N.C. DEPARTMENT OF TRANSPORTATION
Transportation Planning Division

Granville County
Comprehensive Transportation Plan

June 2021

2017 Granville County
Comprehensive Transportation Plan

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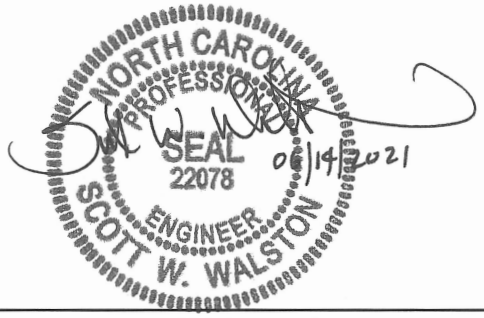
Transportation Planning Division
N.C. Department of Transportation

In Cooperation with: Granville County
City of Creedmoor
City of Oxford
Town of Butner
Town of Stem
Town of Stovall
Kerr-Tar Rural Planning Organization
Capital Area Metro Politian Planning Organization

Published: June 2021



Scott Walston, PE
Transportation Engineer

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Executive Summary

In January 2016, the Transportation Planning Division of the North Carolina Department of Transportation (NCDOT) and Granville County initiated a study to cooperatively develop the Granville County Comprehensive Transportation Plan (CTP), which initially included City of Creedmoor, City of Oxford, Town of Butner, Town of Stem, and Town of Stovall. During the study, areas inside the Capital Area Metropolitan Planning Organization (CAMPO), which included the City of Creedmoor, were removed from the study, at the request of CAMPO. Therefore, the final results of this study cover the parts of Granville County outside of CAMPO.

The CTP is a long-range multi-modal transportation plan that covers transportation needs through year 2045. 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 year 2017. Descriptive information and definitions for designations depicted on the CTP maps can be found in Appendix B. Implementation of the plan is the responsibility of the Granville county, its municipalities, and NCDOT. Refer to Chapter 2 for information on the implementation process.

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

- **Industry Drive (SR 1646), Local ID: GRAN030A-C:** Widened from the two-lane facility to a four-lane divided boulevard facility with raised median.

- **US 158, Local ID: GRAN002-H:** Widened to a four-lane divided boulevard facility from Person county line to Oxford Loop Rd., and from Oxford Loop Rd. to Vance county line.

- **US 158 (Oxford Outer Loop), Local ID: GRAN006-H:** Widened to a four-lane divided facility from NC 96 to Williamsboro Street.

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Adopted by:

Granville County
Date: 11/20/2017

City of Oxford
Date: 11/14/2017

Town of Butner
Date: 11/2/2017

Town of Stem
Date: 10/16/2017

Town of Stovall
Date: 11/14/2017

NCDOT
Date: 5/31/2018

Endorsed by:

City of Creedmoor
Date: 11/6/2017

Kerr-Tar RPO
Date: 11/29/2017

Recommended by:

Transportation Planning Division Date: 5/8/2018

PERSON COUNTY

VANCE COUNTY

DURHAM COUNTY

WAKE COUNTY

FRANKLIN COUNTY

Stovall

Oxford

Stem

Butner

Creedmoor

Capital Area Metropolitan Planning Organization

Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

Adoption Map

Granville County

Comprehensive Transportation Plan

Plan date: 8/2/17

Legend

- Airports
- Schools
- Roads
- Rivers and Streams
- MPO Boundary
- County Boundaries
- Municipal Bounderies

Miles
0 0.5 1 2 3

N
W E
S

Sheet 1 of 5

Base map date: 4/6/17

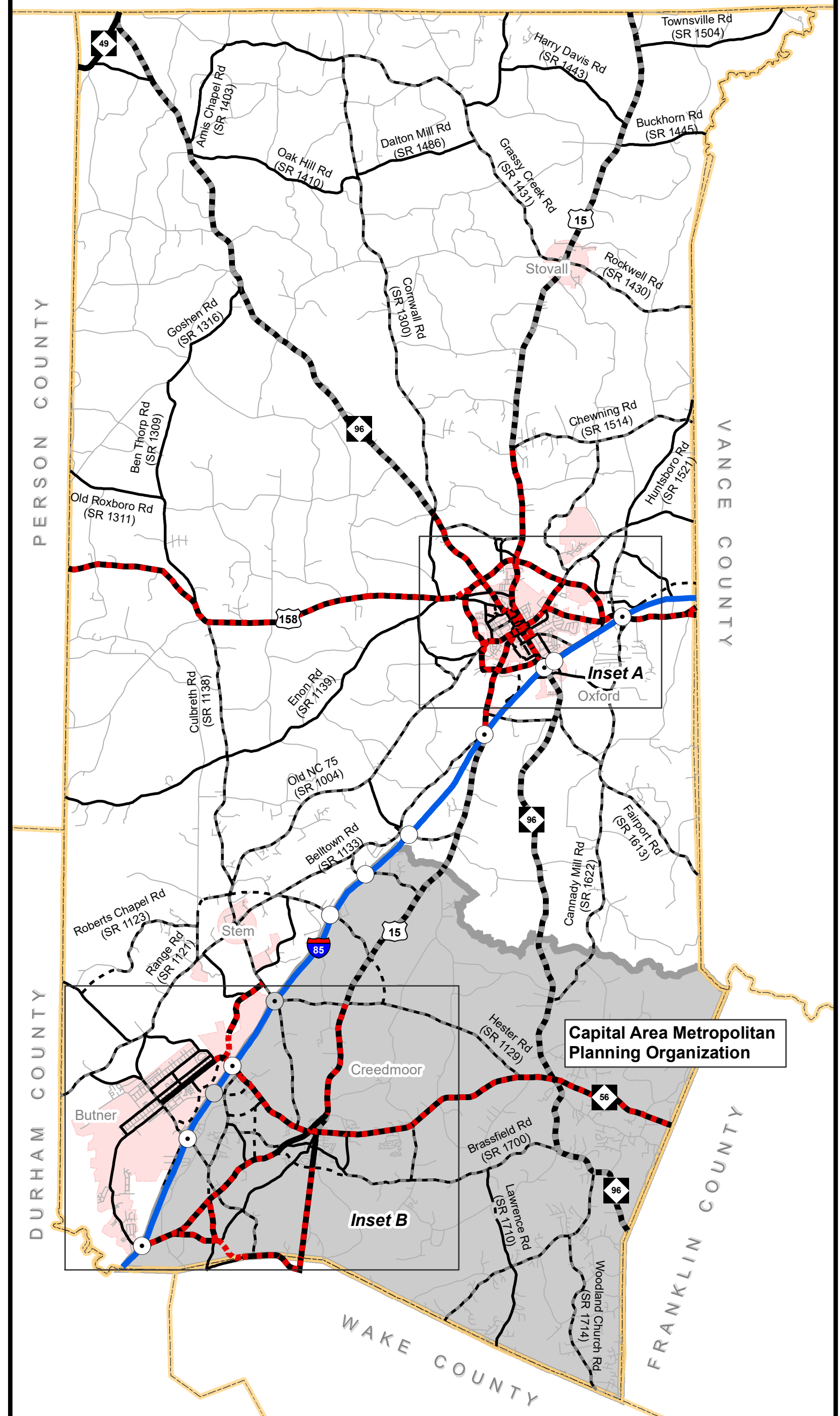
Refer to CTP document for more details

Highway Map

Granville County

Comprehensive Transportation Plan

Plan date: 8/2/17



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

Miles
0 0.5 1 2 3

N W E S

Sheet 2 of 5

Base map date: 4/6/17

Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

Refer to CTP document for more details

Highway Map

Granville County
Comprehensive Transportation Plan
Inset A (Oxford)

Plan date: 8/2/17

Freeways
- Existing
- Needs Improvement
- Recommended

Expressways
- Existing
- Needs Improvement
- Recommended

Boulevards
- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares
- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares
- Existing
- Needs Improvement
- Recommended

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

0 0.075 0.15 0.3 0.45 0.6 Miles

N W E S

Sheet 2A of 5

Base map date: 4/6/17

Refer to CTP document for more details

OXFORD

Webb School Rd
Cornwall Rd (SR1300)
Enon Rd (SR1139)
Roxboro Rd
Ivey Day Rd (SR1170)
Robin Rd
Alexander Ave
Goshen St
Cherry St
N Country Club Dr (SR1167)
Hillsboro St (SR1004)
College St
Lewis St
Front St
Maple Dr
Orange St
6th St
Raleigh St
Henderson St (SR1602)
Oxford Service Rd Connector
Williamsboro St
E Spring St
Honner Siding Rd (SR1515)
Salem Rd (SR1522)
Landis Rd (SR1523)
Tabbs Creek Rd (SR1521)
W Tom Parham Rd
Antioch Rd (SR1600)
W Antioch Dr (SR1606)
Martin Luther King Ave
Fairport Rd (SR1609)
Lake Devin Rd
Burnette Rd (SR1163)
Old NC 75 (SR 1004)
E Industry Dr (SR1646)
Herbert Henley Rd (SR1647)
New Commerce Dr
158 BUS

