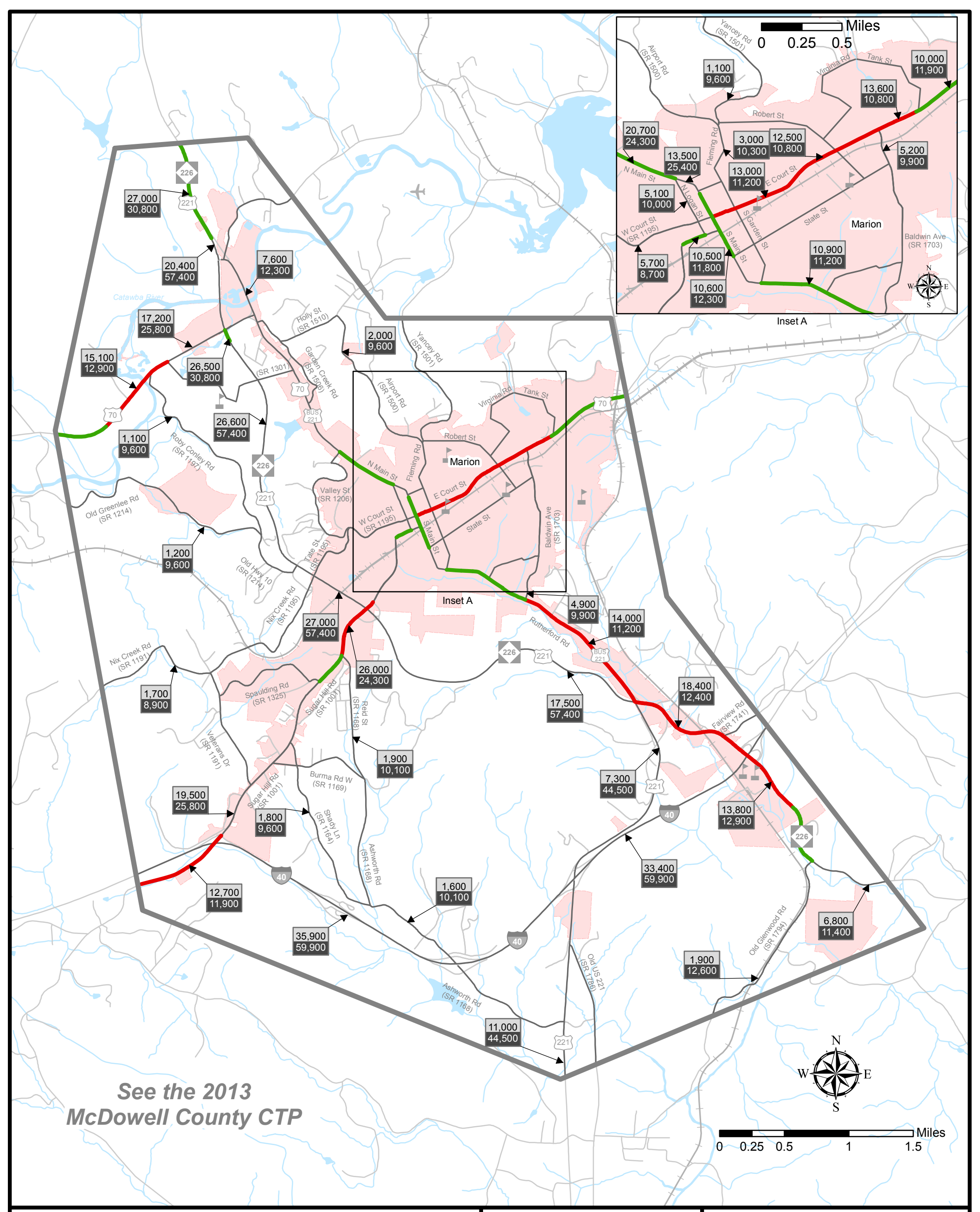
- Near Capacity
- Over Capacity
- Study Roads
- Airports
- Schools
- Rivers and Streams
- Roads
- Railroad
- Municipal Limits
- Planning Boundary

Base map date: 03-12-2014

Figure 2
2012
Volumes and Capacity
Deficiencies Map

Marion

Comprehensive
Transportation Plan



Legend

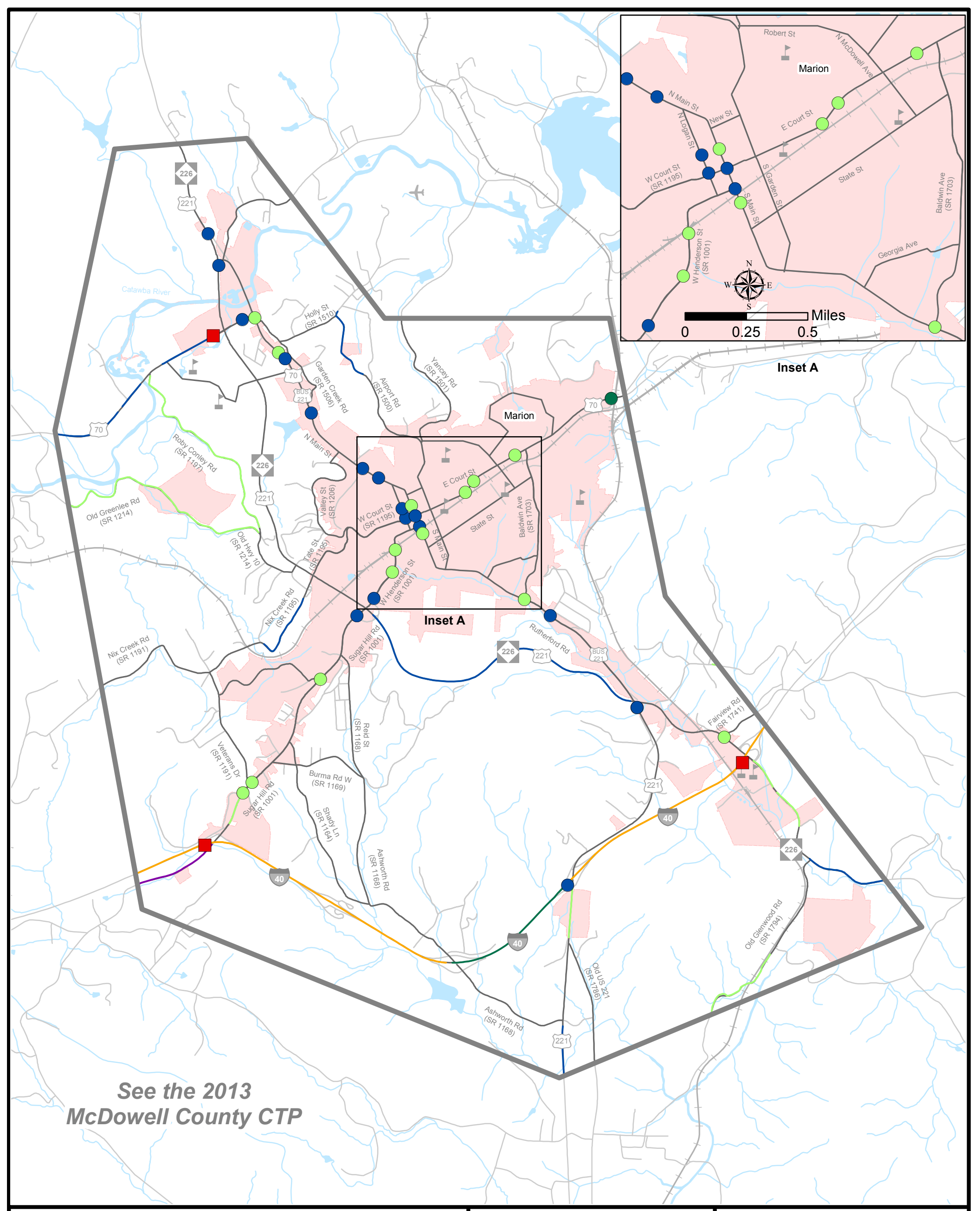
2040 Volume
2012 Capacity

- Near Capacity
- Over Capacity
- Study Roads
- Airports
- Schools
- Rivers and Streams
- Roads
- Railroad
- Municipal Limits
- Planning Boundary

Base map date: 03-12-2014

Figure 3
2040
Volumes and Capacity Deficiencies Map

Marion
Comprehensive Transportation Plan



Legend

Crash Intersections

CATEGORY

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

Crash Sections

CATEGORY

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

- Airports
- Schools
- Rivers and Streams
- Roads
- Study Roads
- Railroad
- Municipal Limits
- Planning Boundary

N W E S

Miles

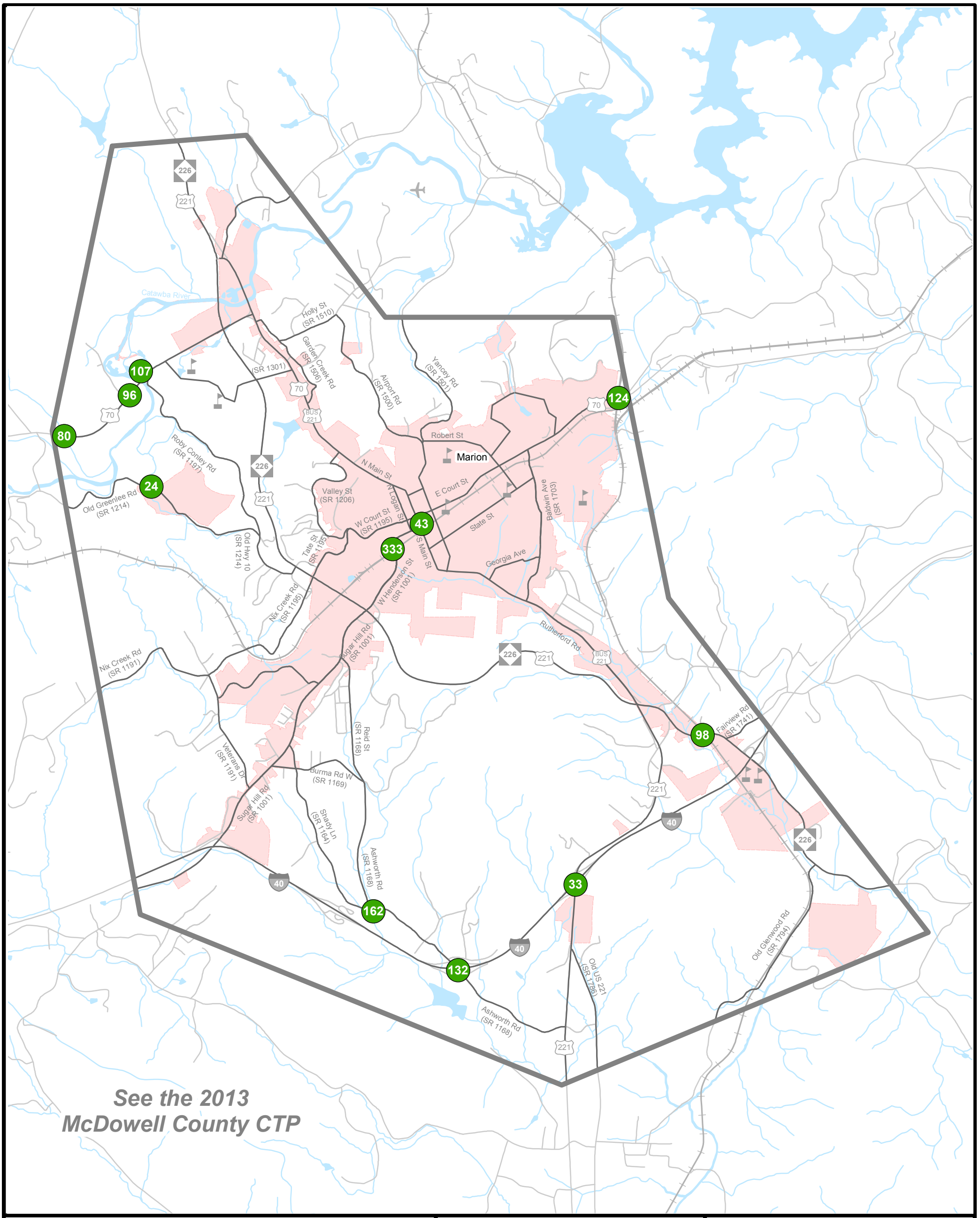
0 0.25 0.5 1 1.5

Base map date: 03-12-2014

Figure 4
Crash Location Map

January 1, 2007 to December 31, 2011

Marion
Comprehensive Transportation Plan



Legend

- Deficient Bridge (# Bridge Number)
- Airports
- Schools
- Rivers and Streams
- Roads
- Study Roads
- Municipal Limits
- Planning Boundary

N W E S

0 0.25 0.5 1 1.5 Miles

Base map date: 03-12-2014

Refer to Appendix F for more details

Figure 5
Deficient Bridges Map

Marion
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, Amtrak passenger stations and throughout the United States and Canada. Greyhound and Amtrak Thruway service operate in North Carolina. However, community, urban and regional transportation systems are providing increasing intercity service in North Carolina.

An inventory of existing and planned fixed public transportation routes for the planning area is presented on Sheet 3 of Figure 1. Currently, there is no fixed-route transit service offered to the general public within Marion. The McDowell County Department of Social Services (DSS) coordinates human service transportation in McDowell County. The agency provides transportation or gas vouchers to assist Medicaid recipients in going to medical appointments. Medicaid clients are transported using agency vehicles on a first come, first serve basis. The McDowell Senior Center, a department under McDowell County DSS, offers transportation primarily to individuals 60 years and older. These services include transportation to and from the Marion and Old Fort Senior Center sites, bill paying, shopping and to points of interest. Medical transportation is

provided through the Senior Center to disabled adults in addition to those 60 years and older.

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

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

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

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

An inventory of existing and planned rail facilities for the planning area is presented on Sheet 3 of Figure 1. Currently, there is no passenger rail service in Marion, but freight service is offered from Norfolk Southern and CSX. Norfolk Southern has 13 to 15 trains that travel through Marion per day. CSX has 23 to 27 trains per day that pass through Marion. All recommendations for rail were coordinated with the local governments and the Rail Division of NCDOT. Refer to Appendix A for contact information for the Rail Division.

Bicycles & Pedestrians

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

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

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

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

Inventories of existing and planned pedestrian facilities for the planning area are presented on Sheet 5 of Figure 1. The 2012 City of Marion Safe Routes to School (SRTS) Action Plan[3] was utilized in the development of this element of the CTP. In 2014, Marion received a bicycle planning grant from NCDOT. Therefore, it was decided that this CTP would defer bicycle recommendations to the resulting plan from the grant study. All recommendations for 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 Marion City Council adopted the 2012 Comprehensive Land Use Plan[4] (refer to Appendix H) in order 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:

[3] *To view this plan, go to: http://www.marionnc.org/assets/SRTS%20Plan/00_SRTS_Marion_Cover.pdf.*
[4] *To view this plan, go to: http://www.marionnc.org/compplan.php.*

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

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

The majority of Marion's land use is residential which accounts for 34% of all land area. The next biggest percentage of land use is off-street parking areas and vacant land which make up 20% of all land area. The third largest percentage of land use is goods and services which account for 14%. Therefore, the top three land use categories make up 68% of land use in Marion. Growth in Marion is expected to occur along the I-40 Corridor and major thoroughfares, especially in the form of both residential and commercial growth.

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 Act[5] (NEPA) requires consideration of impacts on wetlands, wildlife, water quality, historic properties, and public lands. While a full NEPA evaluation was not conducted as part of the CTP, every effort was made to minimize potential impacts to these features utilizing the best available data. Any potential impacts to these resources were identified as a part of the project recommendations in Chapter 2 of this report. Prior to implementing transportation

[5] *For more information on NEPA, go to: http://ceq.hss.doe.gov/.*

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 Marion are shown in Figure(s) 6 and are shown in bold text in Table 1.

Table 1 – Environmental Features

- **24k Hydro Lines**
- **303D Streams**
- Airport Boundaries
- Anadromous Fish Spawning Areas
- APNEP - Submerged Aquatic Vegetation
- Beach and Waterfront Access
- Benthic Habitat
- Bicycle Routes
- Boating Access
- Churches and Cemeteries
- **Colleges and Universities (Points)**
- Conservation Tax Credit Properties
- Critical Habitat for Threatened and Endangered Species
- **Emergency Operation Centers**
- Fish Nursery Areas
- **Geology - Faults**
- **Hazard Substance Disposal Sites (points & polygons)**
- Hazardous Waste Facilities
- **High Quality Waters and Outstanding Resource Water Management**
- **Historic Resources – National Register and Determined Eligible (points and polygons)**
- **Hospitals**
- **Hydrography - 1:24,000-scale (polygons)**
- **Landscape Habitat Indicator Guilds (LHIGs)**
- **Managed Areas**
- **National Wetlands Inventory (polygons)**
- **Natural Heritage Element Occurrences**
- NC-CREWS: N.C. Coastal Region Evaluation of Wetland Significance
- NCDOT Maintained Mitigation Sites
- **Railroads (1:24,000)**
- **Recreation Projects - Land and Water Conservation Fund**
- Regional Trails
- **Sanitary Sewer Systems – Discharge, Pipes, Pumps, and Treatment Plants**
- **Schools (Public & Non-Public)**
- Significant Natural Heritage Areas
- State Natural and Scenic Rivers
- State Parks
- **Target Local Watersheds - EEP**
- **Trout Streams (DWQ)**
- Trout Waters WRC (arcs & polygons)
- Unique Wetlands
- **Water Distribution Systems – Pipes, Tanks & Treatment Plants**
- **Water Supply Watersheds**

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

1.3 Public Involvement

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

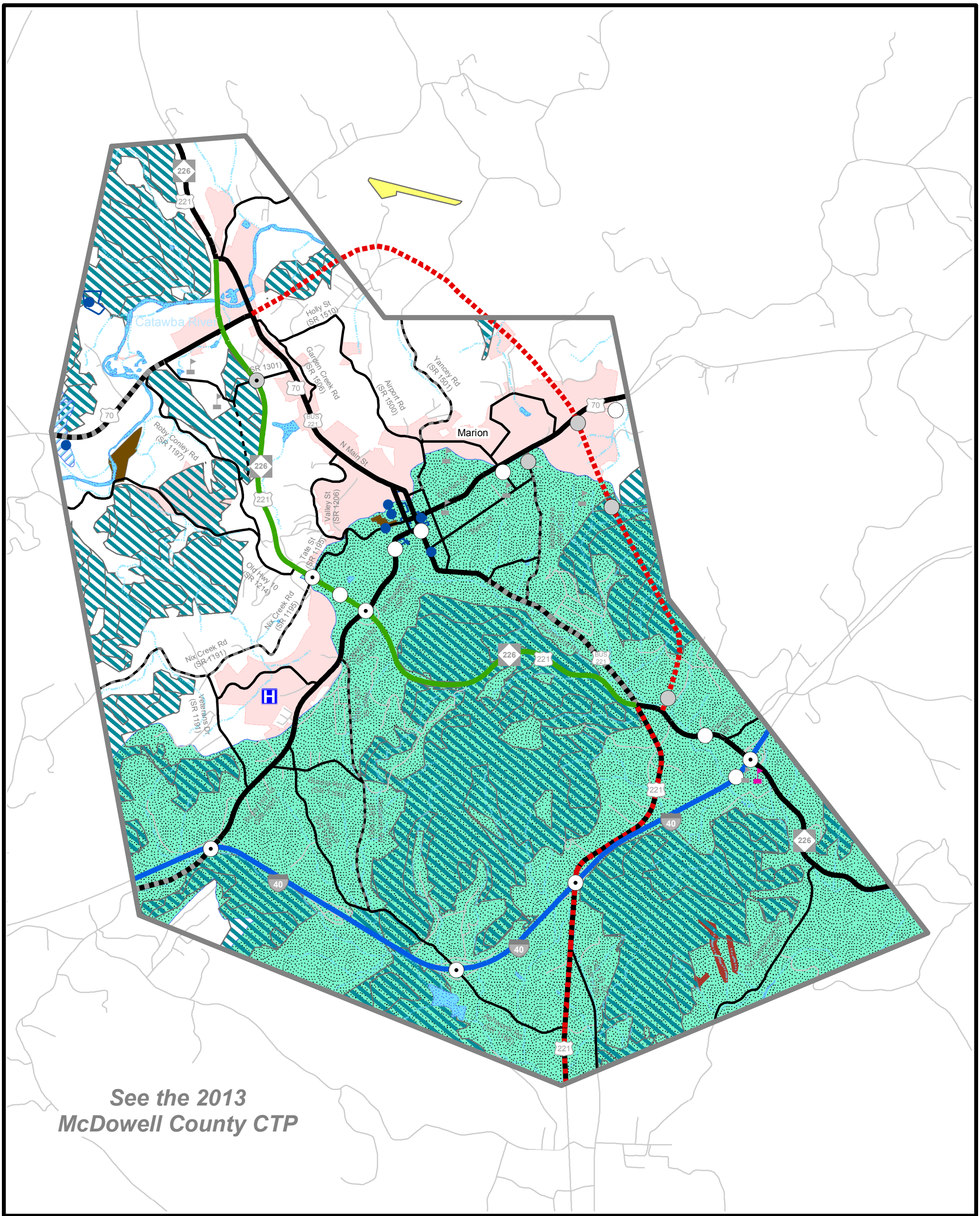
A meeting was held with the Marion CTP Steering Committee in September 2012 to formally initiate the study, provide an overview of the transportation planning process, and to gather input on area transportation needs.

Throughout the course of the study, the NCDOT Transportation Planning Branch cooperatively worked with the Marion CTP Steering Committee which included representatives from Marion, McDowell County, the 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 a public drop-in session in Marion to present the proposed CTP to the public and solicit comments. The meeting was held on March 10, 2015 at the Marion Depot. It was publicized both in the local newspaper and online and was held from 2 - 6 PM. Three comment forms were submitted during the session.

The CTP was adopted by the City of Marion on April 21, 2015 during the Marion City Council meeting. The purpose of this meeting was to discuss the plan recommendations.

The Isothermal RPO meeting was held on April 1, 2015 and an endorsement resolution of the Marion CTP was presented and approved, contingent upon adoption by the City of Marion. The North Carolina Department of Transportation mutually adopted the Marion CTP on June 4, 2015.



Legend

- Hospitals
- Historic Resources Sites
- 24k Hydro Lines
- Airport Boundary
- Historic Resources Areas
- Hydrography Areas
- Land & Water Conservation Funds
- Water Supply Watersheds
- Landscape Habitat Indicator Guilds
- Managed Areas
- Target Local Watersheds - EEP
- Colleges and Universities
- Schools
- Roads
- Municipal Limits
- Planning Boundary

N W E S

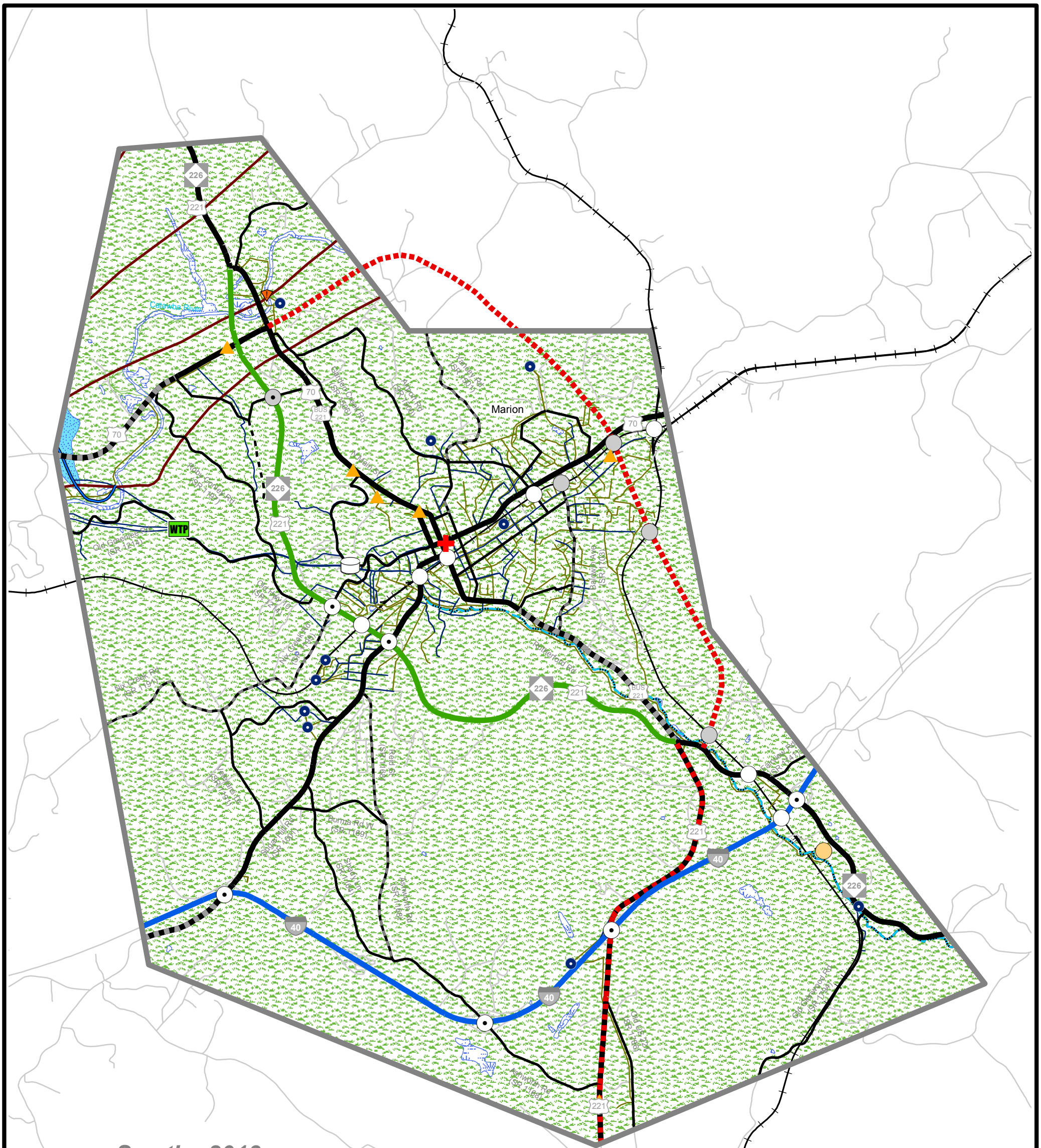
0 0.25 0.5 1 1.5 Miles

Sheet 1 of 2

Base map date: 03-12-2014

Figure 6
Environmental Features Map

Marion
Comprehensive Transportation Plan



Legend

- Emergency Operation Centers
- Hazardous Substance Disposal Sites
- Sewer Treatment Plants
- Water Distribution Tanks
- Water Distribution Treatment Plants
- Sanitary Sewer Systems - Pumps
- Sanitary Sewer Systems - Discharge
- 303D Streams
- Roads
- Railroads
- Trout Streams DWQ
- Geology - Faults
- Water Distribution Systems - Pipes
- Sanitary Sewer Systems - Pipes
- National Wetland Inventory
- High Quality Waters
- Natural Heritage Element Occurence
- Municipal Limits
- Planning Boundary

N W E S

0 0.25 0.5 1 1.5 Miles

Sheet 2 of 2

Base map date: 03-12-2014

Figure 6
Environmental Features Map

Marion
Comprehensive Transportation Plan

2. Recommendations

This chapter presents recommendations for each mode of transportation in the 2015 Marion CTP as shown in Figure 1. More detailed information on each recommendation is tabulated in Appendix C. Refer to Appendix I for documentation of project alternatives and scenarios that were studied, but are not included in the adopted CTP. For information on areas outside of the Marion planning area boundary, refer to 2013 McDowell County CTP[1].

NCDOT adopted a "Complete Streets[2]" 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 Unaddressed Deficiencies

The following deficiency was identified during the development of the CTP, but remains unaddressed.

NC 226: NC 226 from Old Glenwood Road (SR 1794) to Agriculture Road (SR 1828) is currently approaching its capacity of 12,900 vehicles per day (vpd) and is expected to be over capacity by 2040. The 2012 Average Annual Daily Traffic (AADT) of 9,200 vpd is projected to increase to a volume of 13,800 vpd. NC 226 from Agriculture Road (SR 1828) to US 221 Business is currently over capacity with an AADT of 14,300 vpd and will remain over capacity in 2040 with a projected volume of 18,400 vpd. NC 226 is a

[1] *To view the 2013 McDowell County CTP, go to: https://connect.ncdot.gov/projects/planning/Pages/Comprehensive-Transportation-Plans.aspx.*

[2] *For more information on Complete Streets, go to: http://www.completestreetsnc.org/.*

major thoroughfare, which directly connects to I-40. The city does not support widening this portion of NC 226 due to the impacts to the human environment. The city does support the widening of the railroad bridge over NC 226 in this section in order match the existing three lane cross section with curb & gutter and sidewalk. Although no improvement is recommended within this CTP, access management strategies are encouraged along this facility. This deficiency will be re-evaluated during a subsequent CTP update.

2.2 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 Marion. 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 Isothermal RPO for regional prioritization and submittal to NCDOT. Refer to Appendix A for contact information on regional prioritization and funding. Local governments may use the CTP to guide development and protect corridors for the recommended projects. It is critical that NCDOT and local governments coordinate on relevant land development reviews and all transportation projects to ensure proper implementation of the CTP. Local governments and NCDOT share the responsibility for access management and the planning, design and construction of the recommended projects.

Recommended improvements shown on the CTP map represents an agreement of identified transportation deficiencies and potential solutions to address the deficiencies. While the CTP does propose recommended solutions, it may not represent the final location or cross section associated with the improvement. All CTP recommendations are based on high level systems analyses that seek to minimize impacts to the natural and human environment. Prior to implementing projects from the CTP, additional analysis will be necessary to meet the National Environmental Policy Act (NEPA) or the North Carolina (or State) Environmental Policy Act[3] (SEPA). During the NEPA/SEPA process, the specific project location and cross section will be determined based on environmental analysis and public input. This CTP may be used to support transportation decision making and provide transportation planning data in the NEPA/SEPA process.

[3] *For more information on SEPA, go to: http://www.doa.nc.gov/clearing/faq.aspx.*

2.3 Problem Statements

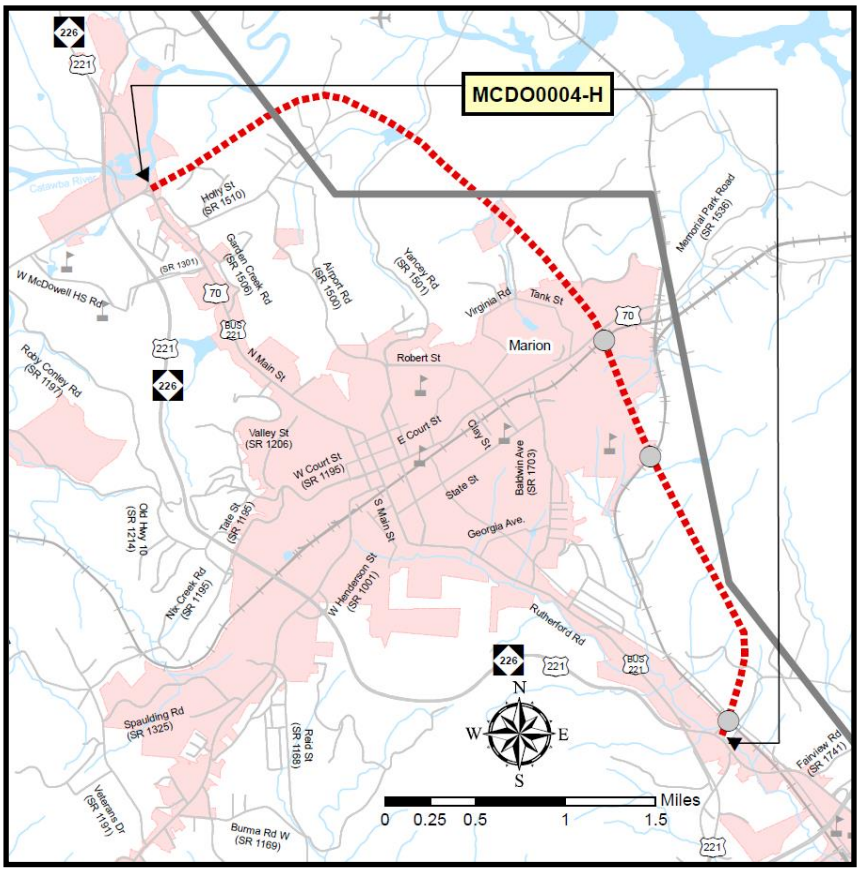
The following pages contain problem statements for each recommendation, organized by CTP modal element. The information provided in the problem statement is intended to help support decisions made in the NEPA/SEPA process. A full, minimum or reference problem statement is presented for each recommendation, 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.

HIGHWAY

US 70 Bypass from US 70/US 221 Business to NC 226	Local ID: MCDO0004-H Last Updated: 4/14/2015

Identified Problem

US 70 between N Main Street and Memorial Park Road (SR 1536) at the eastern planning boundary is projected to be near or over capacity by 2040. Improvements are needed to accommodate projected traffic volumes in order to maintain a Level of Service (LOS) D on US 70.



Justification of Need

US 70 is a major east-west route in Marion. It connects to Old Fort in the west and Morganton in the east. It currently goes through downtown Marion and requires vehicles to make several turns to stay on the route.

This segment of US 70 is primarily a two lane**,** undivided facility with 10 foot lanes and a turn lane at various locations. The speed limit varies from 20 miles per hour (mph) in the central business district (CBD) to 45 mph. The 2012 Annual Average Daily Traffic (AADT) volume ranges from 8,400 to 12,300 vehicles per day (vpd). LOS D capacities of this segment range from 10,000 to 11,900 vpd. The 2040 projected traffic volume for this section of US 70 is 6,300 to 13,600 vpd.

Community Vision and Problem History

An objective in Marion's vision and goals is for Main Street to serve primarily local traffic and not through traffic in order to maintain the walkability and character of Marion's central business district. The Downtown Streetscape Plan, unanimously approved by the Marion City Council in 2009, outlines an aesthetically pleasing downtown area, while incorporating various traffic safety improvements. Refer to Appendix I for more details.

The 2002 Marion Thoroughfare Plan[4] identified US 70 (East Court Street) as deficient in 2025 and alternative local routes were already being used to avoid US 70.

CTP Project Proposal

Project Description and Overview

The proposed facility is a north-south route on the east side of Marion from US 70/US 221 Business to NC 226. This new facility would serve as a bypass route for existing US 70, which currently goes through the downtown area. This facility is recommended to be built as a boulevard with two 12 foot lanes on four lane right-of-way and a speed limit of 55 mph. Grade separations are recommended over all railroad crossings. Refer to Appendix I for information on other alternatives that were evaluated for this project.

Additionally, US 70 between N Main Street and Memorial Park Road (SR 1536) at the eastern planning boundary experienced 66 crashes from 2007 through 2011. The proposed project would allow autos and trucks, whose destinations are not downtown, to follow an alternative route to stay on US 70 which does not include going through downtown Marion.

Natural & Human Environmental Context

Based on a planning level environmental assessment using available GIS data, the proposed project is in the vicinity (300ft from centerline) of the following environmental features: water distribution pipes, sanitary sewer pipes, impaired and threatened (303D) streams, a geological fault, and a hazardous substance disposal site. The proposed project also crosses within mixed forest area, landscape habitat indicator guilds, a natural heritage element occurrence area, and local watersheds. In the community just outside the Marion boundary, there are geological faults, land trust priority areas, and the Shiflet Field Airport. The proposed project also has three proposed rail crossings.

Relationship to Land Use Plans

Current land use along US 70 between N Main Street and Memorial Park Road (SR 1536) at the eastern planning boundary is primarily business. The City of Marion 2012 Comprehensive Land Use Plan[5] shows that future land use classifications along this section of US 70 will primarily be community commercial, historic downtown, and mixed use neighborhoods. Marion's Future Land Use map shows that US 70 east of Tank Street will serve industrial development while much of the land through the new corridor will be residential.

Linkages to Other Plans and Proposed Project History

In the 2002 Marion Thoroughfare Plan, a similar proposal for a US 70 Bypass was presented. It was proposed to be a new two lane facility from US 70 (East Court Street) to US 70 (North Main Street). However, over time, the human impact for such a

[4] *To view the 2002 Marion Thoroughfare Plan, go to: https://archive.org/details/cityofmarionthor2002nort.*
[5] *To view the City of Marion 2012 Comprehensive Land Use Plan, go to: http://www.marionnc.org/assets/Comp%20plan/CompPlan.pdf.*

proposal became too great, and the proposal no longer sufficiently serves lower parts of Marion, such as NC 226. Additionally, development has spread out in such a way that a new solution would better serve the area.

Multi-modal Considerations
There are no other modes of transportation recommended on this project.

Public/ Stakeholder Involvement
Results from the 2013 McDowell County CTP[6] Goals & Objectives (G&O) survey revealed that US 70 and Main Street ranked second and third as locations that people are "concerned with safety or crash problems" in the county. Additionally, in the same G&O survey, when asked "Do you use a lot of back roads/local roads because the main ones are congested?", 45% responded "Yes", with Main Street, US 70, and downtown Marion as the top 3 congested locations avoided.

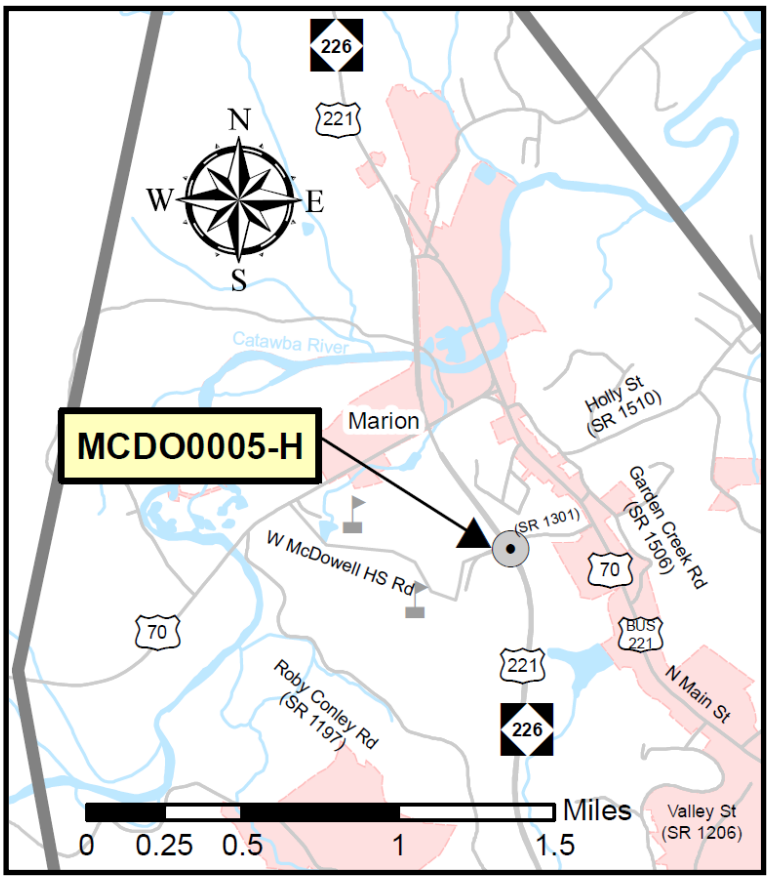
During the Marion CTP public workshop on May 10, 2015, many commented that the bypass was a great idea and they really looked forward to seeing it being implemented. One person commented "I am impressed with the plan and like the idea of moving commercial traffic to the outskirts of town to free up traffic congestion and allow for more pedestrian and bicycle opportunities within the city limits."

[6] *To view the 2013 McDowell County CTP, go to: https://connect.ncdot.gov/projects/planning/Pages/Comprehensive-Transportation-Plans.aspx.*

McDowell High School Road (SR 1301)	Local ID: MCDO0005-H
Interchange with US 221/NC 226	Last Updated: 4/14/2015

Identified Problem

US 70 between US 221 and the western planning boundary 0.8 miles west of Roby Conley Road (SR 1197) is projected to be near or over capacity by 2040. Improvements are needed to accommodate projected traffic volumes in order to maintain a Level of Service (LOS) D on US 70 and to improve mobility in the vicinity of McDowell High School and West McDowell Junior High School.