Highway Map

Granville County
Comprehensive Transportation Plan
Inset B (Creedmoor and Butner)

Range Rd (SR1121)
Old NC 75 (SR1004)
33rd St (SR1112)
Central Ave (SR1239)
Veasey Dr (SR1174)
East E St
WD St.
24th St.
E C St.
26th Street
W Lyon Station Rd (SR 1215)
Hester Rd (SR1129)
Brogden Rd (SR1127)
CREEDMOOR
Butner Creedmoor Rd
Central Ave (SR1103)
BUTNER
E Lyon Station Rd (SR1104)
Creedmoor Loop A
Wb Clark Rd (SR1109)
Joe Peed Rd (SR1110)
S Durham Ave
N Main St (SR1639)
Church St (SR1700)
Hawley School Rd (SR1733)
Hayes Rd (SR1702)
Creedmoor Loop C
Brassfield Rd (SR1700)
W B St (SR1100)
Gate 2 Rd (SR1103)
Northside Rd (SR1724)
Munns Rd (US15)
Northside Rd
Cash Rd (SR1728)
85
56
15
50

Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

Plan date: 5/24/17

Freeways
- Existing
- Needs Improvement
- Recommended

Expressways
- Existing
- Needs Improvement
- Recommended

Boulevards
- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares
- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares
- Existing
- Needs Improvement
- Recommended

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

0 0.125 0.25 0.5 0.75 Miles

N W E S

Sheet 2B of 5

Base map date: 4/6/17

Refer to CTP document for more details

Public Transportation and Rail Map

Granville County

Comprehensive Transportation Plan

Plan date: 6/22/17

Bus Routes
- Existing
- Needs Improvement
- Recommended

Fixed Guideway
- Existing
- Needs Improvement
- Recommended

Operational Strategies
- Existing
- Needs Improvement
- Recommended

Rail Corridor
- Active
- Inactive
- Recommended

High Speed Rail Corridor
- Existing
- Recommended

Multirmodal Connector
- Existing
- Recommended

Park and Ride Lot
- Existing
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Miles
0 0.5 1 2 3

N W E S

Sheet 3 of 5

Base map date: 4/6/17

Refer to CTP document for more details

Capital Area Metropolitan Planning Organization

Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

Inset A

Inset B

PERSON COUNTY
VANCE COUNTY
DURHAM COUNTY
WAKE COUNTY
FRANKLIN COUNTY

Townsville Rd (SR 1504)
Harry Davis Rd (SR 1443)
Amis Chapel Rd (SR 1403)
Buckhorn Rd (SR 1445)
Dalton Mill Rd (SR 1486)
Oak Hill Rd (SR 1410)
Grassy Creek Rd (SR 1431)
Stovall
Rockwell Rd (SR 1430)
Cornwall Rd (SR 1300)
Goshen Rd (SR 1316)
Ben Thorp Rd (SR 1309)
Chewning Rd (SR 1514)
Huntsboro Rd (SR 1521)
Old Roxboro Rd (SR 1311)
Oxford
Culbreth Rd (SR 1138)
Enon Rd (SR 1139)
Old NC 75 (SR 1004)
Belltown Rd (SR 1133)
Fairport Rd (SR 1613)
Cannady Mill Rd (SR 1622)
Roberts Chapel Rd (SR 1123)
Stem
Range Rd (SR 1121)
Creedmoor
Butner
Hester Rd (SR 1129)
Brassfield Rd (SR 1700)
Lawrence Rd (SR 1710)
Woodland Church Rd (SR 1714)
15
85
96
158
56

Public Transportation and Rail Map

Granville County
Comprehensive Transportation Plan
Inset A (Oxford)

Webb School Rd
Horner Siding Rd (SR1515)
Salem Rd (SR1522)
W Tom
Landis Rd (SR1523)
Tabbs Creek Rd (SR1521)
Roxboro Rd
Ivey Day Rd (SR1170)
College St
Robin Rd
Alexander Ave
Goshen St
N Country Club Dr (SR1167)
Cherry St
Hillsboro St (SR1004)
Williamsboro St
E Spring St
Henderson St (SR1602)
Oxford Service Rd Connector
Front St
Maple Dr
Orange St
Raleigh St
6th St
Lewis St
Lake Devin Rd
Burnette Rd (SR1163)
E Industry Dr (SR1646)
Martin Luther King Ave
W Antioch Dr (SR1606)
Antioch Rd (SR1600)

OXFORD

Plan date: 6/22/17

Bus Routes
- Existing
- Needs Improvement
- Recommended

Fixed Guideway
- Existing
- Needs Improvement
- Recommended

Operational Strategies
- Existing
- Needs Improvement
- Recommended

Rail Corridor
- Active
- Inactive
- Recommended

High Speed Rail Corridor
- Existing
- Recommended

Multirmodal Connector
- Existing
- Recommended

Park and Ride Lot
- Existing
- Recommended

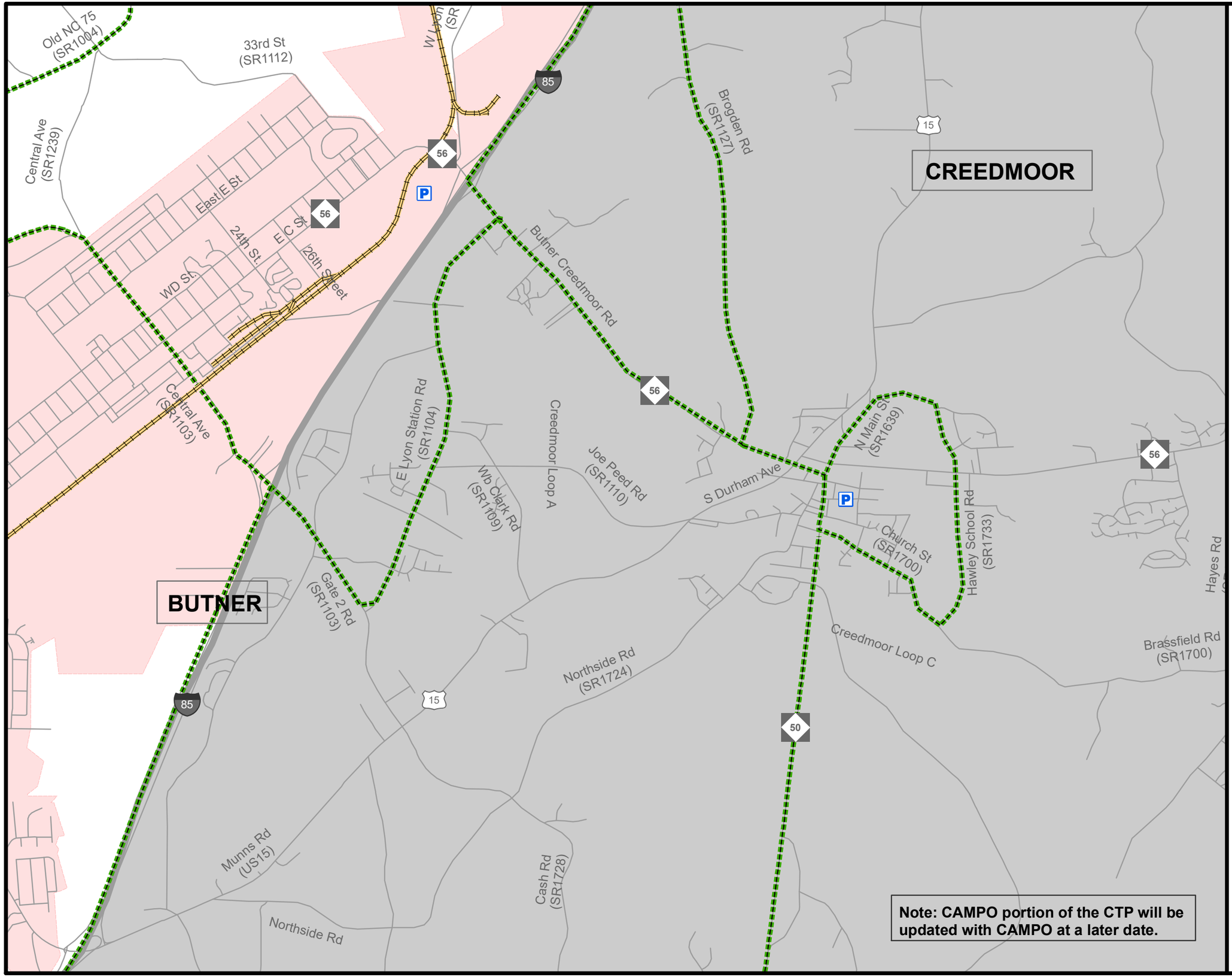
- Existing Grade Separation
- Proposed Grade Separation