Justification of Need

US 70 is a major east-west route in Marion. It connects to Old Fort in the west and Morgantown in the east. The segment of US 70 from the western planning boundary 0.8 miles west of Roby Conley Road (SR 1197) to US 221 varies from two to five lanes with a turn lane at various locations. The speed limit is 45 miles per hour (mph). The 2012 Annual Average Daily Traffic (AADT) volume is 9,400 to 13,600 vehicles per day (vpd). The LOS D capacity of this segment ranges from 12,900 to 25,800 vpd. The 2040 projected traffic volume for this section of US 70 is 15,100 to 17,200 vpd.

US 221 is four lane expressway route in Marion. It connects to Rutherfordton in the south and Boone in the north. McDowell High School Road (SR 1301) is the only road that serves West McDowell Junior High School and McDowell High School. It directly connects to US 70 and US 70/221 Business; however, there is currently a grade separation at US 221 and McDowell High School Road (SR 1301).

Community Vision and Problem History

An objective in Marion's vision and goals is to have a street network that allows vehicles to use major thoroughfares to get to key destinations in the area (e.g. schools and businesses) without having to primarily use residential streets.

This problem has not been identified on any previous transportation plan.

CTP Project Proposal

Project Description and Overview

The existing grade separation at US 221 and McDowell High School Road (SR 1301) is recommended to be converted to an interchange. This proposed interchange would serve to alleviate some of the heavy traffic on US 70 and improve mobility in the area. The addition of on and off ramps from the US 221 Bypass onto McDowell High School Road (SR 1301) will also provide an alternative ingress and egress and traffic relief for McDowell High School and West McDowell Middle School. The McDowell Public School Superintendent supports this project.

Additionally, US 70 between US 221 and the western planning boundary 0.8 miles west of Roby Conley Road (SR 1197) experienced 68 crashes from 2007 through 2011.

Natural & Human Environmental Context

Based on a planning level environmental assessment using available GIS data, the proposed project is in the vicinity (300ft from centerline) of a mixed forest area, a natural heritage element occurrence area and landscape habitat indicator guilds.

Relationship to Land Use Plans

Current land use along the proposed project area is agriculture open space and residential with some industry along US 70. The City of Marion 2012 Comprehensive Land Use Plan[7] shows that future land use classifications along the area will primarily be agriculture open space and urban residential with industrial development along US 70.

Linkages to Other Plans and Proposed Project History

This section of US 221 is a part of the NCDOT's Strategic Highway Corridor (SHC) Vision Plan; however, it is not designated as a Strategic Transportation Corridor within the North Carolina Transportation Network (NCTN) update which is currently underway. The NCTN will replace the SHC Vision Plan once approved by NCDOT.

Multi-modal Considerations

There are no other modes of transportation recommended on this project.

Public/ Stakeholder Involvement

Results from the 2013 McDowell County CTP[8] Goals & Objectives (G&O) survey revealed that US 221 ranked first as the location that people are "concerned with safety or crash problems" for the county. Additionally, in the same G&O survey, when asked "Do you use a lot of back roads/local roads because the main ones are congested?", 45% responded "Yes", with US 70 as the second most congested location avoided.

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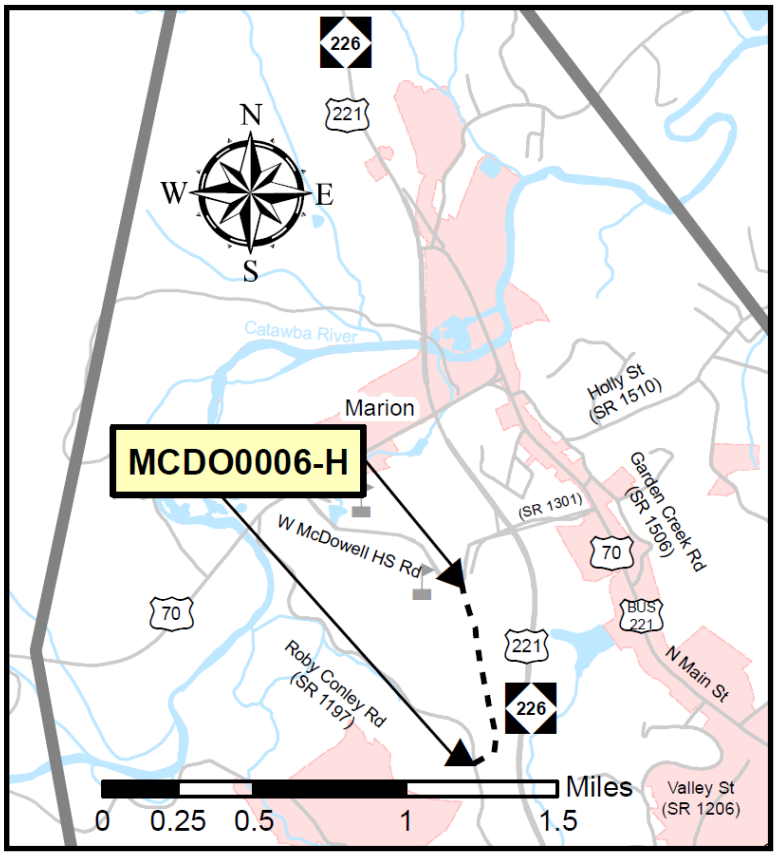
[7] *To view the City of Marion 2012 Comprehensive Land Use Plan, go to: http://www.marionnc.org/assets/Comp%20plan/CompPlan.pdf.*

[8] *To view the 2013 McDowell County CTP, go to: https://connect.ncdot.gov/projects/planning/Pages/Comprehensive-Transportation-Plans.aspx.*

Proposed Connector from W McDowell High School Road (SR 1301) to Roby Conley Road (SR 1197)	Local ID: MCDO0006-H Last Updated: 4/14/2015



Identified Problem

Improvements are needed to enhance mobility and to provide an alternative ingress and egress to US 70 for McDowell High School and West McDowell Middle School.

Justification of Need

Currently, access to McDowell High School and West McDowell Middle is from W McDowell HS Road (SR 1301) which is the only access from US 70 westbound and US 70/221 Business north bound. McDowell High School is the primary high school for the county. West McDowell Middle School is one of two middle schools in the county. These schools are heavy traffic generators in the mornings, afternoons, and during peak afternoon hours due to afterschool activities. US 70 between the western planning area boundary 0.8 miles west of Roby Conley Road (SR 1197), and W McDowell HS Road (SR 1301) is currently approaching its capacity of 12,900 vehicles per day (vpd) and is expected to be over capacity by 2040 with an estimated 15,100 vpd. There are significant residential areas south and east of the school that must use US 70 to access the school.

Community Vision and Problem History

In a meeting with the school superintendent, the need for an alternative ingress and egress was identified. This problem has not been identified on any previous transportation plan.

CTP Project Proposal

Project Description and Overview

The new connector road is recommended to be constructed as a minor thoroughfare, with two 12 foot lanes. This proposed facility would serve to alleviate some of the heavy traffic on US 70, provide better access to US 221, and provide an alternative ingress and egress route to residents west and south of the schools.

Natural & Human Environmental Context
Based on a planning level environmental assessment using available GIS data, the proposed project is in the vicinity (300ft from centerline) of water distribution pipes, landscape habitat indicator guilds, a natural heritage element occurrence and a mixed forest area.

Relationship to Land Use Plans
Current land use along the proposed project area is primarily forest and residential. The City of Marion 2012 Comprehensive Land Use Plan[9] shows that future land use classifications along the area will primarily be agriculture open space and suburban residential.

Linkages to Other Plans and Proposed Project History
This project has not been identified on any previous transportation plan.

Multi-modal Considerations
There are no other modes of transportation recommended on this project.

Public/ Stakeholder Involvement
Results from the 2013 McDowell County CTP[10] Goals & Objectives (G&O) survey revealed that US 70 ranked second as the location that people are "concerned with safety or crash problems" for the county. Additionally, in the same G&O survey, when asked "Do you use a lot of back roads/local roads because the main ones are congested?", 45% responded "Yes", with US 70 as the second most congested location avoided.

[9] *To view the City of Marion 2012 Comprehensive Land Use Plan, go to: http://www.marionnc.org/assets/Comp%20plan/CompPlan.pdf.*
[10] *To view the 2013 McDowell County CTP, go to: https://connect.ncdot.gov/projects/planning/Pages/Comprehensive-Transportation-Plans.aspx.*

US 70, Local ID: MCDO0007-H

US 70 intersects with W McDowell High School Road (SR 1301) north of the West McDowell Junior High School and McDowell High School. The intersection is the main entry point to the schools. By 2040, US 70 is projected to be near or over capacity from the western planning boundary 0.8 miles west of Roby Conley Road (SR 1197) to W McDowell High School Road (SR 1301). Improvements are needed to accommodate projected traffic volumes in order to maintain a Level of Service (LOS) D on the facility and to improve mobility along the facility.

US 70 is currently a two lane facility with 10 foot lanes and a speed limit of 45 mph from the western planning boundary 0.8 miles west of Roby Conley Road (SR 1197) to Roby Conley Road (SR 1197). From Roby Conley Road (SR 1197) to W McDowell High School Road (SR 1301) US 70 transitions to five lanes to US 221 Business. The 2012 Annual Average Daily Traffic (AADT) volumes range from 9,400 to 13,600 vehicles per day (vpd) and existing capacity ranges from 12,900 to 25,800 vpd. The estimated 2040 traffic volume is projected to be 15,600 vpd on the two lane portion of US 70.

The CTP proposes adding a right turn lane on US 70 (eastbound) to McDowell High School Road (SR 1301) and widening the road to five lanes from Roby Conley Road to Resistoflex Road (SR 1221). Additionally, a traffic signal is recommended to be evaluated at the intersection of US 70 and Roby Conley Road (1197) since left turn movements from Roby Conley Road (1197) are difficult due to limited visibility and high traffic volumes.

US 221, Local ID: R-0204 D&E

US 221 from the southern planning boundary at North Muddy Creek to US 221/NC 226 intersection is a two lane road with 11 foot wide lanes and a speed limit of 55 mph. The 2012-2018 State Transportation Improvement Program (STIP) includes project R-0204 D&E that will increase mobility along this section of US 221.

TIP project R-0204 D&E includes upgrading the existing roadway to a four lane divided boulevard with 12 foot lanes and a speed limit of 50. This project is currently in the planning and design phase. For additional information about this project, including the Purpose and Need, contact NCDOT Project Development and Environmental Analysis Branch.

Note: Subsequent to the development of this CTP, this project was deleted due to reprioritization and is not included in the final 2016 – 2025 STIP.

US 221 Business (Rutherford Road), Local ID: U-5835

US 221 Business (Rutherford Road) from US 221/NC 226 to Georgia Ave is projected to be near or over capacity by 2040. The 2016-2025 Draft STIP includes project U-5835 that will address this problem.

US 221 Business (Rutherford Road) is a major thoroughfare which serves drivers traveling across county lines as well as local traffic. It connects to US 221 and NC 226,

which directly connect to I-40. Only one mile from I-40, US 220 Business (Rutherford Road) then directly connects to downtown Marion in less than 2 miles. The efficiency of this facility is diminished due to the number of businesses along it that generate left turns from US 221 Business (Rutherford Road). Without improvements, the traffic congestion will continue to increase with the greater volume of vehicles.

US 221 Business (Rutherford Road) is currently a two lane road with 11 foot wide lanes and a speed limit of 35 mph. The 2012 AADT and existing capacity are 11,000 vpd and 11,200 vpd respectfully. The estimated 2040 traffic volume is 14,000 vpd. To preserve a LOS D on US 221 Business (Rutherford Road), it is recommended to be widened to three lanes with sidewalks on each side from US 221/NC 226 to Georgia Avenue. A proposed transit route (MCDO0001-T) will also use this segment of US 221 Business (Rutherford Road).

Based on a planning level environmental assessment using available GIS data, the proposed project is in the vicinity (300ft from centerline) of water distribution pipes, sanitary sewer pipes, impaired and threatened (303D) streams, landscape habitat indicator guilds, a natural heritage element occurrence, 24k hydro lines, and local watersheds.

Note: Subsequent to the development of this CTP, this project continues to be programmed for funding within the final 2016 – 2025 STIP.

Sugar Hill Road (SR 1001), Local ID: MCDO0008-H

Sugar Hill Road (SR 1001) from the western planning boundary 0.7 miles south of I-40 to I-40 is projected to be over capacity by 2040. Improvements are needed to accommodate projected traffic volumes in order to maintain a LOS D on the facility.

This section of Sugar Hill Road is a major thoroughfare that connects to I-40, US 221/NC 226, and downtown Marion. Sugar Hill Road (SR 1001) also serves travel to and from the Lake Lure/Chimney Rock area. Sugar Hill Road (SR 1001) primarily serves mixed traffic. The land around Sugar Hill Road (SR 1001) has the potential to be developed for industrial or service type businesses.

Sugar Hill Road (SR 1001) is currently a two lane major thoroughfare with 10 foot wide lanes and a speed limit of 45 mph. The 2012 AADT and existing capacity are 12,000 vpd and 11,900 vpd respectfully. The estimated 2040 traffic volume is 12,700 vpd. To preserve an LOS D on Sugar Hill Road (SR 1001), the CTP proposes widening the existing facility to a five lane roadway with sidewalks on each side.

Based on a planning level environmental assessment using available GIS data, the proposed project is in the vicinity (300ft from centerline) of landscape habitat indicator guilds, a natural heritage element occurrence, 24k hydro lines, and local watersheds.

Minor Widening Projects

The following routes are recommended to be upgraded to 12 foot lanes with paved shoulders to improve mobility, safety and/or to accommodate bicycles.

- **Ashworth Road (SR 1168), Local ID: MCDO0009-H:** Widen from 8 foot lanes to 12 foot lanes from Burma Road (SR 1169) to Shady Lane (SR 1164)
- **Baldwin Avenue (SR 1703), Local ID: MCDO0010-H**: Widen from 9 foot lanes to 12 foot lanes with sidewalks on both sides from US 221 Business to US 70. *Note:* A grade separation is also recommended over the railroad; however, it is not included as a part of this project.
- **Nix Creek Road (SR 1195), Local ID: MCDO0011-H:** Widen from 8 foot lanes to 12 foot lanes from approx. 750 feet west of Laurel Crossing Drive to US 221
- **Reid Street (SR 1168), Local ID: MCDO0012-H:** Widen from 8 foot lanes to 12 foot lanes from Sugar Hill Road (SR 1001) to Burma Road (SR 1169) with sidewalks on each side from Kinsbury Drive to Sugar Hill Road (SR 1001)
- **Yancey Road (SR 1501), Local ID: MCDO0013-H:** Widen from 8 foot lanes to 12 foot lanes from Fleming Avenue (SR 1500) to 0.6 miles north of West Lake Road at the northeastern planning boundary

PUBLIC TRANSPORTATION & RAIL

The Public Transportation and Rail elements of the Marion CTP are shown on Sheet 3 of Figure 1. The NCDOT Rail Division is planning to adopt a Comprehensive State Rail Plan[11] by June 2015. Currently Norfolk Southern Railroad has a freight rail system that travels through the Marion planning area. The Draft State Rail Plan recommends using the existing rail system as a high speed passenger rail corridor to more effectively connect McDowell County with other areas. Additionally, two grade separations are proposed in the plan: one at Baldwin Avenue (SR 1703) and another west of NC 226. Lastly, the plan includes a rail stop just north of W Henderson Street (SR 1001).

MCDO0001-T, Proposed Bus Route: The proposed bus route was identified to help achieve the CTP goal of creating a multi-modal transportation system. The entire route is outlined in the CTP Inventory and Recommendations Table in Appendix C. The notable landmarks along the route are as follows:

- Marion Train Depot
- Marion City Square
- McDowell Square Shopping Center
- McDowell Hospital
- Grand View Station
- McDowell Industrial Park

[11] *For more information on the State Rail Plan, go to: http://www.ncbytrain.org/projects/rail-plan.html.*

- McDowell Technical Community College
- RockTenn Industries

BICYCLE

There is no bicycle element included in this CTP. Recommendations for multi-use paths can be found on the Pedestrian Map of the CTP. For future bicycle recommendations, refer to the upcoming City of Marion Bicycle Plan. Recommendations from this study will be incorporated into a subsequent update of the CTP.

PEDESTRIAN

The 2012 Marion Safe Routes to School Strategic Action Plan[12] identify recommended sidewalks and trails throughout the city. These features are shown on the Pedestrian Map, Sheet 5 of Figure 1. Also, in 2010, the city of Marion received a deed from Norfolk Southern Railway for the purchase of 33 acres of the old Peavine Rail Line right of way from State Street to Jacktown Road for a multi-use path. In addition to the sidewalks from the above plan and the Peavine Rails to Trails Project, the CTP recommends the following sidewalks and multi-use paths to improve connectivity and mobility:

- **US 70, MCDO0001-P:** Sidewalks recommended on both sides of the street along US 70 from W McDowell High School Road to N Logan Street

  Note: Subsequent to the development of this CTP, this project was funded in the 2016 – 2025 STIP as project EB-5755.
- **US 221 Business, MCDO0002-P:** Sidewalks recommended on both sides of the street along US 221 Business from US 70 to Hankins Rd
- **US 70, MCDO0003-P:** Sidewalks recommended on both sides of the street along US 70 from N Logan Street to N Main Street
- **US 70, MCDO0004-P:** Sidewalk recommended on south side of the street along US 70 from Park Avenue to Branch Street
- **US 70, MCDO0005-P:** Sidewalks recommended on both sides of the street along US 70 from Branch Street to Memorial Park Road (SR 1536) at the eastern planning boundary
- **US 221 Business, MCDO0006-P:** Sidewalks recommended on both sides of the street along US 221 Business from Georgia Avenue to NC 226
- **NC 226, MCDO0007-P:** Sidewalks recommended on both sides of the street along NC 226 from US 221 to College Drive
- **McDowell Greenway, MCDO0001-M:** Construct a multi-use path from the Old Fort greenway just south of I-40 to Deerfield Road (east of Marion) along the Catawba

[12] *For more information on this plan, go to: http://www.marionnc.org/assets/SRTS%20Plan/00_SRTS_Marion_Cover.pdf.*

River. The recommendation was made to connect the Old Fort greenway system to the Marion greenway system.

- **Sugar Hill Road (SR 1001), MCDO0008-P:** Sidewalk recommended on west side of the street along Sugar Hill Road (SR 1001) from I-40 at Exit 81 to Lunkin Street

  Note: Subsequent to the development of this CTP, this project was funded in the 2016 – 2025 STIP as project EB-5754.

- **Sugar Hill Road (SR 1001), MCDO0009-P:** Improve sidewalk on west side of the street along to Sugar Hill Road (SR 1001) from Lunkin Street to Reid Street

  Note: Subsequent to the development of this CTP, this project was funded in the 2016 – 2025 STIP as project EB-5754.

APPENDICES

Appendix A
Resources and Contacts

Local Planning Organization

Isothermal Rural Planning Organization (www.regionc.org)
Contact the RPO for information on long-range multi-modal planning services.
111 W. Court St. Rutherfordton, NC 28139 (828) 287-2281

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 13 (https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx)
55 Orange St. Asheville, NC 28801 (828) 251-6171

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 units[1] for:

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

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

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

Other State Government Offices

Department of Commerce – Division of Community Assistance

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

http://www.nccommerce.com/cd

Appendix B
Comprehensive Transportation Plan Definitions

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

Highway Map

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

Facility Type Definitions

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

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

❖ **Boulevards**

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

❖ **Other Major Thoroughfares**

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

❖ **Minor Thoroughfares**

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

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

Other Highway Map Definitions

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

Public Transportation and Rail Map

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

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

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

Bicycle Map

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

- **On Road-Recommended** – At the systems level, it is desirable for **a recommended** highway facility to accommodate bicycle transportation. The highway should be designed and built to safely accommodate cyclists.

- **Off Road-Existing** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way.

- **Off Road-Needs Improvement** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way that will not adequately serve future bicycle needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment.

- **Off Road-Recommended** – A facility needed to accommodate only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way.