0 0.075 0.15 0.3 0.45 0.6 Miles

Sheet 3A of 5

Base map date: 4/6/17

Refer to CTP document for more details



Public Transportation and Rail Map

Granville County

Comprehensive Transportation Plan

Inset B (Creedmoor and Butner)

Plan date: 6/22/17

Bus Routes
- Existing
- Needs Improvement
- Recommended

Fixed Guideway
- Existing
- Needs Improvement
- Recommended

Operational Strategies
- Existing
- Needs Improvement
- Recommended

Rail Corridor
- Active
- Inactive
- Recommended

High Speed Rail Corridor
- Existing
- Recommended

Multirmodal Connector
- Existing
- Recommended

Park and Ride Lot
- Existing
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Miles
0 0.075 0.15 0.3 0.45 0.6

Sheet 3B of 5

Base map date: 4/6/17

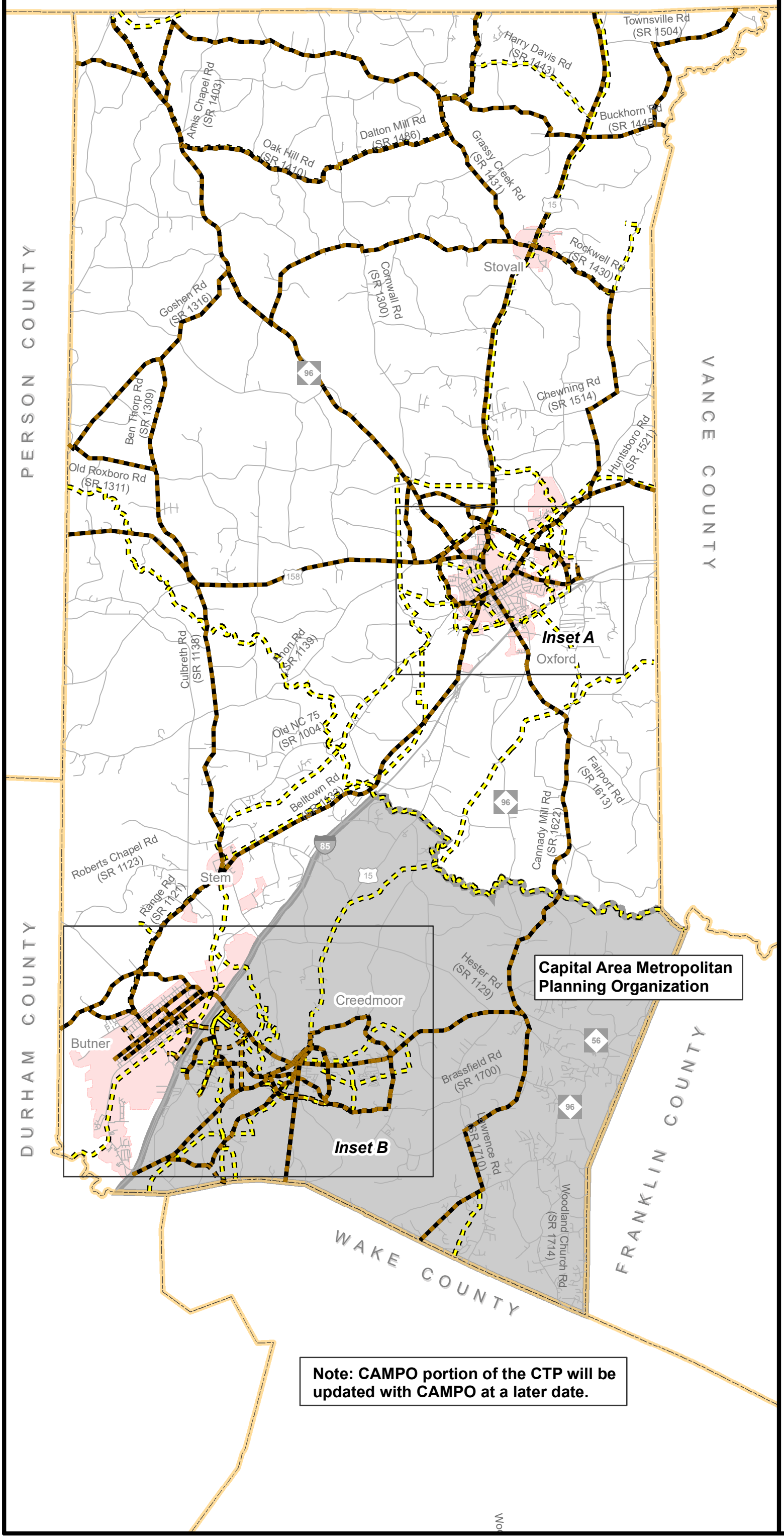
Refer to CTP document for more details

Bicycle Map

Granville County

Comprehensive Transportation Plan

Plan date: 6/22/17



Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

On-road
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Miles
0 0.5 1 2 3

N W E S

Sheet 4 of 5

Base map date: 4/6/17

Refer to CTP document for more details

Bicycle Map

Granville County

Comprehensive Transportation Plan

Inset A (Oxford)

Plan date: 8/2/17

On-road
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

0 0.075 0.15 0.3 0.45 0.6 Miles

N W E S

Sheet 4A of 5

Base map date: 4/6/17

Refer to CTP document for more details

OXFORD

Webb School Rd
Horner Siding Rd (SR1515)
Salem Rd (SR1522)
Landis Rd (SR1523)
Tabbs Creek Rd (SR1521)
Roxboro Rd
Ivey Day Rd (SR1170)
College St
Williamsboro St
Robin Rd
Alexander Ave
Goshen St
Cherry St
N Country Club Dr (SR1167)
E Spring St
Hillsboro St (SR1004)
Henderson St (SR1602)
Oxford Service Rd Connector
Front St
Maple Dr
Orange St
Raleigh St
Lewis St
6th St
Lake Devin Rd
Burnette Rd (SR1163)
E Industry Dr (SR1646)
Martin Luther King Av
W Antioch Dr (SR1606)
Antioch Rd (SR1600)

Bicycle Map

Granville County
Comprehensive Transportation Plan

Inset B (Creedmoor and Butner)

Plan date: 8/2/17

CREEDMOOR

BUTNER

Range Rd (SR1121)
Old NC 75 (SR1004)
33rd St (SR1112)
Central Ave (SR1239)
Veasey Dr (SR1174)
East E St
24th St
E C St
26th St
WD St
Central Ave (SR1103)
Wilton Station Rd (SR 1214)
E Lyon Station Rd (SR1104)
W B St (SR1100)
Gate 2 Rd (SR1103)
Munns Rd (US15)
Northside Rd
Cash Rd (SR1728)
Northside Rd (SR1724)
Butner Creedmoor Rd
Creedmoor Loop A
Joe Peed Rd (SR1110)
Wb Clark Rd (SR1109)
Brogden Rd (SR1127)
Hester Rd (SR1129)
S Durham Ave
Old Main St (SR1639)
Church St (SR1700)
Hawley School Rd (SR1703)
Creedmoor Loop C
Hayes Rd (SR1702)
Brassfield Rd (SR1700)
85
56
15
50

Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

On-road
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

0 0.10.2 0.4 0.6 0.8 Miles

N W E S

Sheet 4B of 5

Base map date: 4/6/17

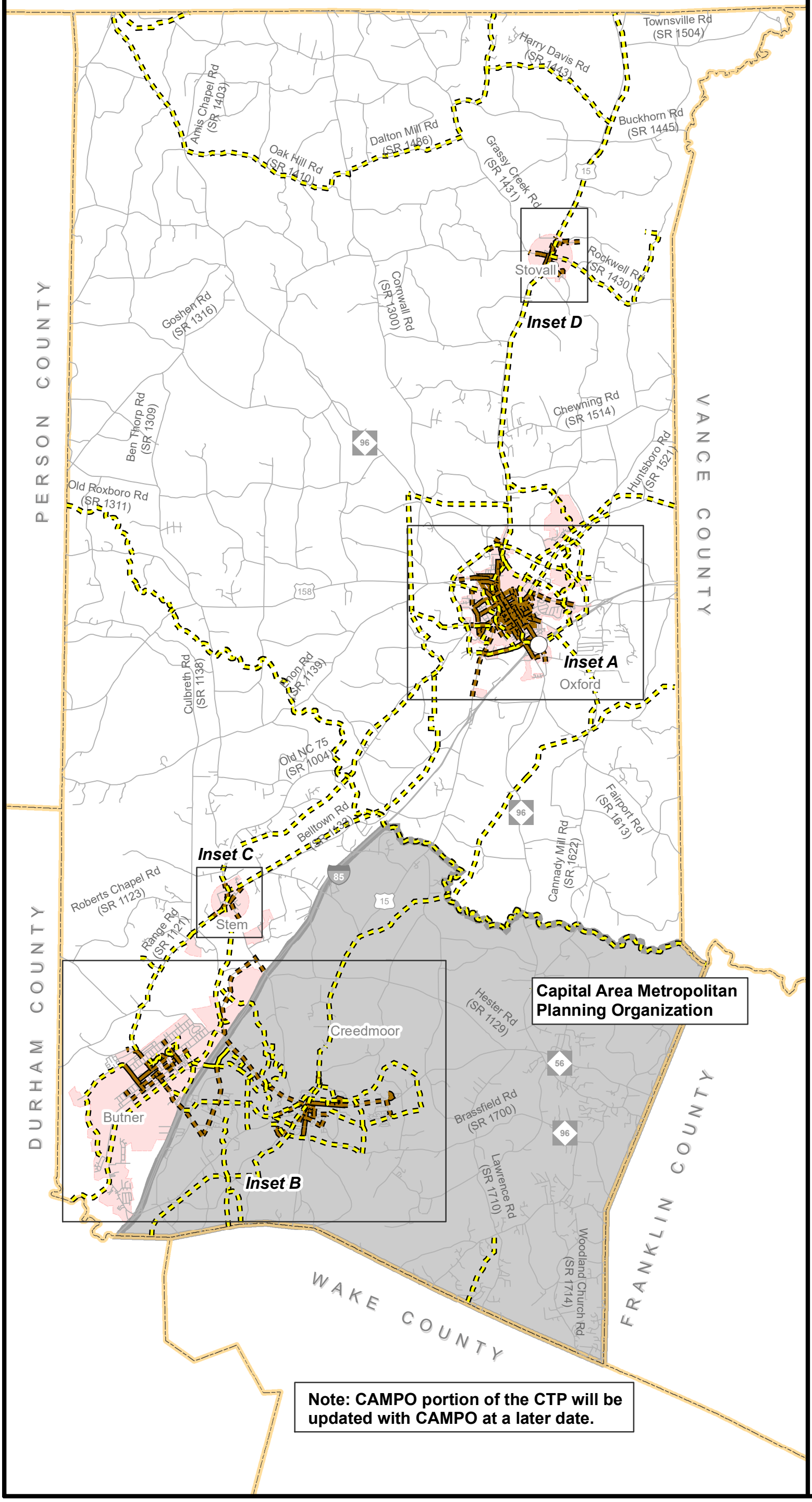
Refer to CTP document for more details

Pedestrian Map

Granville County

Comprehensive Transportation Plan

Plan date: 8/2/17



Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Miles
0 0.5 1 2 3

N W E S

Sheet 5 of 5

Base map date: 4/6/17

Refer to CTP document for more details

Pedestrian Map

Granville County

Comprehensive Transportation Plan

Inset A (Oxford)

Plan date: 8/2/17

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Miles
0 0.075 0.15 0.3 0.45 0.6

N W E S

Sheet 5A of 5

Base map date: 4/6/17

Refer to CTP document for more details

OXFORD

Webb School Rd
Horner Siding Rd (SR1515)
Salem Rd (SR1522)
W Tom
Landis Rd (SR1523)
Tabbs Creek Rd (SR1521)
Roxboro Rd
Ivey Day Rd (SR1170)
College St
Robin Rd
Alexander Ave
Gosnell St
N Country Club Dr (SR1167)
Cherry St
E Spring St
Williamsburg St
Hillsboro St (SR1004)
Henderson St (SR1602)
Oxford Service Rd Connector
Front St
Maple Dr
Orange St
Raleigh St
6th St
Lewis St
Lake Devin Rd
Burnette Rd (SR1163)
E Industry Dr (SR1646)
Martin Luther King Ave
W Antioch Dr (SR1606)
Antioch Rd (SR1600)

Pedestrian Map

Granville County

Comprehensive Transportation Plan

Inset B (Creedmoor and Butner)