- **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

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

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

Pedestrian Map

- **Sidewalk-Existing** – Paved paths (including but not limited to concrete, asphalt, brick, stone, or wood) on both sides of a highway facility and within the highway right-of-way that are adequate to safely accommodate pedestrian traffic.

- **Sidewalk-Needs Improvement** – Improvements are needed to provide paved paths on both sides of a highway facility. The highway facility may or may not need improvements. Improvements do not include re-paving or other maintenance activities but may include: filling in gaps, widening sidewalks, or meeting ADA (Americans with Disabilities Act) requirements.

- **Sidewalk-Recommended** – At the systems level, it is desirable for a recommended highway facility to accommodate pedestrian transportation **or** to add sidewalks on an existing facility where no sidewalks currently exist. The highway should be designed and built to safely accommodate pedestrian traffic.

- **Off Road-Existing** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.

- **Off Road-Needs Improvement** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way that will not adequately serve future pedestrian needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), improved horizontal or vertical alignment, and meeting ADA requirements.

- **Off Road-Recommended** – A facility needed to accommodate only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.

- **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

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

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

Appendix C
CTP Inventory and Recommendations

Assumptions/ Notes:

- **Local ID:** This Local ID is the same as the one used for the Prioritization Project Submittal Tool. If a TIP project number exists it is listed as the ID. Otherwise, the following system is used to create a code for each recommended improvement: the first 4 letters of the county name is combined with a 4 digit unique numerical code followed by '-H' for highway, '-T' for public transportation, '-R' for rail, '-B' for bicycle, '-M' for multi-use paths, or '-P' for pedestrian modes. If a different code is used along a route it indicates separate projects will probably be requested. Also, upper case alphabetic characters (i.e. 'A', 'B', or 'C') are included after the numeric portion of the code if it is anticipated that project segmentation or phasing will be recommended.
- **Jurisdiction:** Jurisdictions listed are based on municipal limits, county boundaries, and MPO Metropolitan Planning Area Boundaries (MAB), as applicable.
- **Existing Cross-Section:** Listed under 'Total Width (ft)' is the approximate width of the roadway from edge of pavement to edge of pavement and under 'Lane Width (ft)' is the approximate width of a single lane based on centerline/ edge line markings. Listed under 'Lanes' is the total number of lanes, with 'D' if the facility is divided, and 'OW' if it is a one-way facility.
- **Existing ROW:** The estimated existing right-of-way is based on NCDOT GIS data layers and the 2002 Marion Thoroughfare Plan. 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																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
	I 40	Marion CTP West Boundary	Sugar Hill Rd. (SR 1001)	McDowell County	0.5	48	4D	12	175	70	59900	29000	38000	38000	59900	ADQ	ADQ	F	Sta	
	I 40	Sugar Hill Rd. (SR 1001)	Ashworth Rd. (SR 1168)	McDowell County	2.2	48	4D	12	175	70	59900	26000	35900	37400	59900	ADQ	ADQ	F	Sta	T
	I 40	Ashworth Rd. (SR 1168)	US 221	McDowell County	1.0	48	4D	12	175	70	59900	26000	30700	33000	59900	ADQ	ADQ	F	Sta	T
	I 40	US 221	NC 226	McDowell County	1.6	48	4D	12	175	70	59900	26000	33400	33600	59900	ADQ	ADQ	F	Sta	T
	I 40	NC 226	Marion CTP East Boundary	McDowell County	0.3	48	4D	12	175	70	59900	30000	39000	39000	59900	ADQ	ADQ	F	Sta	
MCDO0007-H	US 70	Marion CTP West Boundary	Roby Conley Rd. (SR 1197)	McDowell County	1.0	20	2	10	100	45	12900	13200	15100	15200	25800	5A	100	Maj	Reg	
MCDO0007-H	US 70	Roby Conley Rd. (SR 1197)	W McDowell High School Rd.	McDowell County	0.2	50	5	10	100	45	12900	13600	15600	15500	25800	5A	100	Maj	Reg	M
	US 70	W McDowell High School Rd.	US 221	Marion	0.5	50	5	10	100	45	25800	13000	17200	17200	25800	ADQ	ADQ	Maj	Reg	T, P
	US 70	US 221	US 70 (US 221 Business)	Marion	0.3	50	5	10	100	35	24300	9400	8700	5900	24300	ADQ	ADQ	Maj	Reg	T, P
	US 70	US 70 (US 221 Business)	Garden Creek Rd. (SR 1506)	Marion	<0.1	50	5	10	100	45	25800	12600	16200	9900	25800	ADQ	ADQ	Maj	Reg	T, P
	US 70	Garden Creek Rd. (SR 1506)	McDowell High School Rd. (SR 1301)	Marion	0.5	50	5	10	100	45	25800	11000	13600	8400	25800	ADQ	ADQ	Maj	Reg	T, P
	US 70	McDowell High School Rd. (SR 1301)	Garden Creek Rd. (SR 1506)	Marion	0.3	50	5	10	100	45	25800	11100	13600	9400	25800	ADQ	ADQ	Maj	Reg	T, P
	US 70	Garden Creek Rd. (SR 1506)	Valley St. (SR 1206)	Marion	0.5	50	5	10	100	45	25800	16300	19300	9600	25800	ADQ	ADQ	Maj	Reg	T, P
	US 70 (N Main St.)	Valley St. (SR 1206)	N Logan St.	Marion	0.5	50	5	10	100	35	24300	17400	20700	10600	24300	ADQ	ADQ	Maj	Reg	T, P
	US 70 (N Logan St.)	N Logan St.	W Court St. (SR 1195)	Marion	0.3	20	2	10	80	20	10000	6100	5100	5100	10000	ADQ	ADQ	Maj	Reg	T, P
	US 70 (W Court St.)	W Court St. (SR 1195)	US 221 Business	Marion	0.1	30	3	10	80	20	10000	5000	6300	5400	10000	ADQ	ADQ	Maj	Reg	T
	US 70 (E Court St.)	US 221 Business	N Garden St.	Marion	0.1	30	3	10	80	20	10000	10600	12300	8000	10000	ADQ	ADQ	Maj	Reg	T

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Tier	Proposals for Other Modes
	US 70 (E Court St.)	N Garden St.	S McDowell Ave. (SR 1818)	Marion	0.5	20	2	10	80	35	11200	11200	13000	9100	11200	ADQ	ADQ	Maj	Reg	T, P
	US 70 (E Court St.)	S McDowell Ave. (SR 1818)	Baldwin Ave. (SR 1703)	Marion	0.4	30	3	10	50	35	10800	9200	12500	7500	10800	ADQ	ADQ	Maj	Reg	T, P
	US 70 (E Court St.)	Baldwin Ave. (SR 1703)	Church St.	Marion	0.2	20	2	10	60	35	10800	12300	13600	9300	10800	ADQ	ADQ	Maj	Reg	T, P
	US 70 (E Court St.)	Church St.	Marion CTP East Boundary	Marion	0.7	20	2	10	60	45	11900	8400	10000	7600	11900	ADQ	ADQ	Maj	Reg	T, P
.																				
MCDO0004-H	US 70 BYP	NC 226	US 70	McDowell County	2.4	--	--	--	--	--	--	--	--	8300	21900	4B	150	B	Reg	
MCDO0004-H	US 70 BYP	US 70	US 70/US 221 Business	McDowell County	3.2	--	--	--	--	--	--	--	--	8000	21900	4B	150	B	Reg	
R-0204 D&E	US 221	Marion CTP South Boundary	Ashworth Rd. (SR 1168)	McDowell County	0.4	22	2	11	50	55	44500	6700	11000	11000	44500	4A	200-250	Maj	Sta	
R-0204 D&E	US 221	Ashworth Rd. (SR 1168)	Old US 221 (SR 1786)	McDowell County	0.6	22	2	11	50	55	44500	3900	8800	8800	44500	4A	200-250	Maj	Sta	
R-0204 D&E	US 221	Old US 221 (SR 1786)	I 40	Marion	0.5	22	2	11	50	55	44500	6500	11600	11600	44500	4A	200-250	Maj	Sta	
R-0204 D&E	US 221	I 40	NC 226	McDowell County	1.6	22	2	11	50	55	44500	6800	7400	8500	44500	4A	200-250	Maj	Sta	T
	US 221	NC 226	W Henderson St. (SR 1001)	McDowell County	2.6	44	4D	11	100	55	57400	11200	17500	17500	57400	ADQ	ADQ	E	Sta	
	US 221	W Henderson St. (SR 1001)	Tate St. (SR 1195)	Marion	0.5	44	4D	11	100	55	57400	17400	27000	27000	57400	ADQ	ADQ	E	Sta	T
	US 221	Tate St. (SR 1195)	McDowell High School Rd. (SR 1301)	McDowell County	1.5	44	4D	11	100	55	57400	17400	26600	27000	57400	ADQ	ADQ	E	Sta	T
	US 221	McDowell High School Rd. (SR 1301)	US 70	McDowell County	0.5	44	4D	11	100	45	57400	19100	23500	23500	57400	ADQ	ADQ	E	Sta	T
	US 221	US 70	US 221 Business	McDowell County	0.5	44	4D	11	200	55	57400	13200	20400	20300	57400	ADQ	ADQ	E	Sta	
	US 221	US 221 Business	Marion CTP North Boundary	McDowell County	0.8	44	4	11	200	55	30800	17900	27000	27000	30800	ADQ	ADQ	E	Sta	
U-5835	US 221 Business	NC 226	Baldwin Ave. (SR 1703)	Marion	1.2	22	2	11	60	35	11200	11000	14000	6600	12500	3B	80	Maj	Reg	T, P

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
U-5835	US 221 Business	Baldwin Ave. (SR 1703)	Georgia Ave	Marion	0.3	22	2	11	50	35	11200	5700	7100	6500	12500	3B	80	Maj	Reg	P
	US 221 Business	Georgia Ave	S Garden St.	Marion	0.4	22	2	11	50	35	11200	8700	10900	9800	11200	ADQ	ADQ	Maj	Reg	
	US 221 Business	S Garden St.	State St.	Marion	0.3	33	3	11	55	35	12500	7600	9100	8200	12500	ADQ	ADQ	Maj	Reg	
	US 221 Business	State St.	W Henderson St. (SR 1001)	Marion	0.1	33	3	11	55	25	12300	7600	10600	7700	12300	ADQ	ADQ	Maj	Reg	
	US 221 Business	W Henderson St. (SR 1001)	E Court St.	Marion	0.1	33	3	11	80	20	12000	11000	11200	9900	12000	ADQ	ADQ	Maj	Reg	
	US 221 Business	E Court St.	New St.	Marion	0.1	33	3	11	80	20	12000	8400	13500	9500	12000	ADQ	ADQ	Maj	Reg	
	US 221 Business	New St.	N Logan St.	Marion	0.1	44	4	11	80	35	25400	10200	11100	9400	25400	ADQ	ADQ	Maj	Reg	P
	US 221 Business	N Logan St.	US 70	Marion	1.8	Concurrent with US 70														
	US 221 Business	US 70	US 221	Marion	0.5	22	2	11	100	45	12300	5800	7600	7700	12300	ADQ	ADQ	Maj	Reg	M, P
	NC 226	Marion CTP East Boundary	Old Glenwood Road (SR 1794)	McDowell County	0.7	18	2	9	60	45	11400	8100	6800	6800	11400	ADQ	ADQ	Maj	Reg	
	NC 226	Old Glenwood Road (SR 1794)	Agriculture Rd (SR 1828)	McDowell County	0.3	30	3	10	60	45	12900	9200	13800	13800	12900	ADQ	ADQ	Maj	Reg	T, P
	NC 226	Agriculture Rd (SR 1828)	I 40	McDowell County	0.7	30	3	10	60	45	12900	11100	13800	13800	12900	ADQ	ADQ	Maj	Reg	T, P
	NC 226	I 40	Fairview Rd (SR 1741)	Marion	0.2	18	3	9	60	45	12400	13300	17700	17700	12400	ADQ	ADQ	E	Reg	T, P
	NC 226	Fairview Rd (SR 1741)	US 221 Business	Marion	0.8	30	3	10	60	45	12400	14300	18400	18100	12400	ADQ	ADQ	E	Reg	T, P
	NC 226	US 221 Business	Marion CTP North Boundary	Marion	6.8	Concurrent with US 221														
	Airport Rd. (SR 1500)	Yancey Rd. (SR 1501)	Holly St. (SR 1510)	McDowell County	1.3	16	2	8	60	35	9600	1600	2000	2000	9600	ADQ	ADQ	Min	Sub	P
	Ashworth Rd. (SR 1168)	US 221	I 40	McDowell County	1.0	16	2	8	60	35	9600	1700	2200	2200	9600	ADQ	ADQ	Min	Sub	
	Ashworth Rd. (SR 1168)	I 40	Shady Lane Rd. (SR 1164)	McDowell County	0.8	16	2	8	60	35	10100	1300	1600	1600	10100	ADQ	ADQ	Min	Sub	

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
MCDO0009-H	Ashworth Rd. (SR 1168)	Shady Lane Rd. (SR 1164)	Burma Road West (SR 1169)	McDowell County	1.0	16	2	8	60	35	9600	1500	1900	1900	11600	2C	60	Min	Sub	
	Azalea St.	Park Ave.	N McDowell Ave.	Marion	<0.1	20	2	10	40	25	10300	900	1500	500	10300	ADQ	ADQ	Min	--	
MCDO0010-H	Baldwin Ave. (SR 1703)	US 221 Business	W 4th Street	Marion	0.5	18	2	9	45	35	9900	4200	4900	4900	11000	2D	90	Min	Sub	T, P
MCDO0010-H	Baldwin Ave. (SR 1703)	W 4th Street	State St.	Marion	0.6	18	2	9	40-45	35	9900	3200	3900	3300	11000	2D	90	Min	Sub	T, P
MCDO0010-H	Baldwin Ave. (SR 1703)	State St.	US 70	Marion	0.1	18	2	9	40	35	9900	4900	5200	4300	11000	2D	90	Min	Sub	T, P
	Burma Road West (SR 1169)	Shady Lane Rd. (SR 1164)	Ashworth Rd. (SR 1168)	McDowell County	0.6	14	2	7	60	35	9400	600	800	800	9400	ADQ	ADQ	Min	Sub	
	Church St.	US 70	Tank St.	Marion	0.2	16	2	8	--	25	9300	600	800	700	9300	ADQ	ADQ	Min	--	P
	E Court St.	N Main St.	Marion CTP East Boundary	Marion	1.9	Concurrent with US 70														
	Fairview Rd. (SR 1741)	US 221	Marion CTP East Boundary	McDowell County	0.3	16	2	8	50	35	10100	3600	2800	2400	10100	ADQ	ADQ	Min	Sub	
	Fleming Rd. (SR 1500)	N Garden St.	Robert St.	Marion	0.4	20	2	10	50	25	10300	2300	--	--	10300	ADQ	ADQ	Min	Sub	P
	Garden Creek Rd. (SR 1506)	US 70	Holly St. (SR 1510)	McDowell County	0.6	16	2	8	60	35	9600	800	900	1400	9600	ADQ	ADQ	Min	Sub	P
	Garden Creek Rd. (SR 1506)	Holly St. (SR 1510)	US 70	McDowell County	0.3	16	2	8	60	35	10100	1700	2600	1500	10100	ADQ	ADQ	Min	Sub	
	Georgia Ave.	US 221 Business	Morehead Rd.	Marion	0.1	18	2	9	30	--	--	--	--	--	--	--	--	--	--	P
	Holly St. (SR 1510)	Garden Creek Rd. (SR 1506)	Airport Rd. (SR 1500)	McDowell County	0.5	16	2	8	60	55	12700	2100	3500	2900	12700	ADQ	ADQ	Min	Sub	P
MCDO0006-H	McDowell High School Rd. (SR 1301) Connector	Roby Conley Rd. (SR 1197)	McDowell High School Rd. (SR 1301)	McDowell County	0.6	--	--	--	--	--	--	--	--	400	10200	2B	60	Min	Sub	

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
	McDowell High School Rd. (SR 1301)	W McDowell High School Rd.	US 221	McDowell County	0.3	16	2	8	60	35	9600	--	--	1100	9600	ADQ	ADQ	Min	Sub	P
	McDowell High School Rd. (SR 1301)	US 221	US 70	McDowell County	0.3	16	2	8	60	35	9600	--	--	3000	9600	ADQ	ADQ	Min	Sub	P
	Morehead Rd.	Georgia Ave.	W 4th St.	Marion	0.2	18	2	9	30	--	--	--	--	--	--	--	--	--	--	P
	New St.	N Main St.	N Garden St.	Marion	<0.1	20	2	10	40	20	20600	70	100	90	20600	ADQ	ADQ	Min	--	
MCDO0011-H	Nix Creek Rd. (SR 1195)	Marion CTP West Boundary	Veterans Dr. (SR 1191)	McDowell County	0.9	16	2	8	60	35	8900	1200	1700	1400	11600	2A	60	Min	Sub	
MCDO0011-H	Nix Creek Rd. (SR 1195)	Veterans Dr. (SR 1191)	US 221	McDowell County	1.3	16	2	8	60	35	10100	3000	3800	3800	11600	2A	60	Min	Sub	
	N Garden St.	E Court St.	New St.	Marion	0.2	22	2	11	50	20	10000	1100	1400	900	10000	ADQ	ADQ	Min	--	
	N Garden St.	New St.	Fleming Rd.	Marion	<0.1	22	2	11	50	20	10000	500	600	80	10000	ADQ	ADQ	Min	--	
	N Logan St.	W Court St. (SR 1195)	N Main St.	Marion	0.3	Concurrent with US 70														
	N Main St.	E Court St.	US 70	Marion	2.1	Concurrent with US 221 Business														
	N McDowell Ave.	US 70	Oak St.	Marion	<0.1	20	2	10	--	25	10300	1800	2600	2600	10300	ADQ	ADQ	Min	--	
	N McDowell Ave.	Oak St.	Azalea St.	Marion	<0.1	20	2	10	--	25	10300	2500	3200	2500	10300	ADQ	ADQ	Min	--	
	Oak St.	US 70	Virginia Rd.	Marion	0.2	20	2	10	25	35	10300	1000	1500	850	10300	ADQ	ADQ	Min	--	P
	Old Glenwood Rd. (SR 1794)	Marion CTP South Boundary	NC 226	McDowell County	1.5	20	2	10	--	35	10300	1600	1900	1900	10300	ADQ	ADQ	Min	Sub	
	Old Greenlee Rd. (SR 1214)	Marion CTP West Boundary	Roby Conley Rd. (SR 1197)	McDowell County	1.9	16	2	8	60	35	9600	1000	1200	1200	9600	ADQ	ADQ	Min	Sub	
	Old Hwy 10 (SR 1214)	Old Greenlee Rd. (SR 1214)	US 221	McDowell County	0.5	16	2	8	60	35	9600	1700	1300	1100	9600	ADQ	ADQ	Min	Sub	

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
	Old US 221 (SR 1786)	Marion CTP South Boundary	US 221	McDowell County	0.9	16	2	8	--	55	12200	1000	2300	2300	12200	ADQ	ADQ	Min	Sub	
	Rankin Dr. (SR 1323)	Spaulding Rd. (SR 1325)	Sugar Hill Rd. (SR 1001)	Marion	<0.1	18	2	9	--	30	9900	4400	3700	3500	9900	ADQ	ADQ	Min	Sub	
MCDO0012-H	Reid St. (SR 1168)	Burma Road West (SR 1169)	Sugar Hill Rd. (SR 1001)	McDowell County	1.0	16	2	8	60	35	10100	2000	1900	1900	11600	2D	90	Min	Sub	P
	Robert St.	Yancey Rd. (SR 1501)	Azalea St.	Marion	0.3	20	2	10	40	25	10300	900	1500	500	10300	ADQ	ADQ	Min	--	P
	Roby Conley Rd. (SR 1197)	Old Greenlee Rd. (SR 1214)	US 70	McDowell County	1.7	16	2	8	60	35	9600	900	1100	1100	9600	ADQ	ADQ	Min	Sub	
	Rutherford Rd.	S Main St.	US 221	Marion	1.9	Concurrent with US 221 Business														
	Shady Lane Rd. (SR 1164)	Ashworth Rd. (SR 1168)	Burma Road West (SR 1169)	McDowell County	1.3	16	2	8	60	35	9600	1400	1800	1800	9600	ADQ	ADQ	Min	Sub	P
	Shady Lane Rd. (SR 1164)	Burma Road West (SR 1169)	Sugar Hill Rd. (SR 1001)	Marion	0.2	16	2	8	60	35	9600	1400	1800	1800	9600	ADQ	ADQ	Min	Sub	P
	S Garden St.	US 221 Business	State St.	Marion	0.3	18	2	9	40	25	9300	1400	1700	1600	9300	ADQ	ADQ	Min	--	
	S Garden St.	State St.	E Court St.	Marion	0.2	18	2	9	50	25	9000	1600	1800	2000	9000	ADQ	ADQ	Min	--	
	S Logan St. (SR 1327)	W Henderson St. (SR 1001)	W Court St. (SR 1195)	Marion	<0.1	24	2	12	70	20	10000	5700	6900	6000	10000	ADQ	ADQ	Min	Sub	T
	S Main St.	S Garden St.	US 70	Marion	0.5	Concurrent with US 221 Business														
	S McDowell Ave. (SR 1818)	US 70	State Street	Marion	0.2	20	2	10	60	35	10300	800	1100	1100	10300	ADQ	ADQ	Min	Sub	P
	Spaulding Rd. (SR 1325)	Veterans Dr. (SR 1191)	Rankin Dr. (SR 1323)	Marion	0.9	16	2	8	--	35	9600	400	500	400	9600	ADQ	ADQ	Min	Sub	P
	State St.	US 221 Business	S Garden St.	Marion	<0.1	20	2	10	50	25	9300	1200	1400	1000	9300	ADQ	ADQ	Min	--	
	State St.	S Garden St.	Clay St.	Marion	0.5	20	2	10	50	25	9300	1100	1500	900	9300	ADQ	ADQ	Min	--	
	State St.	Clay St.	S McDowell Ave. (SR 1818)	Marion	0.1	20	2	10	50	25	9300	1100	1500	900	9300	ADQ	ADQ	Min	--	

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
	State St.	S McDowell Ave. (SR 1818)	Baldwin Ave. (SR 1703)	Marion	0.3	20	2	10	50	25	9300	1700	2400	1000	9300	ADQ	ADQ	Min	--	P
	Steppe St. (SR 1169)	Sugar Hill Rd. (SR 1001)	Shady Lane Rd. (SR 1164)	Marion	0.2	16	2	8	60	35	9600	500	700	700	9600	ADQ	ADQ	Min	Sub	
MCDO0008-H	Sugar Hill Rd. (SR 1001)	Marion CTP West Boundary	I 40	McDowell County	0.6	20	2	10	60	45	11900	10600	12700	12900	29900	5A	100	Min	Sub	P
	Sugar Hill Rd. (SR 1001)	I 40	Veterans Dr. (SR 1191)	Marion	0.5	40	4	10	60	45	25800	14300	19400	18900	25800	ADQ	ADQ	Maj	Sub	T, P
	Sugar Hill Rd. (SR 1001)	Veterans Dr. (SR 1191)	Steppe St. (SR 1169)	Marion	0.2	40	4	10	60	45	25800	15100	20500	19700	25800	ADQ	ADQ	Maj	Sub	T, P
	Sugar Hill Rd. (SR 1001)	Steppe St. (SR 1169)	Shady Lane Rd. (SR 1164)	Marion	0.2	40	4	10	60	45	25800	13300	18100	17400	25800	ADQ	ADQ	Maj	Sub	T, P
	Sugar Hill Rd. (SR 1001)	Shady Lane Rd. (SR 1164)	Rankin Dr. (SR 1323)	Marion	0.5	40	4	10	60	45	25800	15300	17400	16600	25800	ADQ	ADQ	Maj	Sub	T, P
	Sugar Hill Rd. (SR 1001)	Rankin Dr. (SR 1323)	Reid St. (SR 1168)	Marion	0.3	40	4	10	60	35	24300	17400	21100	20200	24300	ADQ	ADQ	Maj	Sub	T, P
	Sugar Hill Rd. (SR 1001)	Reid St. (SR 1168)	US 221	Marion	0.4	40	4	10	60	35	24300	17400	26000	26000	24300	ADQ	ADQ	Maj	Sub	T
	Tank St.	Virginia Rd.	Church St.	Marion	0.4	16	2	8	30	25	9300	600	800	700	9300	ADQ	ADQ	Min	--	P
	Tate St. (SR 1195)	US 221	Valley St. (SR 1206)	Marion	0.5	16	2	8	30	25	9600	3100	3800	3200	9600	ADQ	ADQ	Min	Sub	
	Valley St. (SR 1206)	Tate St. (SR 1195)	US 70	McDowell County	1.2	16	2	8	60	35	9600	1300	1600	1500	9600	ADQ	ADQ	Min	Sub	
	Veterans Dr. (SR 1191)	Sugar Hill Rd. (SR 1001)	Spaulding Rd. (SR 1325)	McDowell County	0.8	16	2	8	60	35	9600	2300	2900	2900	9600	ADQ	ADQ	Min	Sub	P
	Veterans Dr. (SR 1191)	Spaulding Rd. (SR 1325)	Nix Creek Rd. (SR 1195)	McDowell County	0.2	16	2	8	60	35	9600	2700	3400	3400	9600	ADQ	ADQ	Min	Sub	
	Virginia Rd.	Oak St.	Tank St.	Marion	0.6	16	2	8	30	25	9300	1000	1200	800	9300	ADQ	ADQ	Min	--	P
	W 4th St.	Morehead Rd.	Baldwin Ave. (SR 1703)	Marion	0.1	16	2	8	30	--	--	--	--	--	--	--	--	--	--	

HIGHWAY																					
		Section				2012 Existing System							2040 Proposed System								
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2012 Volume	2040 Volume E+C	2040 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Tier	Proposals for Other Modes
	W Court St. (SR 1195)	Valley Rd. (SR 1206)	N Logan St.	Marion	0.5	16	2	8	40	25	8700	3900	5700	5700	8700	ADQ	ADQ	Min	Sub	
	W Court St. (SR	N Logan St.	N Main St.	Marion	<0.1	Concurrent with US 70														
	W Henderson St. (SR 1001)	US 221	S Logan St. (SR 1327)	Marion	0.7	20	2	10	60	35	20600	9100	10500	10500	20600	ADQ	ADQ	Maj	Sub	
	W Henderson St. (SR 1001)	S Logan St. (SR 1327)	S Main St.	Marion	<0.1	20	2	10	64	20	11800	5700	6800	6100	11800	ADQ	ADQ	Min	Sub	
	W McDowell High School Rd.	US 70	McDowell High School Rd. (SR 1301)	McDowell County	0.6	16	2	8	60	35	9600	600	600	600	9600	ADQ	ADQ	Min	Sub	P
MCDO0013-H	Yancey Rd. (SR 1501)	Robert St.	Marion CTP Northeast Boundary	McDowell County	1.3	16	2	8	50	35	9600	900	1100	1100	11600	2A	60	Min	Sub	

Footnotes:
(1) Undivided 4-lane with shoulder
(2) Raised median 2 lane with 8 ft on-street parking both sides

PUBLIC TRANSPORTATION AND RAIL

PUBLIC TRANSPORTATION							
			Speed		Existing System	Proposed System	
Local ID	Facility/ Route	Section (From - To)	Limit (mph)	Distance (mi)	Type	Type	Other Modes
MCDO0001-T	W Henderson St. (SR 1001)/ S Main St./ N Main St.	Marion Train Depot - Marion City Square	25-35	0.63	--	Bus	P
MCDO0001-T	N Main St./ US 70	Marion City Square - McDowell Square Shopping Center	45	1.96	--	Bus	P
MCDO0001-T	US 70/ US 221/ Sugar Hill Rd. (SR 1001)	McDowell Square Shopping Center - McDowell Hospital	35-45	3.65	--	Bus	P
MCDO0001-T	Sugar Hill Rd. (SR 1001)	McDowell Hospital - Grand View Station	35	1.31	--	Bus	P
MCDO0001-T	Sugar Hill Rd. (SR 1001)/ I-40	Grand View Station - McDowell Industrial Park	65	3.65	--	Bus	H, P
MCDO0001-T	I-40/ NC 226	McDowell Industrial Park - McDowell Technical Community College	65	2.29	--	Bus	P
MCDO0001-T	NC 226/ US 221 Business/ Baldwin Ave. (SR 1703)/ E Court St.	McDowell Technical Community College - RockTenn Industries	35-45	4.08	--	Bus	H, P
MCDO0001-T	US 70 (E Court St.)/ S Main St./ W Henderson St. (SR 1001)	RockTenn Industries - Marion Train Depot	25-35	1.68	--	Bus	P

RAIL												
				Speed		Existing System			Proposed System			
Local ID	Facility/ Route	Section (From - To)	Class	Limit (mph)	Distance (mi)	Type	ROW (ft)	Trains per day	Type	ROW (ft)	Trains per day	Other Modes
	Norfolk Southern Railroad (S-line)	Marion CTP West Boundary - Marion CTP East Boundary	I	35-45	4.6	Freight	--	13-15	High Speed	--	--	--
	CSX Railroad (Z-line)	Marion CTP South Boundary - Marion CTP East Boundary	I	35-45	5	Freight	--	23-27	--	--	--	--

PEDESTRIAN [1]

PEDESTRIAN								
				Existing System		Proposed System		Other
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Type	Side of Street	Type	Side of Street	Modes
MCDO0001-P	US 70	W McDowell High School Rd. - N Logan St.	2.5	--	--	Sidewalk	Both	T
MCDO0003-P	US 70 (N Main St.)	N Logan St.- N Main St.	0.1	Sidewalk	South	Sidewalk	Both	
MCDO0004-P	US 70 (E Court St.)	Park Ave. - Branch St.	0.8	Sidewalk	North	Sidewalk	South	T
MCDO0005-P	US 70 (E Court St.)	Branch St. - Marion CTP East Boundary	0.8	--	--	Sidewalk	Both	T
MCDO0006-P	US 221 Business	Georgia Ave. - NC 226	1.5	--	--	Sidewalk	Both	H, T
MCDO0002-P	US 221 Business	US 70 - Hankins Rd	0.5	--	--	Sidewalk	Both	
MCDO0007-P	NC 226	College Dr - US 221	1.7	--	--	Sidewalk	Both	T
MCDO0008-P	Sugar Hill Rd. (SR 1001)	Exit 81 - Lunkin St.	0.9	--	--	Sidewalk	West	T
MCDO0009-P	Sugar Hill Rd. (SR 1001)	Lunkin St. - Reid St.	0.9	Sidewalk	West	Sidewalk	West	T

MULTI-USE PATH								
				Existing System		Proposed System		Other
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Side of Street	Cross-Section	Side of Street	Cross-Section	Modes
	Bill Hendley Loop	George Hutchins Loop - Bill Hendley Loop	0.8	N/A	MA	--	--	
	George Hutchins Loop	YMCA - George Hutchins Loop	0.8	N/A	MA	--	--	
MCDO0001-M	McDowell Greenway	Marion CTP West Boundary - US 70	1.4	--	--	N/A	MA	
MCDO0001-M	McDowell Greenway	US 70 - W McDowell High School Rd.	0.2	--	--	Both	MA	H
MCDO0001-M	McDowell Greenway	US 70 - Along Catawba River	0.2	--	--	N/A	MA	
MCDO0001-M	McDowell Greenway	US 70 - Along Catawba River	0.2	--	--	N/A	MA	
MCDO0001-M	McDowell Greenway	Along Catawba River - 0.1 mile W of US 70	1.6	N/A	MA	--	--	
MCDO0001-M	McDowell Greenway	0.1 mile W of US 70 - Marion CTP East Boundary	1.3	--	--	N/A	MA	
	Mt. Ida Park	Mt. Ida Park - US 221 Business	1.1	--	--	N/A	MA	
	Off Youngs Fork Creek	McDowell Technical Community College - Peavine Trail	1.6	N/A	MA	N/A	MA	
	Peavine Trail	Peavine Trail - State St.	1.6	N/A	MA	N/A	MA	
	Virginia Road	0.05 mile NW of Branch Rd - Virginia Road	0.3	--	--	N/A	MA	

[1] Only major routes and proposals are shown here. For further documentation of bicycle and pedestrian facilities and proposals, refer to the *2012 Marion Safe Routes to School Strategic Action Plan and the upcoming City of Marion Bicycle Plan* .

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 Investments[1] (STI) law (House Bill 817) and are also consistent with SPOTOn!ine (used for project prioritization[2]), 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 streets[3], 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 Act[4] (NEPA) documentation and through final design preparation.

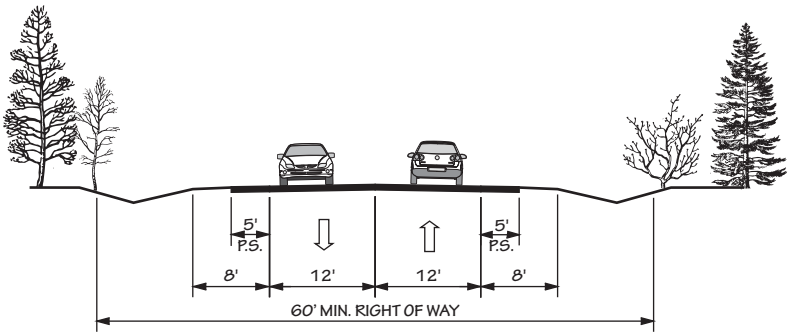
On all existing and proposed roadways delineated on the CTP, adequate right-of-way should be protected or acquired for the recommended cross sections. In addition to cross section and right-of-way recommendations for improvements, Appendix C may recommend ultimate needed right-of-way for the following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

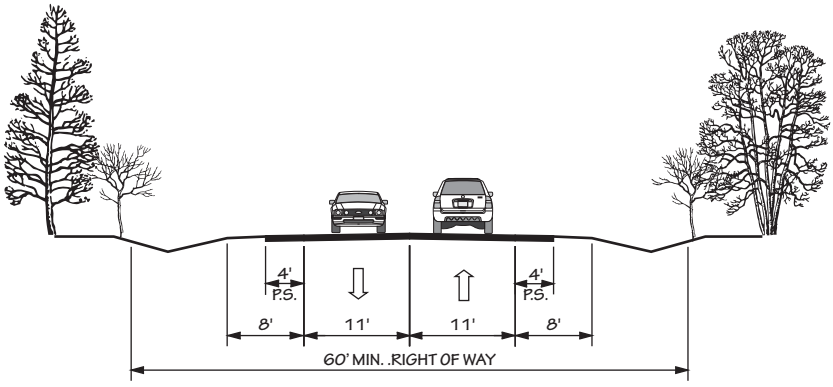
2A



2 LANE UNDIVIDED WITH PAVED SHOULDERS

POSTED SPEED 55 MPH

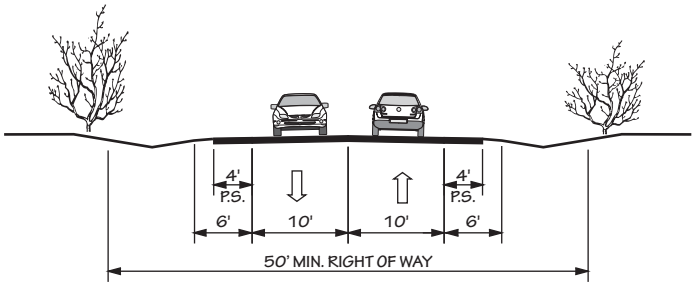
2B



2 LANES UNDIVIDED

POSTED SPEED 45 MPH OR LESS

2C



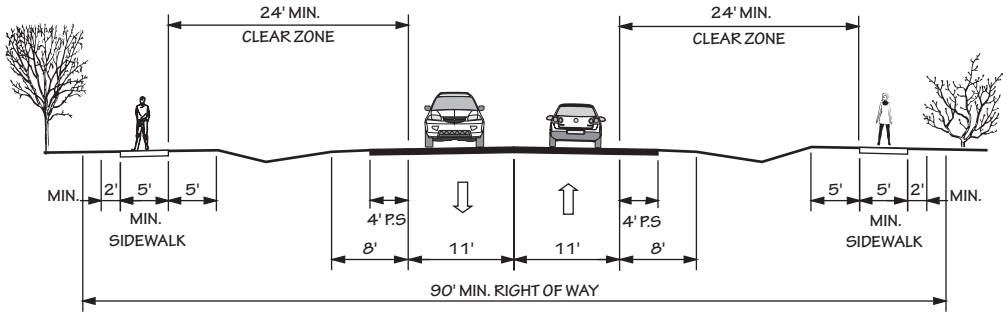
2 LANE UNDIVIDED WITH PAVED SHOULDERS

POSTED SPEED 25 - 35 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

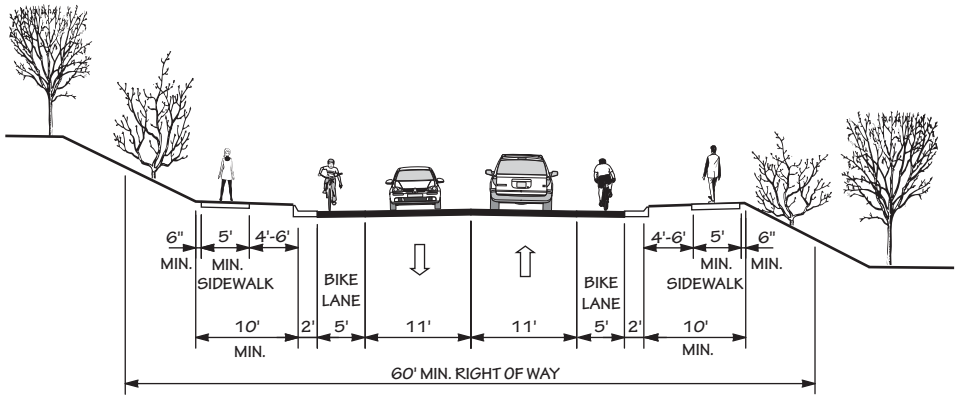
2D



2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 25-45 MPH

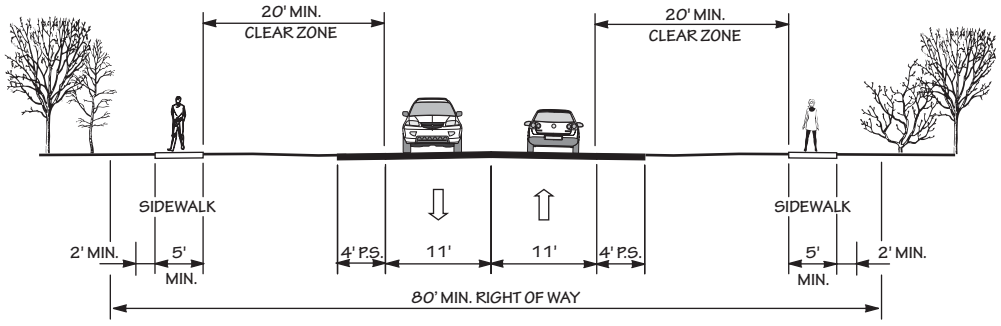
2E



2 LANE UNDIVIDED WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

2F



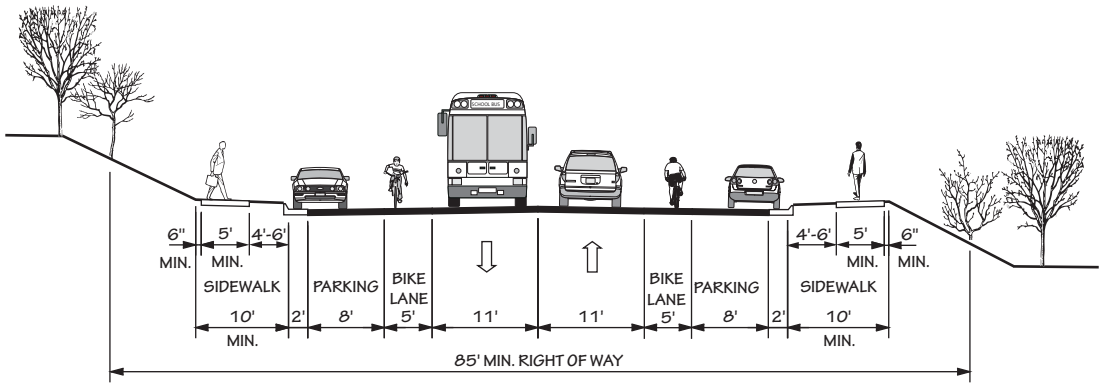
2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS
IN CAMA COUNTIES