Plan date: 6/22/17

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

0 0.10.2 0.4 0.6 0.8 Miles

Sheet 5B of 5

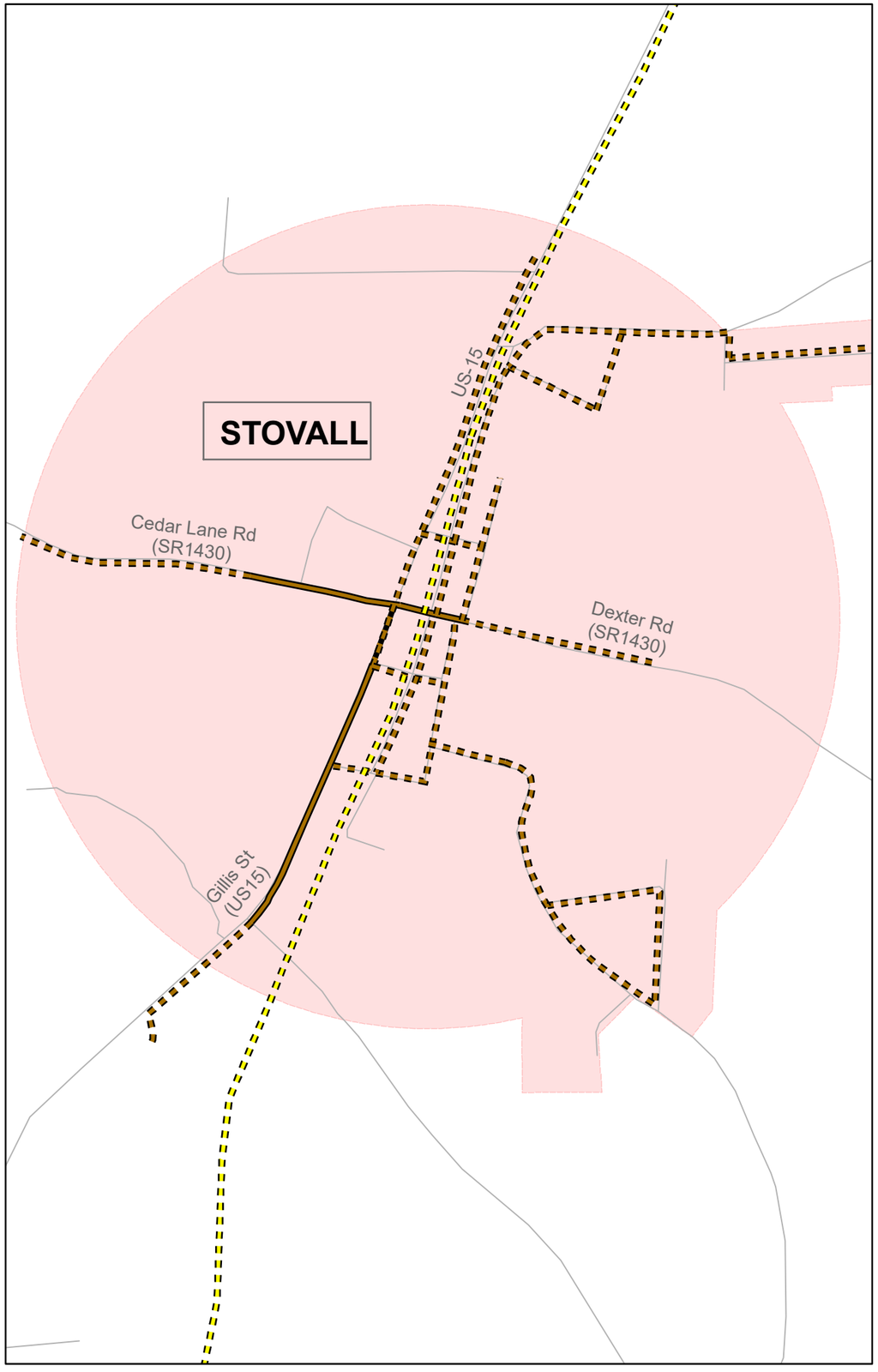
Base map date: 4/6/17

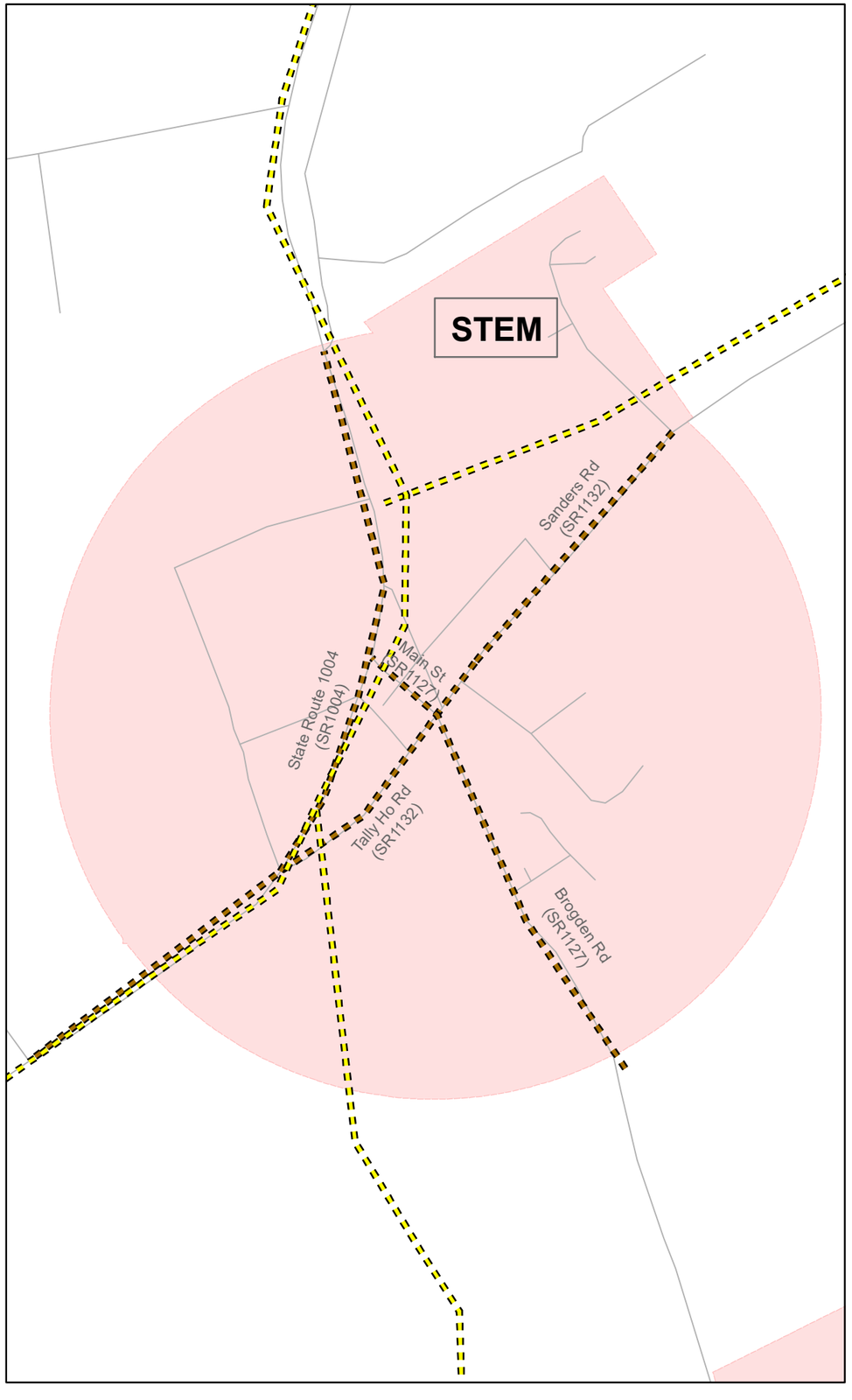
Refer to CTP document for more details

CREEDMOOR

BUTNER

Note: CAMPO portion of the CTP will be updated with CAMPO at a later date.





Pedestrian Map

Granville County

Comprehensive Transportation Plan

Plan date: 8/2/17

Inset C and D (Stem and Stovall)

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

0 0.75 1.5 3 4.5 Miles

N W E S

Sheet 5C and 5D of 5

Base map date: 4/6/17

Refer to CTP document for more details

1. Analysis of the Existing and Future Transportation System

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

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

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

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 STCs are 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 person trips, link critical centers of economic activity to international air and seaports, 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 STCs 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 using existing facilities, an alternative solution should be sought.

In the development of this plan, travel demand was projected from 2015 to 2045 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1995 to 2015. Also, travel demand was projected from 2015 to 2045 using a travel demand model. Travel demand model are developed to replicate travel patterns on the existing transportation system as well as to estimate travel patterns for 2045. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. The established future growth rates were based on the Granville County Land Use Plan (2006), since the data was still relevant for this study Refer to Appendix G for more detailed information on growth expectations and the socio-economic data forecasting methodology.

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

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

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

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

LOS D indicates "practical capacity" of a roadway, or the capacity at which the public begins to experience delay. The practical capacity for each roadway was developed based on the 2010 Highway Capacity Manual using the Transportation Planning Division'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 Granville County CTP occurred between January 1, 2011 and December 31, 2016. During this period, a total of twelve intersections and thirty-four roadway sections throughout the county 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.

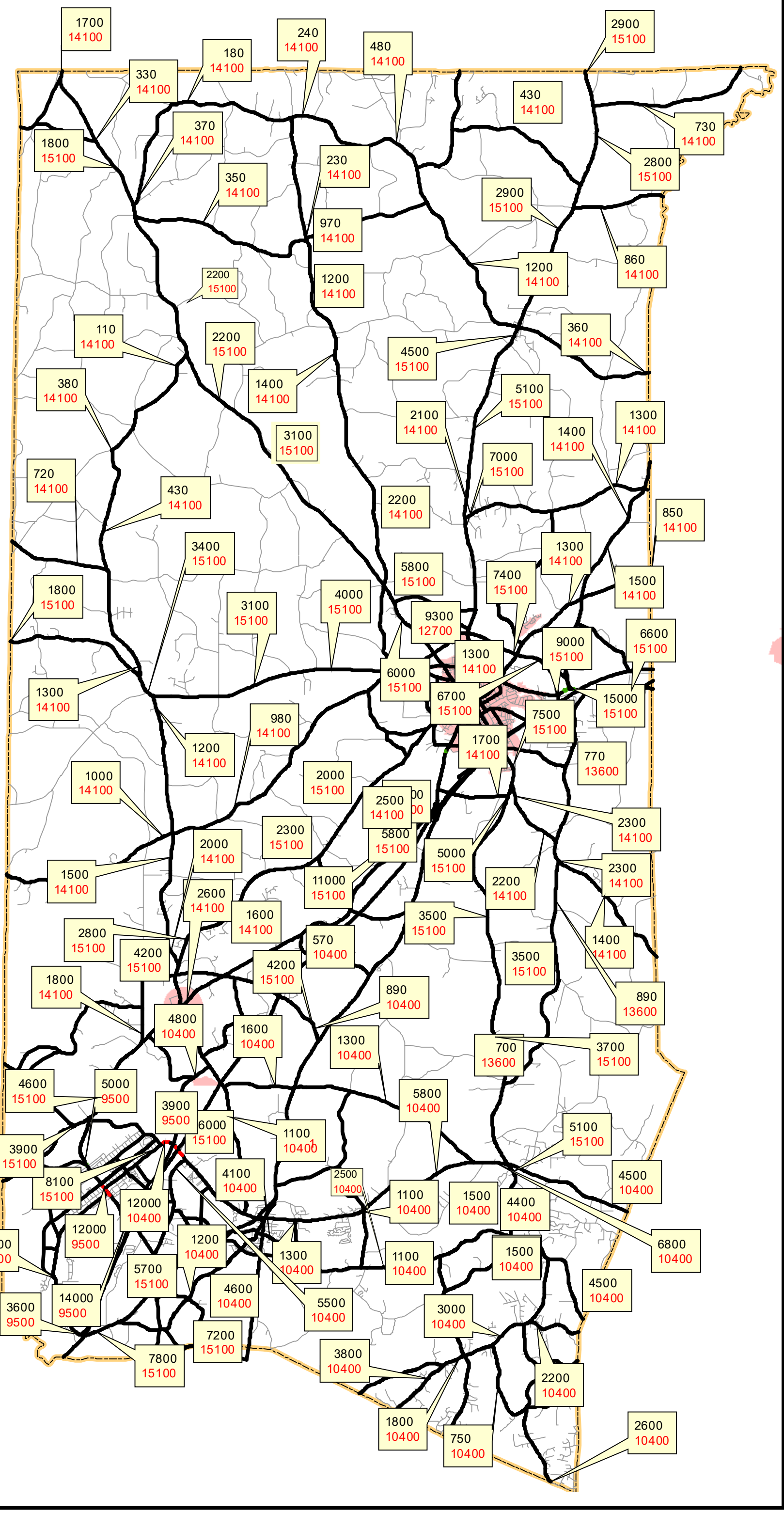
The NCDOT Structures Management Unit inspects all bridges in North Carolina at least once every two years. Bridges having the highest priority are replaced as federal and state funds become available. Thirty deficient bridges were identified on roads evaluated as part of the CTP and are illustrated in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