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

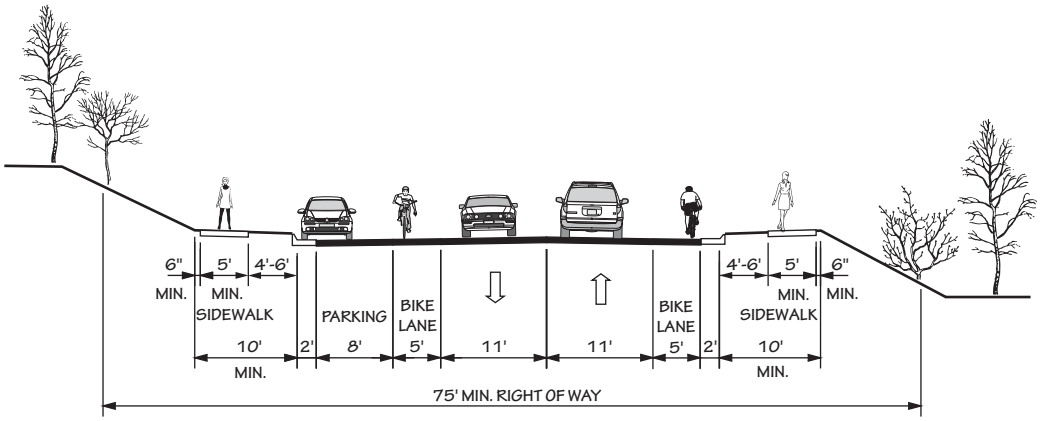
2G



2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING BOTH SIDES, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

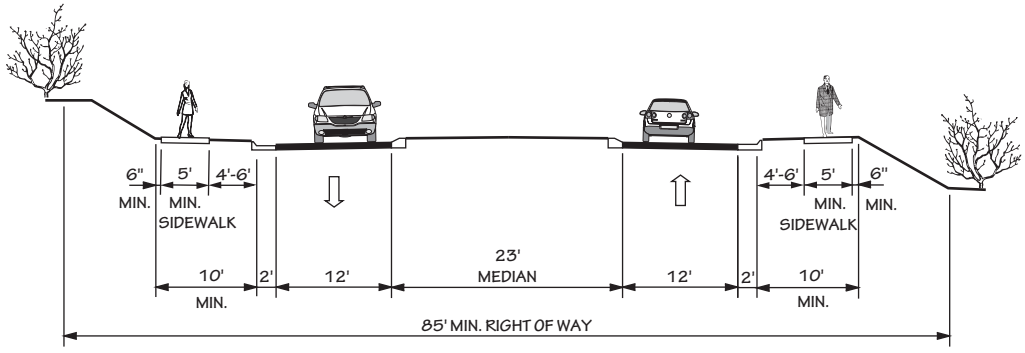
2H



2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING ONE SIDE, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

2I



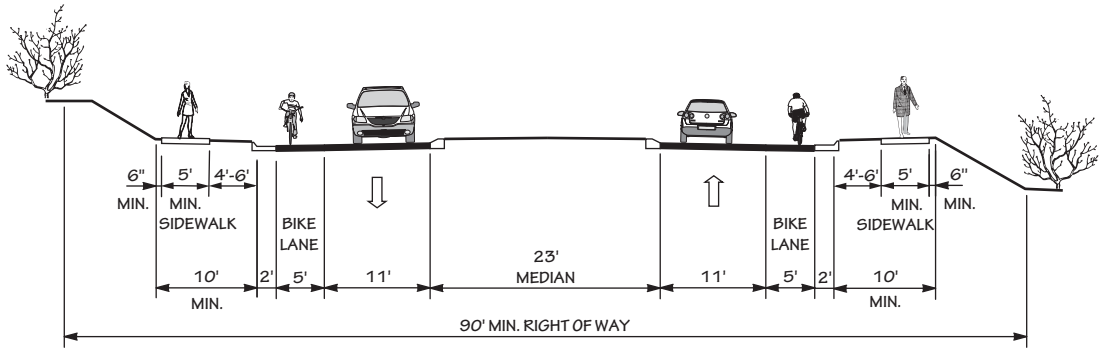
2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER AND SIDEWALKS

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

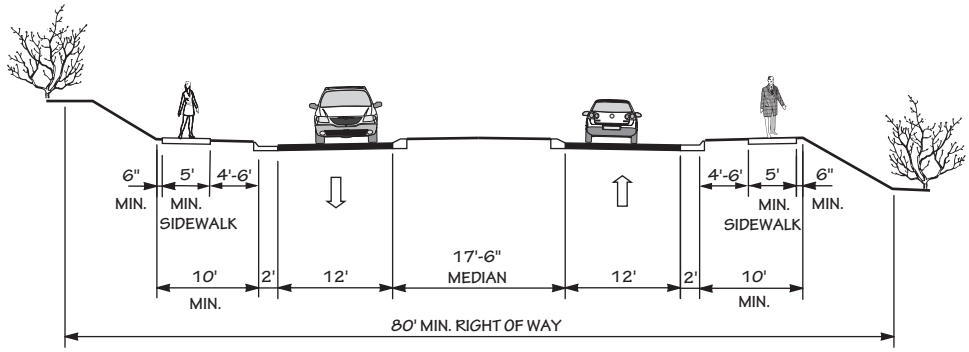
2J



2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

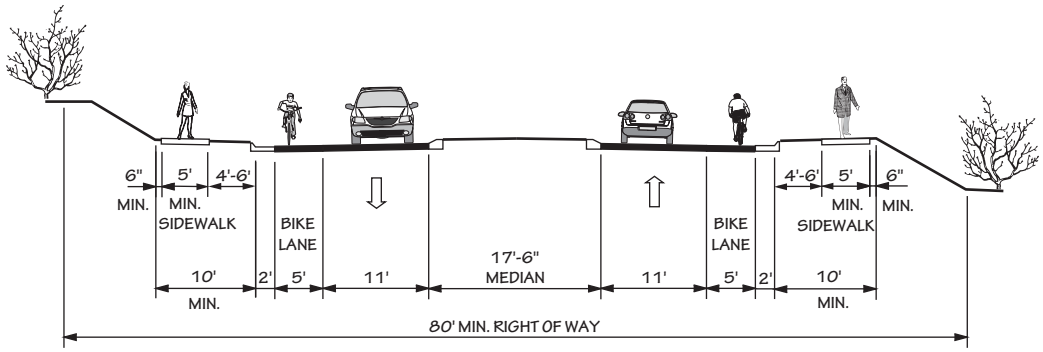
2K



2 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER AND SIDEWALKS

POSTED SPEED 25-45 MPH

2L



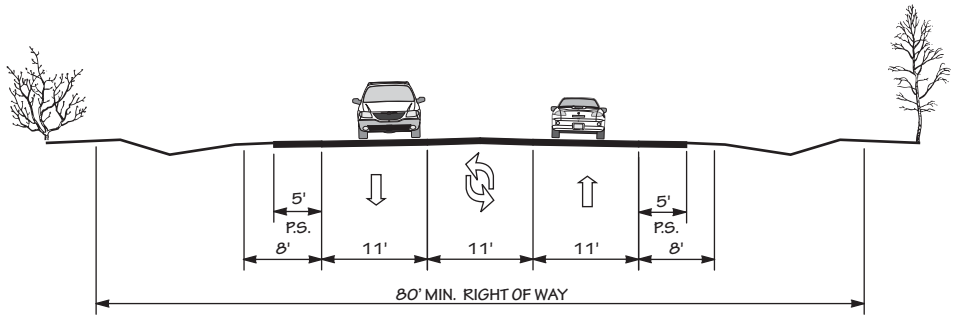
2 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

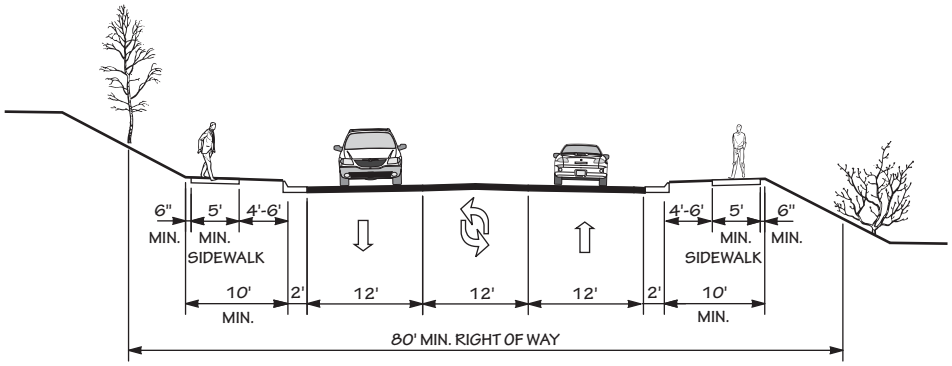
3A



2 LANE WITH TWO WAY LEFT TURN LANE, AND PAVED SHOULDERS

POSTED SPEED 25-55 MPH

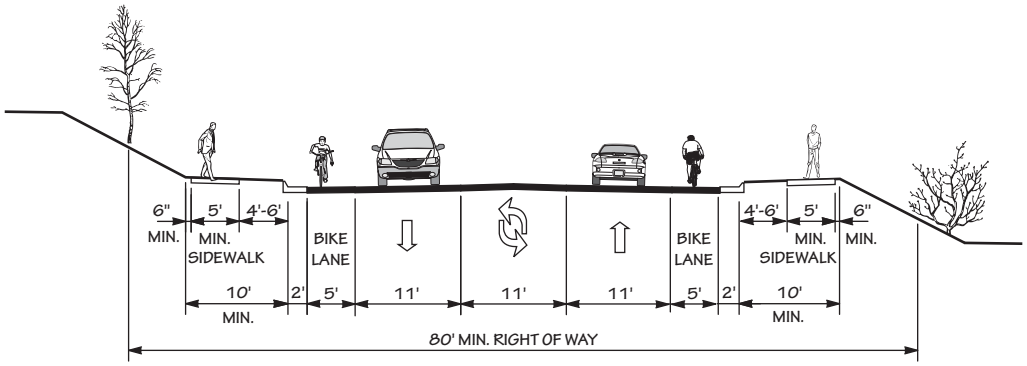
3B



2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, AND SIDEWALKS

POSTED SPEED 25-45 MPH

3C

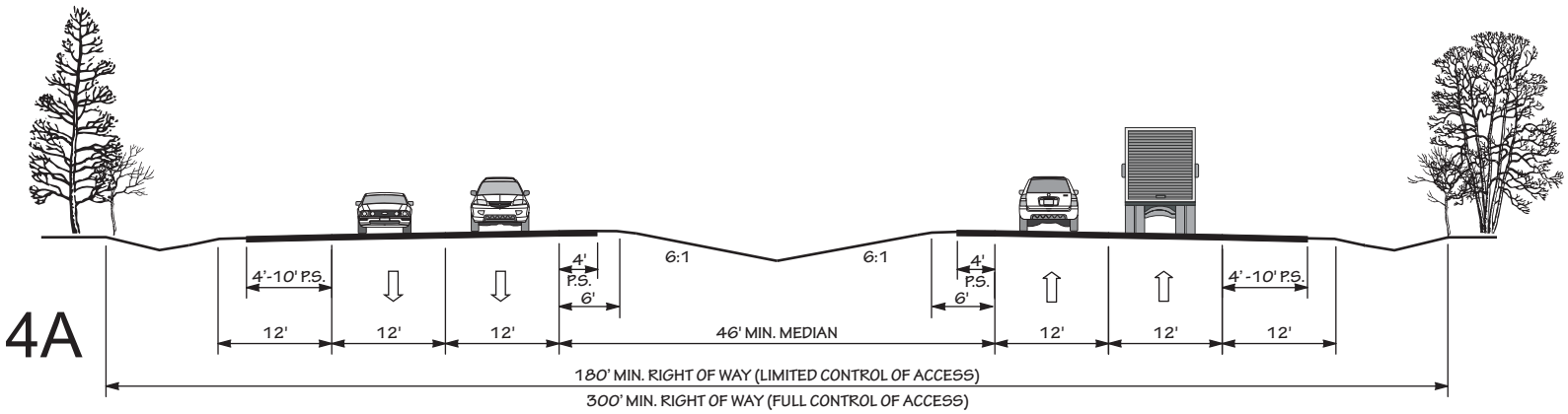


2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

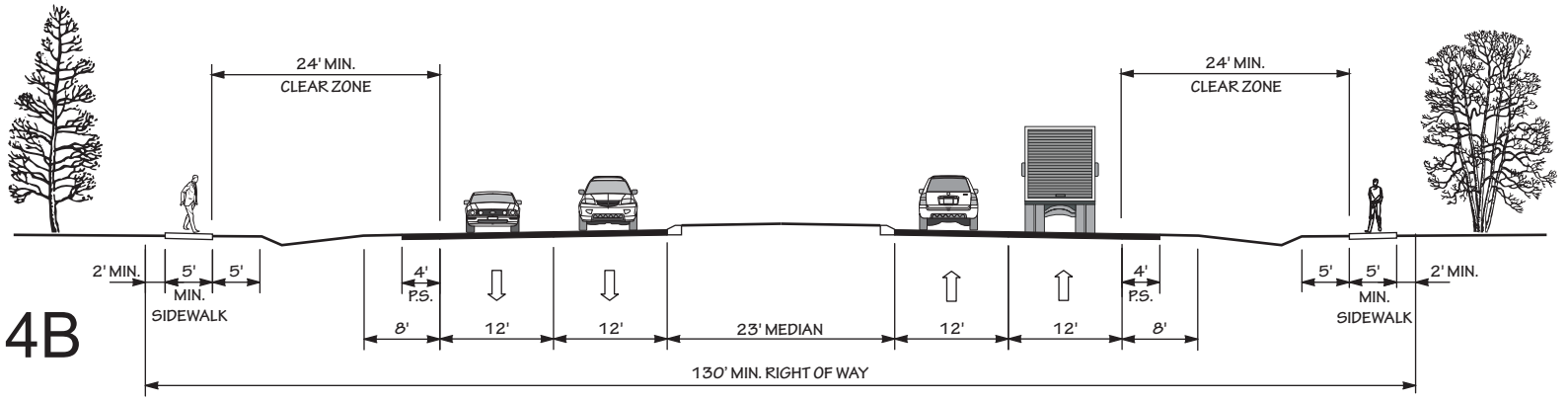
Revised 05/05/2014

"Typical" Highway Cross Sections



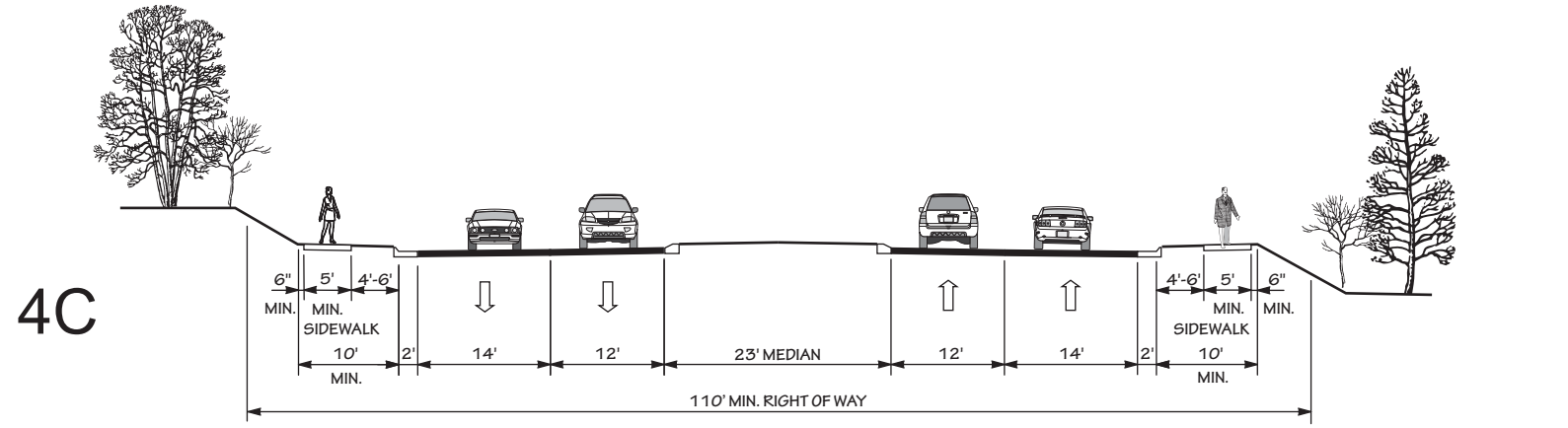
4 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS

POSTED SPEED 45-70 MPH



4 LANE DIVIDED (23' RAISED MEDIAN) WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 35-55 MPH



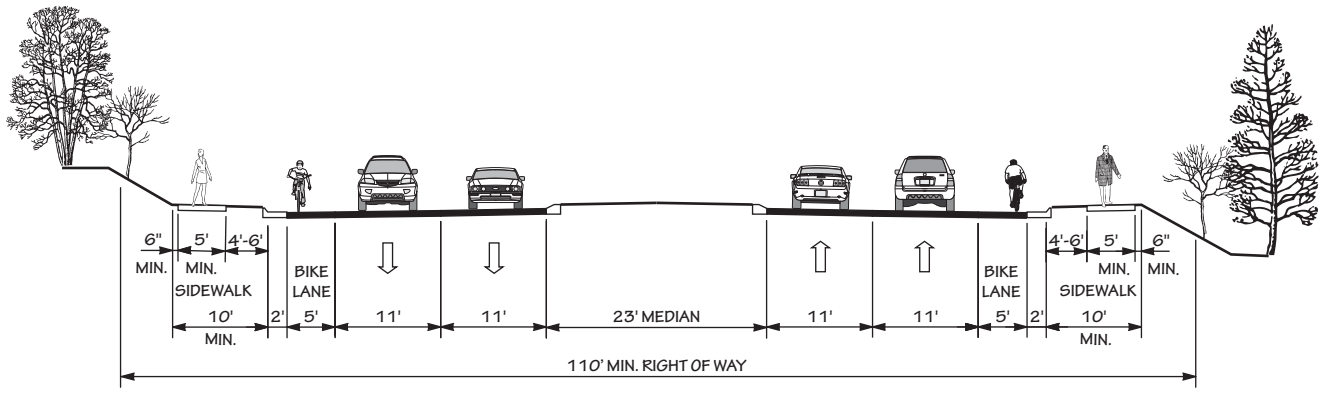
4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

"Typical" Highway Cross Sections

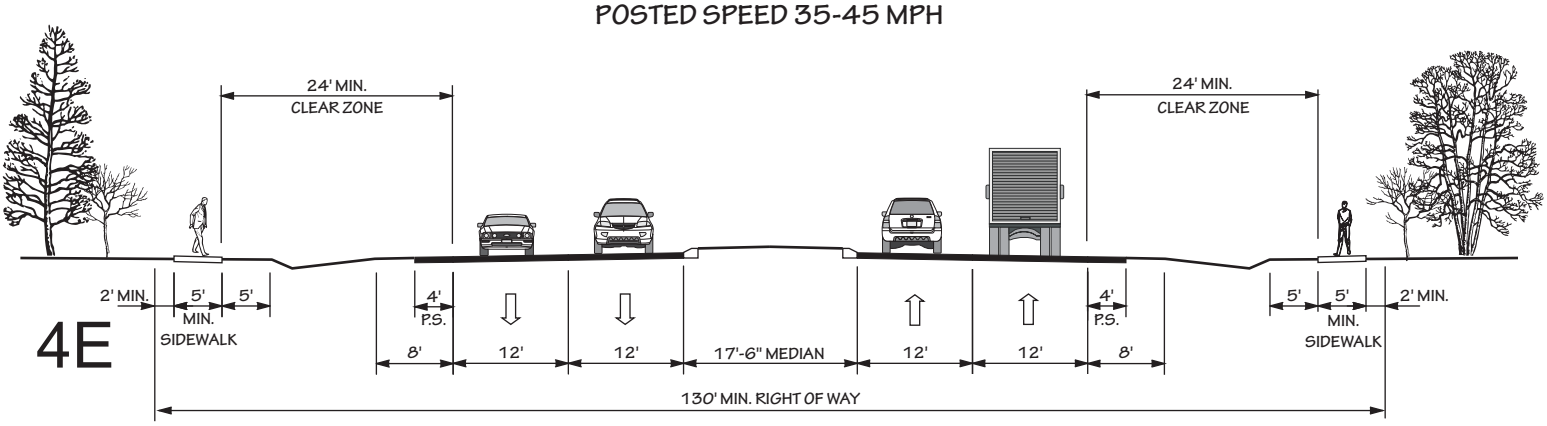
4D



4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES AND SIDEWALKS

POSTED SPEED 35-45 MPH

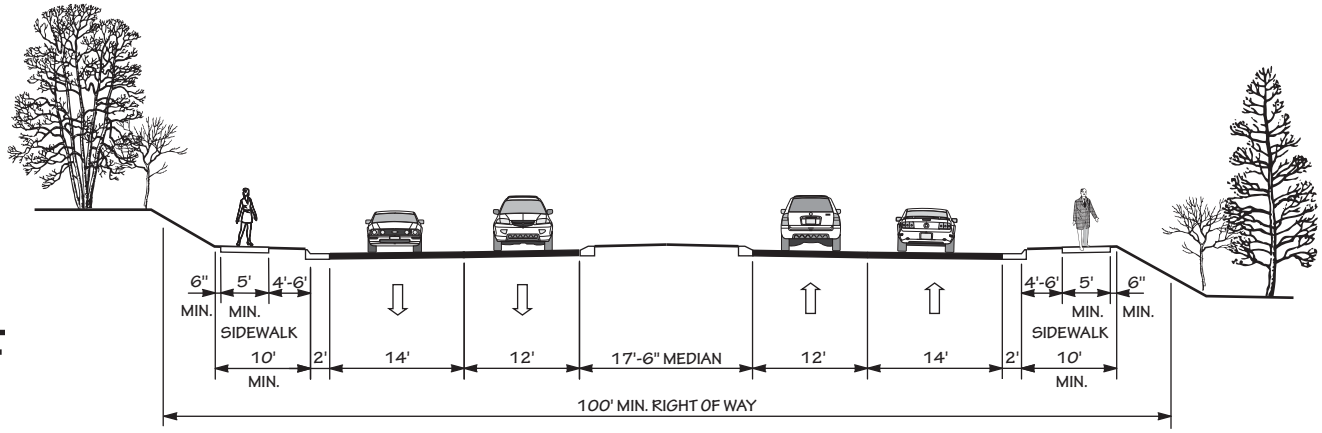
4E



4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 35-55 MPH

4F



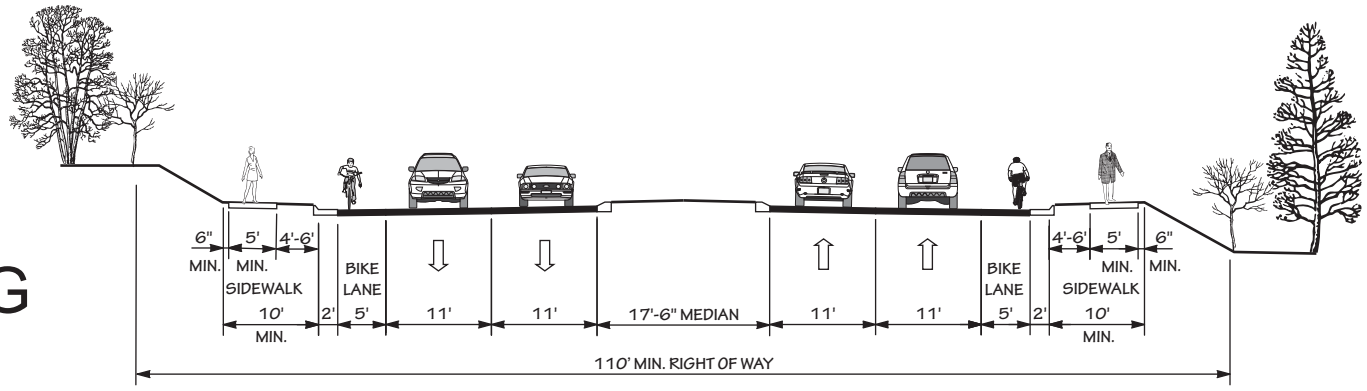
4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

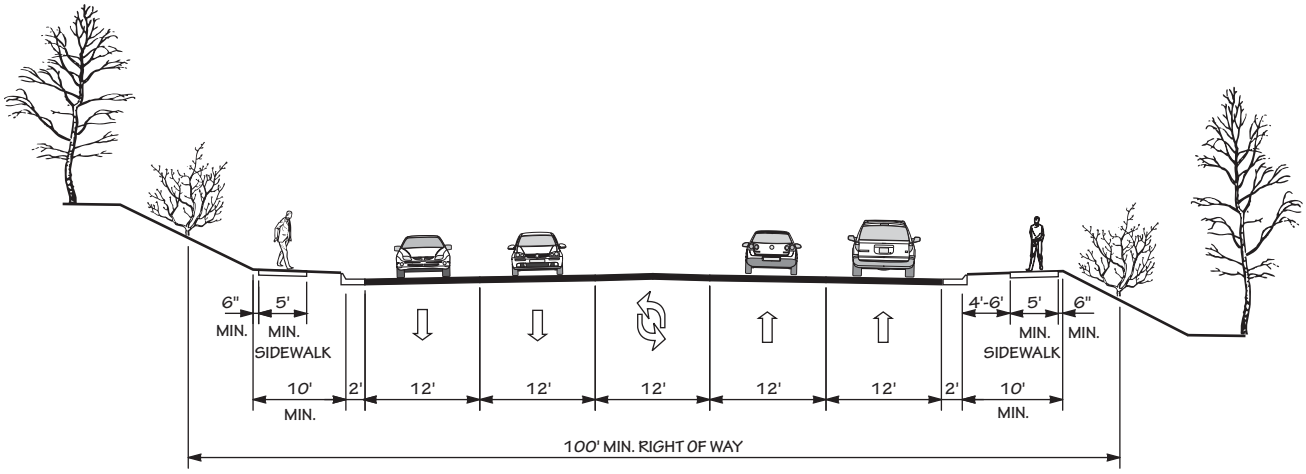
4G



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

POSTED SPEED 35-45 MPH

5A

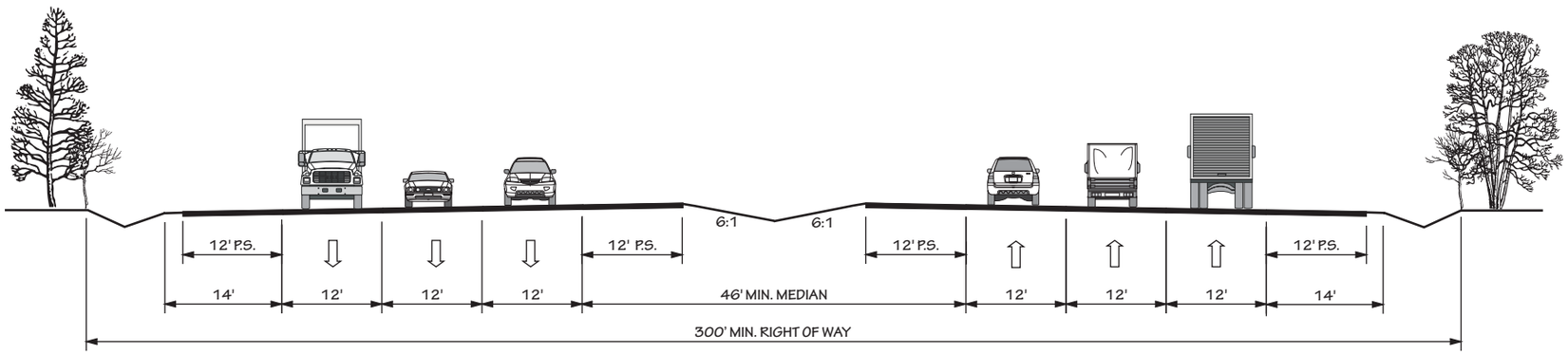


4 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, AND SIDEWALKS

POSTED SPEED 35-45 MPH

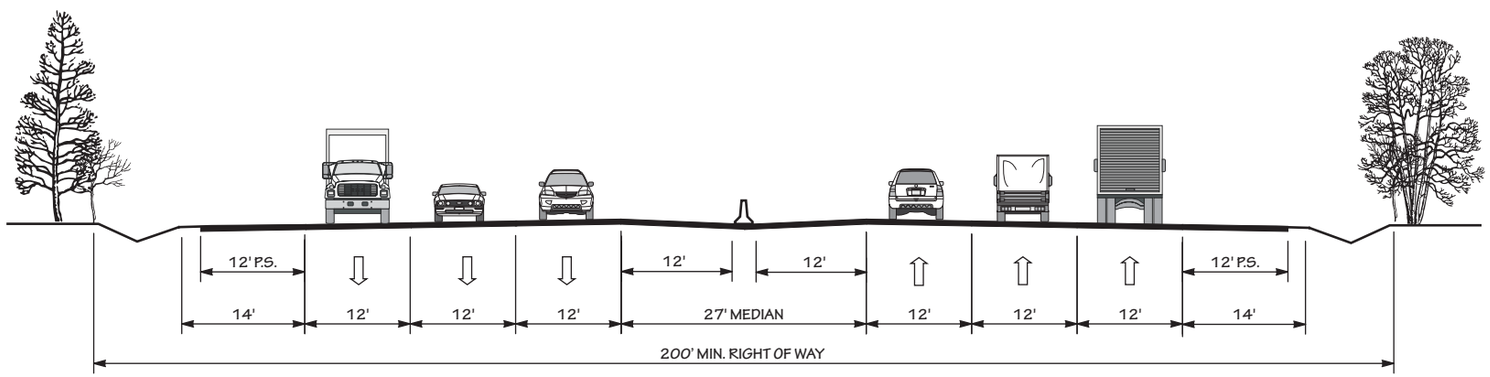
Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS



6A 6 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS

POSTED SPEED 45-70 MPH

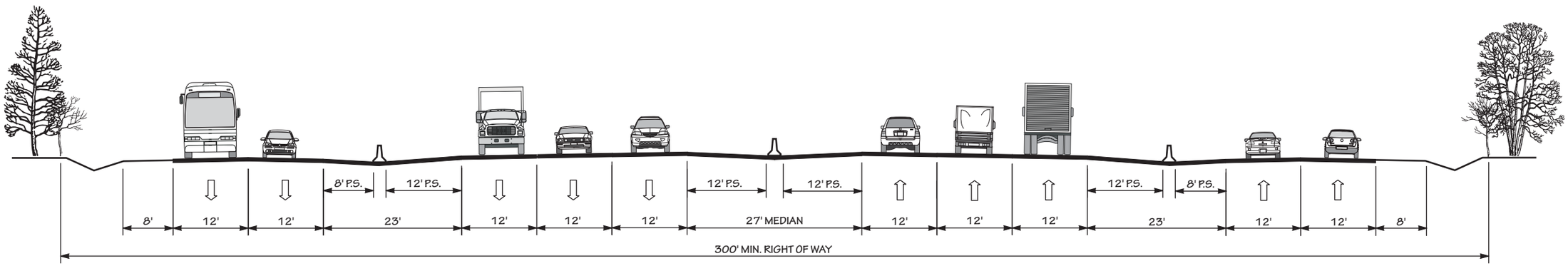


6B 6 LANE DIVIDED (27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS

POSTED SPEED 55-70 MPH

Revised 05/05/2014

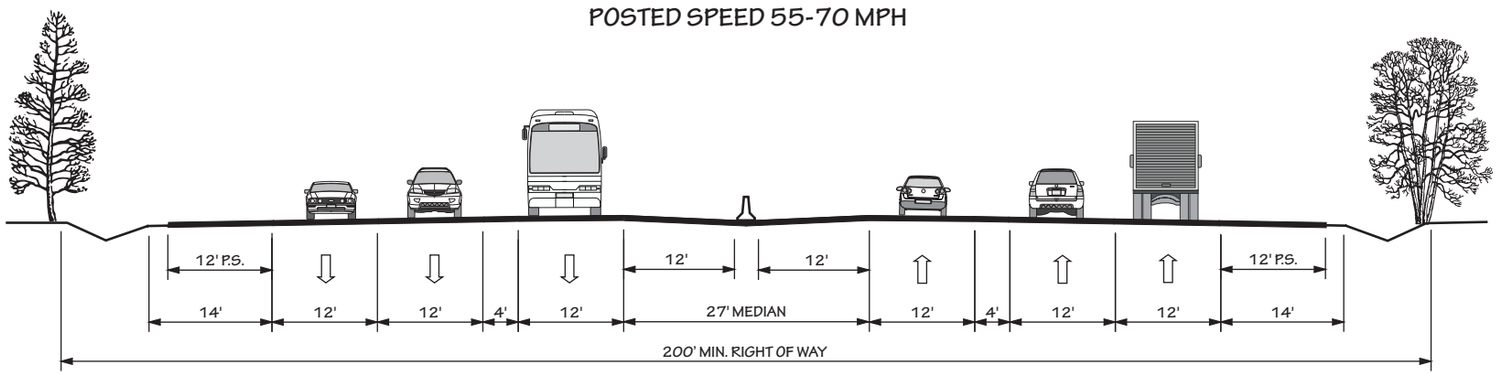
"TYPICAL" HIGHWAY CROSS SECTIONS



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



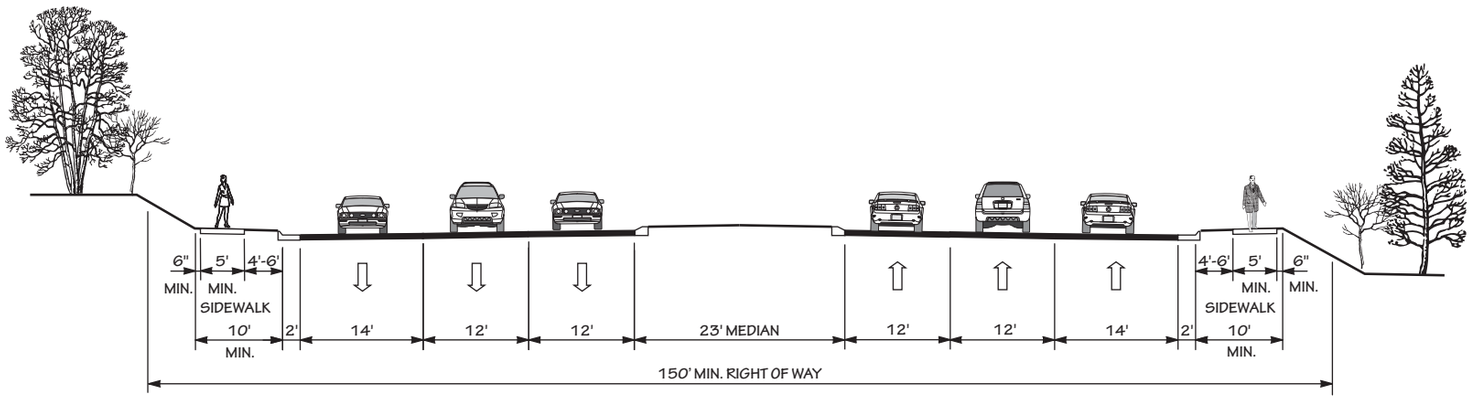
6D

6 LANE FREEWAY (4 GENERAL PURPOSE LANES, 2 MANAGED LANES, AND 27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS

POSTED SPEED 55-70 MPH

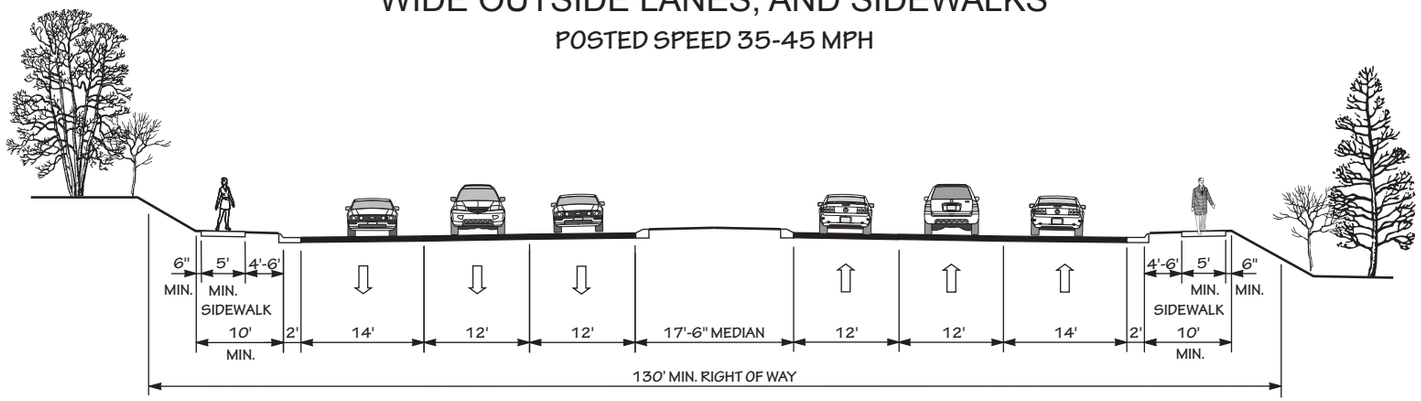
Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS



6E 6 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH



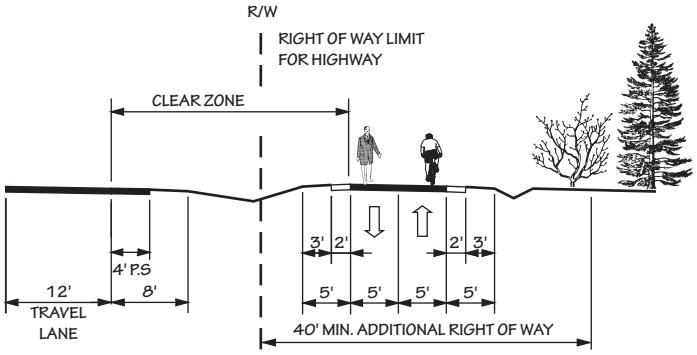
6F 6 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

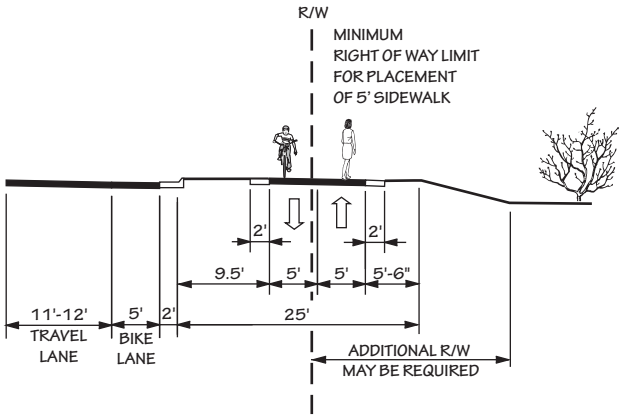
"TYPICAL" HIGHWAY CROSS SECTIONS

M A



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

M B



MULTI - USE PATH ADJACENT TO CURB AND GUTTER

Revised 05/05/2014

Appendix E
Level of Service Definitions

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

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

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

Figure 8 - Level of Service Illustrations

Source: 2010 Highway Capacity Manual, Exhibit 11-4

Appendix F
Bridge Deficiency Assessment

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

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

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

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

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

Table 3 - Deficient Bridges

Bridge Number	Facility	Feature	Condition	Local ID
24	Old Greenlee Road (SR 1214)	Creek	FO	
33	US 221	I-40	SD & FO	R-0204 D&E
43	US 221 Business	Southern RR	FO	
80	US 70	Buck Creek	FO	MCDO0007-H
96	US 70	Catawba River Over Flow	FO	MCDO0007-H
98	So. & Clinchfield RR	NC 226	FO	MCDO0007-P
107	US 70	Catawba River	FO	MCDO0007-H
124	Clinchfield RR	US 70	FO	
132	Ashworth Road (SR 1168)	I-40	FO	
162	Ashworth Road (SR 1168)	Creek	FO	MCDO0009-H
333	Southern RR	West Henderson Street (SR 1001)	FO	

Appendix G
Socio-Economic Data Forecasting Methodology

In the development of the Marion County CTP, existing and anticipated deficiencies were determined through an analysis of the transportation system looking at both current and future travel patterns using a travel demand model. The modeled area included Marion and the surrounding area.