Figure 2

2015 Volume and Capacity Deficiencies

Granville County

Comprehensive Transportation Plan



2015 Volumes (AADT)
2015 Capacity

- Near Capacity
- Over Capacity
- Study Roads
- Roads
- Airports
- Railroads
- Rivers and Streams
- Water Bodies
- Municipal Boundaries
- County Boundary

Miles

0 0.5 1 2 3

N W E S

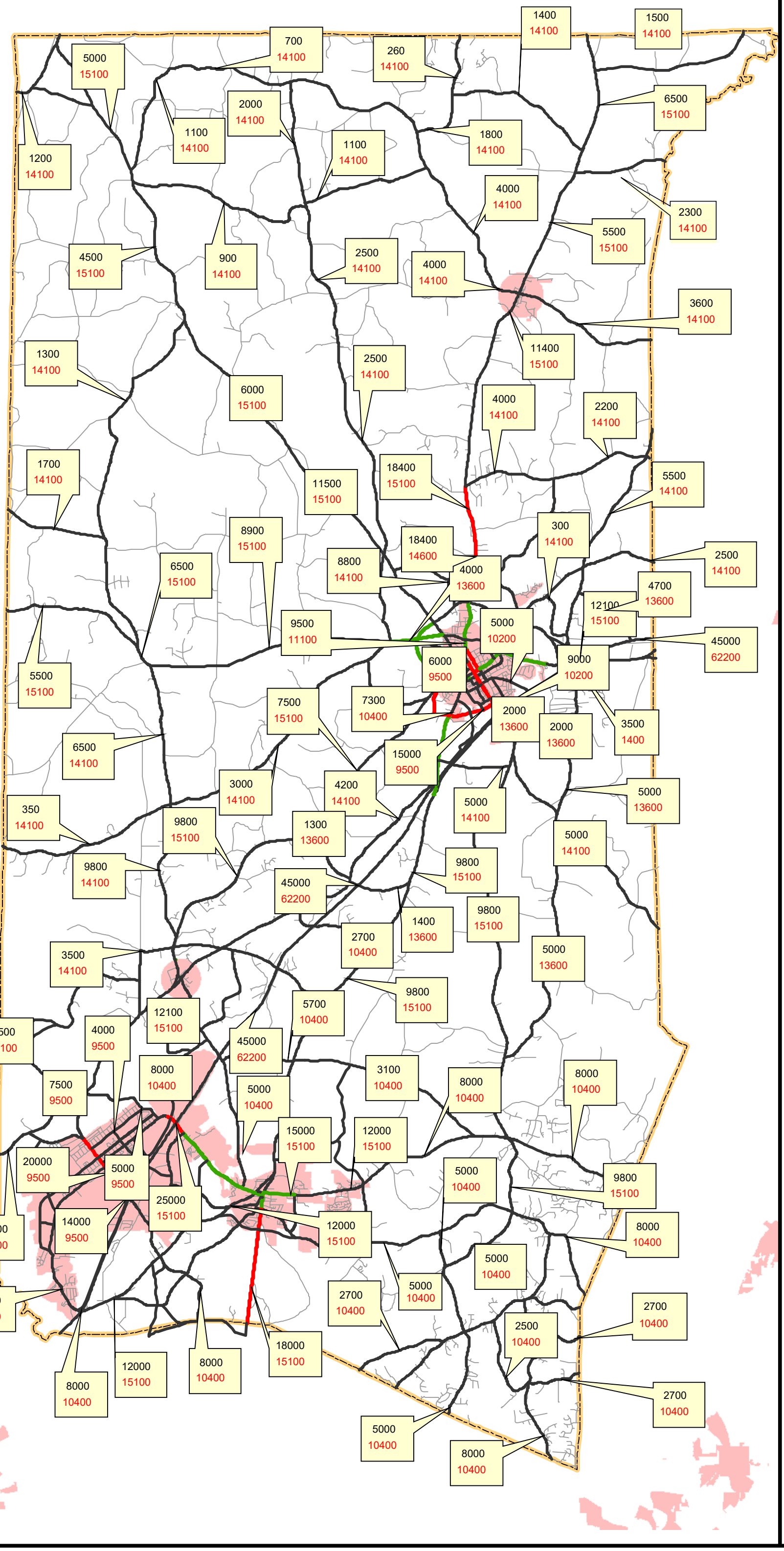
Plan date: 03/07/17

Figure 3

2045 Volume and Capacity Deficiencies

Granville County

Comprehensive Transportation Plan



2045 Volumes (AADT)
2015 Capacity

- Near Capacity
- Over Capacity
- Study Roads
- Roads
- Airports
- Railroads
- Rivers and Streams
- Water Bodies
- Municipal Boundaries
- County Boundary

Miles

0 0.5 1 2 3

N
W E
S

Plan date: 03/07/17

High Frequency Crash Locations

Granville County
Comprehensive Transportation Plan

Plan date: 5/24/17

January 1, 2011 to
December 31, 2016

Crash Intersections

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

Crash Sections

- 50 and above
- 40 to 49
- 30 to 39
- 20 to 29
- 10 to 19
- 4 to 9
- Study Roads
- Roads
- Railroads
- Rivers and Streams
- Schools
- Airports
- Water Bodies
- Municipal Boundaries
- County Boundary
- MPO Boundary

Figure 4

Miles
0 0.5 1 2 3

N
W E
S

Base map date: 4/6/17

Refer to CTP document for more details

PERSON COUNTY
VANCE COUNTY
DURHAM COUNTY
WAKE COUNTY
FRANKLIN COUNTY

Townsville Rd (SR 1504)
Harry Davis Rd (SR 1443)
Amis Chapel Rd (SR 1403)
Buckhorn Rd (SR 1445)
Dalton Mill Rd (SR 1486)
Oak Hill Rd (SR 1410)
Grassy Creek Rd (SR 1431)
Stovall
Rockwell Rd (SR 1430)
Goshen Rd (SR 1316)
Cornwall Rd (SR 1300)
Ben Thorp Rd (SR 1309)
Chewning Rd (SR 1514)
Old Roxboro Rd (SR 1311)
Hunsboro Rd (SR 1521)
Inset A
Oxford
Culbreth Rd (SR 1138)
Enon Rd (SR 1139)
Old NC 75 (SR 1004)
Belltown Rd (SR 1133)
Fairport Rd (SR 1613)
Cannady Mill Rd (SR 1622)
Roberts Chapel Rd (SR 1123)
Stem
Range Rd (SR 1121)
Inset B
Hester Rd (SR 1129)
Butner
Brassfield Rd (SR 1700)
Lawrence Rd (SR 1710)
Woodland Church Rd (SR 1714)
Creedmoor

Capital Area Metropolitan Planning Organization

Note: CAMPO area is subject to change with an update of the CAMPO CTP

High Frequency Crash Locations

Granville County

Comprehensive Transportation Plan

Inset A (Oxford)

Plan date: 6/22/17

January 1, 2011 to
December 31, 2016

Crash Intersections

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

Crash Sections

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

- Study Roads
- Roads
- Railroads
- Rivers and Streams
- Schools
- Airports
- Water Bodies
- Municipal Boundaries
- County Boundary
- MPO Boundary