Socio-economic (SE) data used in the travel demand model consists of base and future population and employment in the modeled area. The source used to obtain this data was the Office of State Budget and Management (OSBM). Both McDowell County and Marion's growth rates were considered when determining the final growth rate for the modeled area.

Population

According to OSBM, the population growth rate for McDowell County from 2012-2040 is 0.047% compounded annually. From 2010-2012, the growth in McDowell County was 0.3% compounded annually. When looking at the population trend in the county from 1990-2010, a growth rate of 1.2% compounded annually was calculated for those 20 years.

When looking at Marion's population, data from years 2010-2012 showed a 2.0% compounded annual growth rate. Marion's growth from 2010-2012 of 2.0% compounded annually is too high to predict out to 2040, given the county population is only 0.3% compounded annually. Therefore, the McDowell County 20 year growth rate of 1.2% was applied to the 2010 population (45,060) to get a projection for 2034 (highest available predicted year on OSBM) and then compared it to the estimated population on the OSBM website. The OSBM estimated 2034 population in McDowell County was 45,735, compared to 59,273 with an annual 1.2% growth rate compounded annually. This 1.2% annual compounded growth would be too high as well when looking at all factors.

Finally, based on existing and future land development expectations (refer to Figures 9 and 10 respectively), a growth rate (compounded annually) of 0.6% was established and agreed upon. This brought the final rate somewhere in the middle of both the growth rates (1.2% and 0.047%). The established future growth rates were endorsed by the Marion City Council on February 17, 2015. Table 6 shows 2012 and projected 2040 population and employment data, along with the compound annual growth rate.

Employment

When determining a growth rate for employment, 0.6% was also used for the total compounded annual growth, then distributed into the different categories as shown in Table 7 (low, medium, and high) for both employment and population.

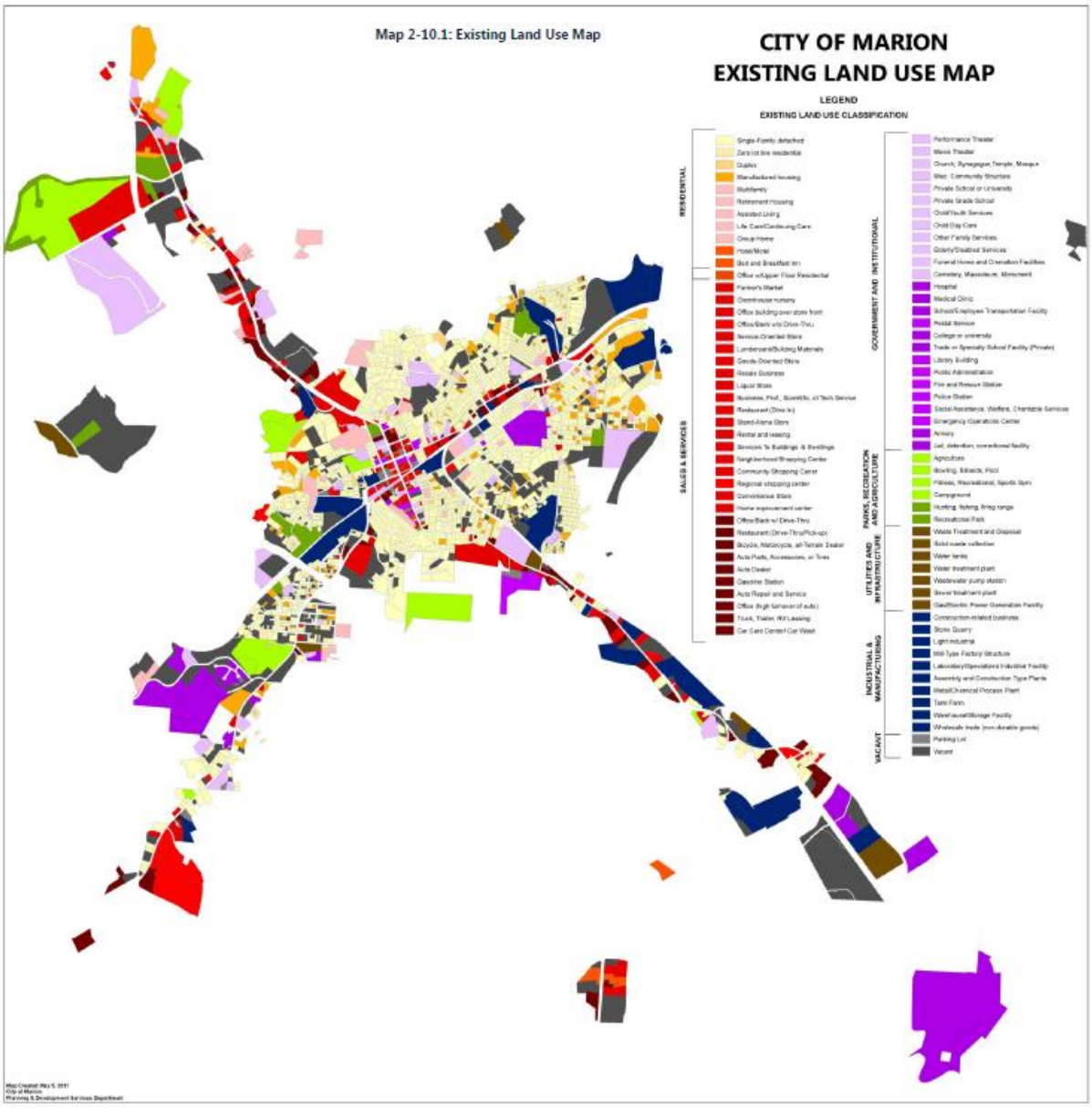
Table 4– Socio-Economic Data

Year	2012	2040	Compound Annual Growth Rate
Population	17,082	20,209	0.6%
Employment	10,332	12,215	0.6%

Table 5– Compound Annual Growth Rate 2012-2040

Projection	Population	Employment
High	-	1.4%
Middle	1.0 %	0.9%
Low	0.40%	0.3%

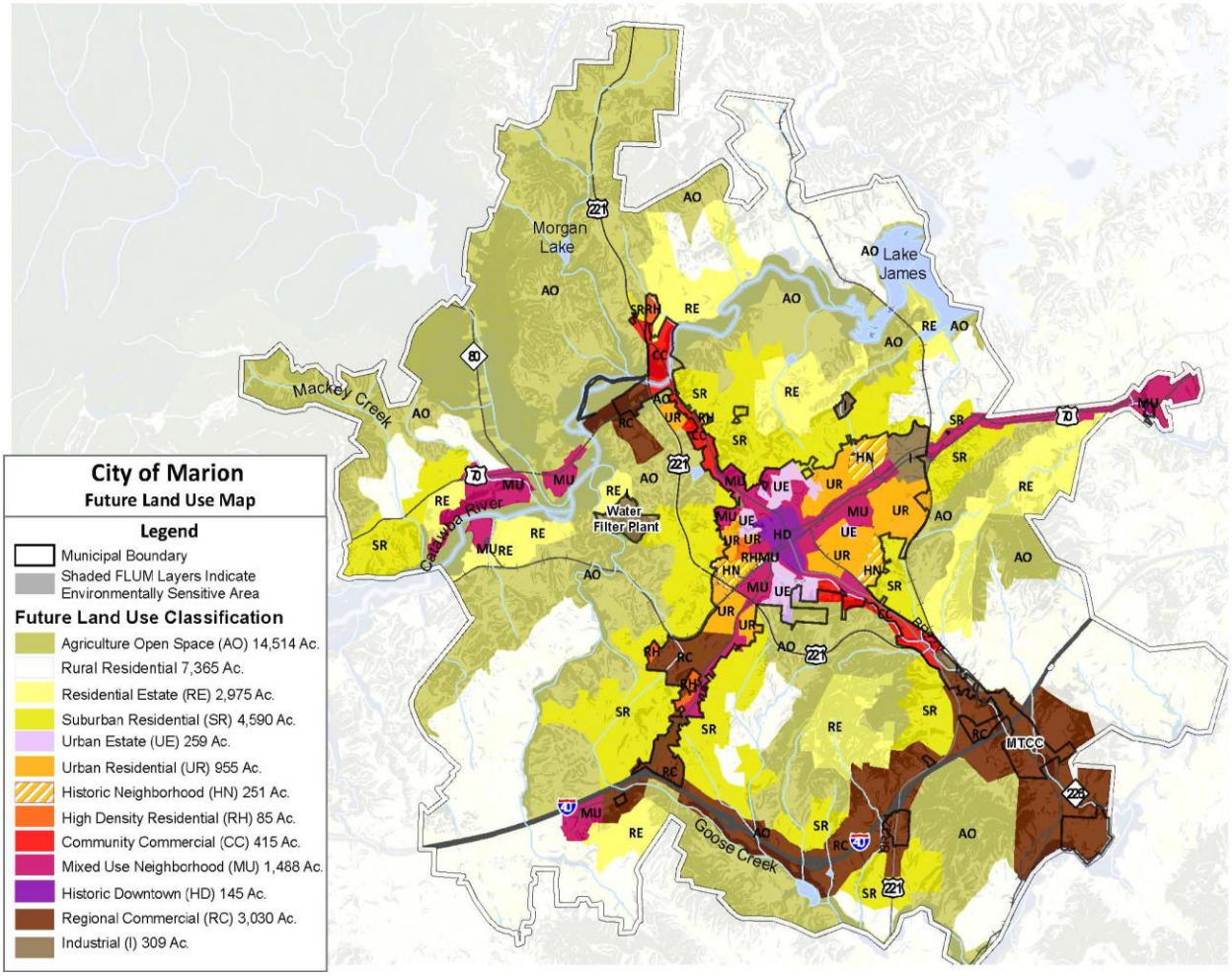
Figure 9 - Existing Land Development Plan Map



- Single-Family
- Mobile Home
- Multi-Family, Group Care, Elder Living
- Goods & Services
- Goods & Services (Auto-Oriented)
- Private Institutional & Assembly
- Public Institutional & Assembly
- Private Recreation & Agriculture
- Public Recreation & Open Space
- Utilities & Infrastructure
- Manufacturing & Industrial
- Vacant & Parking Lots

Source: 2012 City of Marion Comprehensive Land Use Plan

Figure 10 - Future Land Development Plan Map



Source: 2012 City of Marion Comprehensive Land Use 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 Marion CTP is given below.

- Steve Little, Mayor of Marion
- Lloyd Cuthbertson, Mayor Pro Tem of Marion
- Billy Martin, Member of the Marion City Council
- Bob Boyette, City Manager of Marion
- Heather Cotton, Marion Planning and Development Director
- Allen Lawrence, Police Chief of Marion Police Department
- Brant Sikes, Marion Public Works Director
- Jim Neal, Fire Chief of Marion Fire Department
- Bill Hendley, McDowell Trails Association
- Kit Alverson, Marion Planning Board Chairman
- Freddie Killough, Marion Business Association
- Ron Harmon, McDowell County
- Steve Jones, McDowell County Board of Realtors
- Weyland Prebor, McDowell County Senior Center
- Carol Price, McDowell County Tourism Development Authority
- Kristina Solberg, NCDOT Division 13 Planning Engineer
- Doug McNeal / Tim Anderson, NCDOT Division 13 District Engineer
- Mary Smith, Community Transformation Grant
- Catherine Bryant, NCDOT Transportation Planning Branch

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.

In 2010 NCDOT and McDowell County initiated a study to cooperatively develop the McDowell County Comprehensive Transportation Plan which was to include the city of Marion and the town of Old Fort. As the study progressed, it was mutually agreed upon to study the Marion urban area separately so that a travel demand model could be developed to aid in the analysis of potential highway projects. On February 21, 2012, the Marion City Council voted to do a separate CTP for Marion. Since Marion had been a part of the McDowell County CTP Steering Committee during the development of the CTP Vision, Goals, Objectives and MOEs, the Marion CTP Steering Committee agreed to use them for the Marion CTP.

McDowell County Vision Statement:

McDowell County provides a safe, efficient, accommodating, multi-modal transportation system that preserves and promotes the quality of life and economic vitality of the area.

Goal – Provide an efficient transportation system.

1. Objective – Able to access major arterials without having to use local streets to access them. (Connectivity between major arterials)
2. Objective –Main Street to serve primarily local traffic and not through traffic in order to maintain the walkability and character of Marion's central business district (CBD).

Goal – Provide an accommodating transportation system.

1. Objective –Designating truck routes that should also accommodate other modes of transportation (e.g. mopeds, bicycles, pedestrians.)
2. Objectives – Bike lanes on facilities that connect the central business district to major residential areas and major residential areas to schools.
3. Objective – Match road design with land use.

Goal – Provide a multi-modal transportation system.

1. Objective – Within municipal boundaries, increase multi-modal options (e.g. sidewalks, greenways to connect major residential, commercial & educational).
2. Objective – Fifty Percent of the population to have access to multi-modal options by 2040.
3. Objective – The City of Marion supports the availability of rail service.

Goal – A transportation system that supports economic vitality

1. Objective – Access to businesses from roads.
2. Objective –Industries have direct access to a major thoroughfare when feasible.
3. Objective – Designating truck routes that are signed well, and encourage trucks to use bypass.

Goal – A transportation system that preserves and promotes the quality of life in the city of Marion

1. Objective – Residential areas within municipal boundaries have access to sidewalks.
2. Objective – A street network that allows vehicles to use major thoroughfares to get to key destinations in the area (e.g. schools and businesses) without having to primarily use residential streets.
3. Objectives – Have crosswalks at all major intersections within the CBD and, within two miles of schools within municipal boundaries.

Goal – Provide a safe transportation system

1. Objective – Improve safety attributes of existing roads by installing guardrails at appropriate locations, and replacing long center turn lanes with a median with specific turn locations.
2. Objective – Add lighting at major intersections.

The following objectives are not CTP specific but came from the McDowell CTP Steering Committee and should be taken into consideration during the appropriate planning phase:

1. Objective – An efficient traffic signal system that improves traffic flow at a Level of Service D (LOS D).
2. Objective: Attractive, well-maintained shoulders, fencing, culverts, railing, and railroad right of way in CBD areas.

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.

Marion did not conduct a new G&O survey, but used the G&O survey results from the McDowell County CTP. The McDowell County CTP Survey was composed by McDowell County, Isothermal Rural Planning Organization (RPO), and NCDOT's Transportation Planning Branch. A summary of the McDowell County G&O survey can be found in the McDowell County CTP[2].

Public Meetings

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

Public Workshop

A public drop-in session was held on March 10, 2015 at the Marion Depot located at 58 Depot Street in Marion, NC. The purpose of this session was to present the proposed CTP to the public and solicit comments. Three written comment forms were received during this session. Comments included support for the bypass and emphasis on the need for sidewalks. The CTP Steering Committee considered these comments and revised the draft plan to add a sidewalk. In addition, there was a thirty day comment period for the draft CTP. No additional comments were received.

[2] *To view this plan, go to: https://connect.ncdot.gov/projects/planning/Pages/Comprehensive-Transportation-Plans.aspx.*

Appendix I
Alternatives & Scenarios Studied

This appendix includes documentation for alternatives and scenarios that were considered, including ones not shown on the adopted CTP. This appendix details why the proposed alternative shown on the CTP was selected, why other reasonable alternatives studied were not selected, and why some alternatives were considered unreasonable and recommended for elimination from further study. If an alternative was not selected but considered reasonable, then it could be considered further in future studies.

US 70 Bypass, Local ID: MCDO0004-H

The most complex project that required alternative analysis during development of the Marion CTP was the proposed US 70 Bypass project. Currently, US 70 goes through downtown Marion connecting Marion to Old Fort in the west and to Morganton in the east. In the downtown area of Marion, vehicles must make several turns to stay on the signed route. Marion is working to make their downtown area a pedestrian friendly destination. Having US 70 traffic, especially truck traffic, consistently travel down Main Street does not meet the city's vision for the downtown area as illustrated in the following excerpt from the City of Marion website:

> *"The Downtown Streetscape Plan included a recommended three lane traffic pattern on Main Street with parallel parking and bumpouts on both sides of the street, a traffic flow pattern designed to improve pedestrian safety, allow for safe vehicular movement, provide for enhanced landscaping opportunities and beauty in the downtown area and provide for a greatly improved chance of NCDOT approval. The adopted Plan also included asphalt stamping of crosswalks at intersections and at selected mid-block crossings on Main Street, the addition of way finding signage in the downtown area and beyond, including directional signage for Interstate 40 and other highways leading into Marion, and the planting of Gingko and October Glory Maple trees to replace holly trees on Main Street and in a few other locations.*
>
> *The Marion City Council unanimously approved the Downtown Streetscape Plan in 2009.*
>
> *During 2010 and part of 2011, the City worked with NCDOT to obtain approval of the plan. NCDOT directed several changes be made to specific details of the plan, including the bumpouts and drainage system. The installation of way finding signage and new trees in the downtown took place in Fall 2010. The construction of bumpouts, street resurfacing and restriping and installation of crosswalks took place in the Summer and Fall of 2011. The project was administered and constructed by NCDOT. At the same time, NCDOT installed new traffic and*

pedestrian signals and resurfaced Main Street and East Court Street, at no cost to the City."[1]

During the development of this CTP several alternatives were considered to help remove traffic from the downtown area in addition to offering relief from congestion on E Court Street (US 70) and US 221 Business (Rutherford Road) and future congestion issues expected on N. Main Street (US 70) (see figures 2 and 3 in Chapter 1 for capacity deficiencies). Each alternative was analyzed as a 2 lane facility on 4 lane right-of-way with a 55 miles per hour (mph) speed limit.

Alternative 1: US 70 Bypass from E Court Street (US 70) east of Memorial Park Road north to US 70 at US 226. This alternative diverts traffic from the downtown area. Through traffic along US 70 from US 70 east of Marion would no longer need to travel through the Central Business District (CBD) to continue west on US 70 towards Old Fort. Traffic volumes along US 70 (E Court Street) decreased by approximately 3,000 vehicles per day (vpd) and many of the deficiencies along E Court Street and N Main Street were alleviated. The 2040 projected volumes along the NE relocation of US 70 ranged from 6,100 vpd to 6,900 vpd. There were no issues identified with this alternative that made it an unreasonable solution. This alternative should be considered in future studies.

Alternative 2: US 70 Bypass from E Court Street (US 70) east of Memorial Park Road south to US 226 around Jacktown Road. While this alternative diverts traffic off US 226 and US 221 Business, it does not divert as much traffic from E Court Street as Alternative 1. Analysis of this alternative demonstrated that even though US 221 Bypass allows traffic from I-40 and points south of Marion to connect with US 70 west without going through the CBD area, there is still a significant amount of traffic that travels through the CBD area instead of using the US 221 Bypass. This southeastern US 70 Bypass removes approximately 3,600 vpd from Rutherford Road in 2040 and eliminated the expected capacity deficiency along Rutherford Road. Though some traffic was removed from existing US 70 through Marion, the capacity issues, while diminished, remained along E Court Street and N Main Street. This alternative can be considered for the easing of congestion along Rutherford Road but fails to address the transportation deficiency of relieving traffic along the existing US 70 through the downtown area of Marion. Therefore, it is considered an unreasonable solution.

Alternative 3: US 70 Bypass from US 226 near Jacktown Road to US 70 at US 226 north of Marion. This alternative provided the most relief to the Marion downtown area and other critical arterials i.e. Rutherford Road and Sugar Hill Road. This alternative allows through traffic from I-40 to access US 70 without going through the CBD of Marion. This alternative was a combination of Alternatives 1 and 2 and it was selected as the CTP alternative.

[1] http://www.marionnc.org/planProjects.php

Figure 11 - US 70 Bypass Alternatives Studied