Figure 4A

0 0.05 0.1 0.2 0.3 0.4 Miles

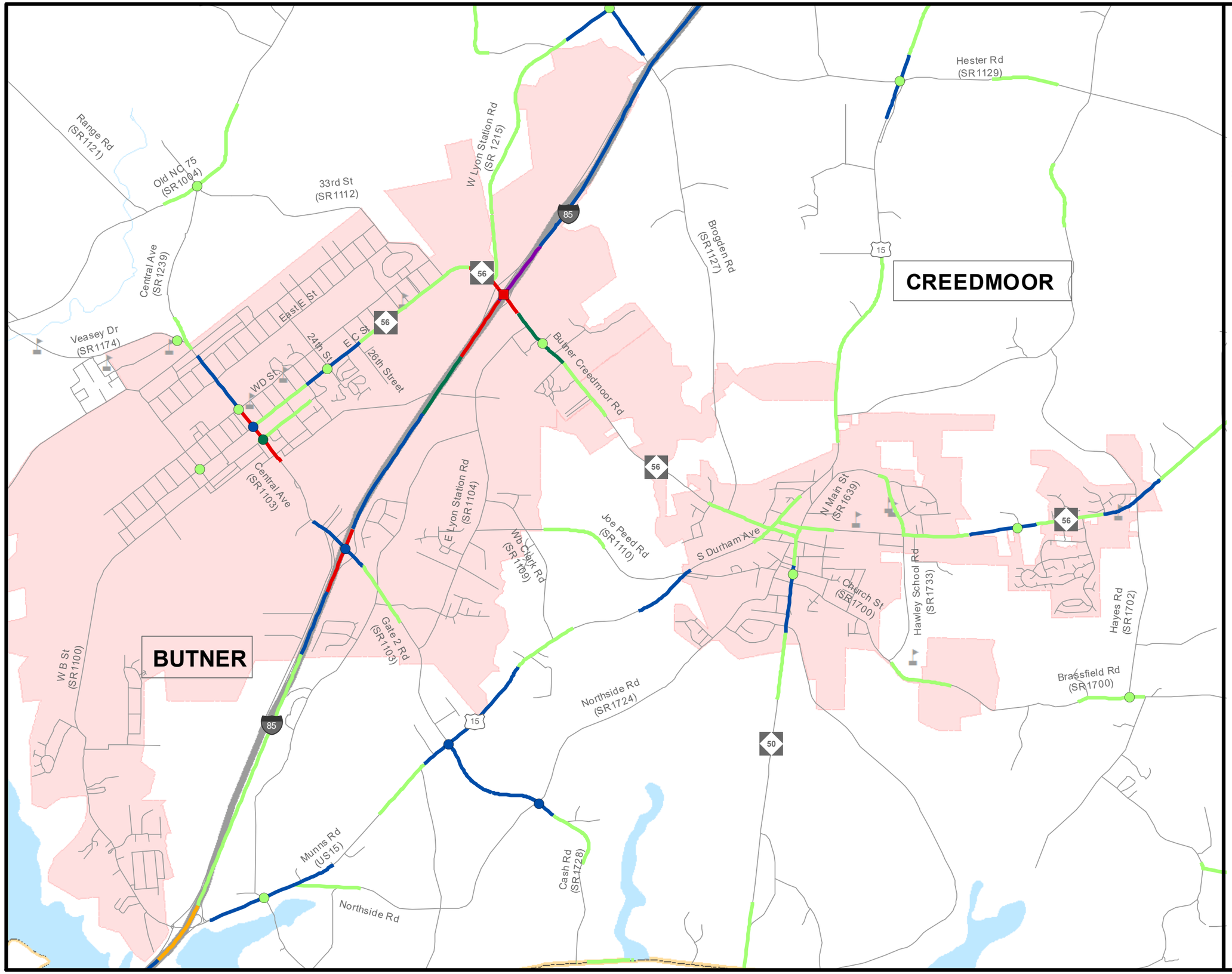
N W E S

Base map date: 4/6/17

Refer to CTP document for more details

OXFORD

Roxboro Rd
Ivey Day Rd (SR 1170)
158 BUS
College St
Horner Siding Rd (SR 1515)
Salem Rd (SR 1522)
Landis Rd (SR 1523)
Tabbs Creek Rd (SR 1521)
Williamsboro St
N Country Club Dr (SR 1167)
Cherry St
Hillsboro St (SR 1004)
Henderson St (SR 1602)
Oxford Service Rd Connector
Raleigh St
Maple Dr
Lewis St
E Industry Dr (SR 1646)
Martin Luther King Ave
W Antioch Dr (SR 1606)
Antioch Rd (SR 1600)



High Frequency Crash Locations

Granville County Comprehensive Transportation Plan

Inset B (Creedmoor and Butner)

Plan date: 6/22/17

Crash Intersections

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

Crash Sections

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

- Study Roads
- Roads
- Railroads
- Rivers and Streams
- Schools
- Airports
- Water Bodies
- Municipal Boundaries
- County Boundary
- MPO Boundary

Figure 4B

0 0.1 0.2 0.4 0.6 0.8 Miles

N W E S

Base map date: 4/6/17

Refer to CTP document for more details

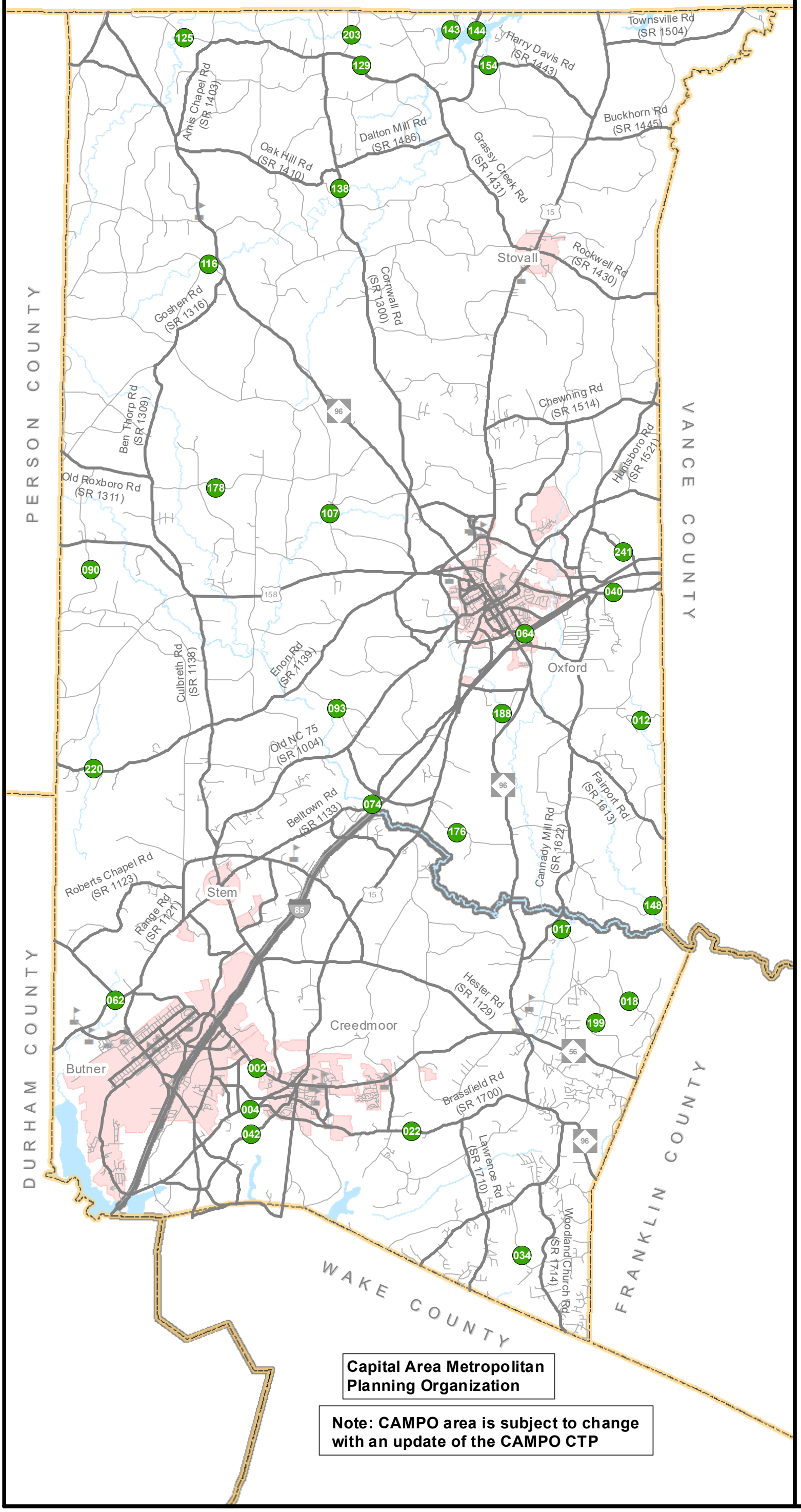
Figure 5

Deficient Bridges Map

Granville County

Comprehensive Transportation Plan

Plan date: 5/24/17



- # Defecient Bridges
- Study Roads
- Roads
- Railroads
- Rivers and Streams
- Schools
- Airports
- Water Bodies
- Municipal Boundaries
- County Boundary
- MPO Boundary

Capital Area Metropolitan Planning Organization

Note: CAMPO area is subject to change with an update of the CAMPO CTP

Figure 5

Miles

0 0.5 1 2 3

N W E S

Base map date: 4/6/17

Refer to CTP document for more details

Public Transportation and Rail

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

Public Transportation

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

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

An inventory of existing and planned fixed public transportation routes for the planning area is presented on Sheet 3 of Figure 1. Granville County has fixed route bus service called Kerr Area Transportation Authority (KARTS). The route begins each weekday at 8 a.m. at the Granville County Senior Center. In the following hour, it makes 15 stops within the city of Oxford. The route is designed for the van to be back at the senior center every hour, on the hour, and follow the exact same route until 5 p.m. There is currently no cost to ride this shuttle; it is funded from a grant through the NC Department of Transportation. The shuttle is open to anyone

of any age. An individual may board the van at any one of the stops along the route and get off at any one of the stops. The idea is to get off at the stop closest to your destination and then walk to your destination. 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 2016 local ridership was 439,849 and employed 1,060 North Carolinians.

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 short lines.

An inventory of existing and planned rail facilities for the planning area is presented on Sheet 3 of Figure 1. All recommendations for rail were coordinated with the local governments and the Rail Division of NCDOT who decided there would be no rail recommendations.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 2019, clarifies responsibilities regarding the provision of bicycle facilities along the 77,000-mile state-maintained highway system.

The policy details guidelines for planning, design, construction, maintenance, and operations pertaining to bicycle facilities and accommodations. All bicycle improvements undertaken by NCDOT are based upon this policy.

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

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

Inventories of existing and planned bicycle and pedestrian facilities for the planning area are presented on Sheets 4 and 5 of Figure 1.

- The Granville County Greenway Master Plan (2006)
- City of Creedmoor Bicycle Transportation Plan (2011)
- City of Oxford Bicycle Plan (2013)
- NC Lake District Regional Bike Plan (2016)
- Bicycle Plans and The Granville County Greenway Master Plan (2006)
- City of Creedmoor Pedestrian Plan (2011)
- Town of Butner Pedestrian Transportation Plan (2011)
- City of Oxford Comprehensive Pedestrian Plan (2012)
- Town of Stovall Pedestrian Plan (2013)
- Town of Stem Pedestrian Plan (2014)

All recommendations for bicycle and pedestrian facilities were coordinated with the local governments and the NCDOT Division of Bicycle and Pedestrian Transportation. Refer to Appendix A for contact information for the Division of Bicycle and Pedestrian Transportation.

Land Use

G.S. §136-66.2 requires that local areas have a current (less than five years old) land development plan prior to adoption of the CTP. For this CTP, the 2018 Granville County Land Use Plan (refer to Appendix G) was used to meet this requirement

Land use refers to the physical patterns of activities and functions within an area. Traffic demand in a given area is, in part, attributed to adjacent land use. For example, a large shopping center typically generates higher traffic volumes than a residential area. The spatial distribution of different types of land uses is a predominant

determinant of when, where, and to what extent traffic congestion occurs. The travel demand between different land uses and the resulting impact on traffic conditions varies

depending on the size, type, intensity, and spatial separation of development. Additionally, traffic volumes have different peaks based on the time of day and the day of the week. For transportation planning purposes, land use is divided into the following categories:

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

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

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

[1] *For more information on NEPA, go to:* https://ceq.doe.gov/.

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 Granville County are shown in Figure 6a and 6b 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
- 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 - Treatment Plants
- Schools (Public & Non-Public)
- Significant Natural Heritage Areas
- State Natural and Scenic Rivers
- State Parks
- Target Local Watersheds - EEP
- Trout Streams (DWQ)
- Trout Waters WRC (arcs & polygons)
- Unique Wetlands
- Water Distribution Systems – Tanks & Treatment Plants
- Water Supply Watersheds

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

1.3 Public Involvement

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

A meeting was held with the Transportation Planning Division, the Granville County and the Kerr-Tar Rural Planning Organization in January 2016 to formally initiate the study, provide an overview of the transportation planning process, and to gather input on area transportation needs.

Throughout the course of the study, the NCDOT Transportation Planning Division cooperatively worked with the Granville County Comprehensive Transportation Plan Steering Committee, which included a representative from each municipality, county staff, 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 two public drop-in sessions in the city of Oxford and the town of Butner to present the proposed CTP to the public and solicit comments. The first meeting was held on October 5th, 2017 in Oxford; the second meeting was held on October 10th, 2017 in Butner. Each session was publicized in the local newspaper and was held from 4-7PM.

A public hearing was held on November 20, 2017 during the Granville County Commissioners meeting. The purpose of this meeting was to discuss the plan recommendations and to solicit further input from the public.

Table 2- Adoption Dates

Adopted by Town of Stem	October 16, 2017
Adopted by Town of Butner	November 2, 2017
Endorsed by City of Creedmoor	November 6, 2017
Adopted by Granville County	November 11, 2017
Adopted by Town of Stovall	November 14, 2017
Adopted by City of Oxford	November 14, 2017
Endorsed by Kerr-Tar RPO	November 29, 2017
Recommended By Transportation Planning Division	May 8, 2018
Adopted by NCDOT	May 31, 2018

Environmental Features Map

Granville County
Comprehensive Transportation Plan

Plan date: 5/24/17

Legend

- Colleges and Universities
- Schools
- Schools Non-public
- Hospitals
- Historic Resources Sites
- 24k Hydro Lines
- Critical Habitat Lines
- Airport Boundary
- APNEP - Submersed Aquatic Veg.
- Conservation Tax Credit Prop.
- Historic Resources Areas
- Hydrography Areas
- Land & Water Conservation Funds
- Landscape Habitat Indicator Guilds
- Managed Areas
- National Wetland Inventory
- NC-CREWS
- NCDOT Maintained Mitigation Sites
- Significant Natural Heritage Areas
- State Parks
- Target Local Watersheds - EEP
- Unique Wetlands
- County Boundary
- MPO Boundary
- Municipal Boundary

Capital Area Metropolitan Planning Organization

Figure 6

Miles
0 0.5 1 2 3

N W E S

Base map date: 4/6/17

Refer to CTP document for more details

Note: CAMPO area is subject to change with an update of the CAMPO CTP

PERSON COUNTY
VANCE COUNTY
DURHAM COUNTY
WAKE COUNTY
FRANKLIN COUNTY

Townsville Rd (SR 1504)
Harry Davis Rd (SR 1443)
Amis Chapel Rd (SR 1403)
Dalton Mill Rd (SR 1486)
Buckhorn Rd (SR 1445)
Oak Hill Rd (SR 1410)
Grassy Creek Rd (SR 1431)
Stovall
Rockwell Rd (SR 1430)
Goshen Rd (SR 1316)
Cornwall Rd (SR 1300)
Ben Thorp Rd (SR 1309)
Old Roxboro Rd (SR 1311)
Chewning Rd (SR 1574)
Hunsboro Rd (SR 1521)
Oxford
Culbreth Rd (SR 1138)
Enon Rd (SR 1139)
Old NC 75 (SR 1004)
Fairport Rd (SR 1613)
Belltown Rd (SR 1133)
Cannady Mill Rd (SR 1622)
Roberts Chapel Rd (SR 1123)
Range Rd (SR 1121)
Stem
Hester Rd (SR 1129)
Creedmoor
Brassfield Rd (SR 1780)
Lawrence Rd (SR 1710)
Woodland Church Rd (SR 1714)
Butner

Environmental Features Map

Granville County
Comprehensive Transportation Plan

Plan date: 5/24/17

Legend

- Beach Access
- Boating Access
- Emergency Operation Centers
- Hazardous Substance Disposal Sites
- Hazardous Waste Facilities
- Sewer Treatment Plants
- Water Distribution Tanks
- Water Distribution Treatment Plants
- Water Pumping Stations
- 303D Streams
- Anadromous Fish Spawning Areas
- Bicycle Routes
- RegionalTrails
- State Natural and Scenic Rivers
- Trout Streams DWQ
- Trout Waters WRC
- Benthic Habitat
- Fish Nursery Areas
- Hazardous Substance Disposal Sites
- High Quality Waters
- Natural Heritage Element Occurence
- Trout Waters WRC
- Water Supply Watersheds
- County Boundary
- MPO Boundary
- Municipal Boundary
- Local Roads

Figure 6 (A)

Miles
0 0.5 1 2 3

N
W E
S

Base map date: 4/6/17

Refer to CTP document for more details

Capital Area Metropolitan Planning Organization

Note: CAMPO area is subject to change with an update of the CAMPO CTP

PERSON COUNTY
VANCE COUNTY
DURHAM COUNTY
WAKE COUNTY
FRANKLIN COUNTY

Townsville Rd (SR 1504)
Harry Davis Rd (SR 1443)
Amis Chapel Rd (SR 1403)
Dalton Mill Rd (SR 1486)
Buckhorn Rd (SR 1445)
Oak Hill Rd (SR 1410)
Grassy Creek Rd (SR 1431)
Rockwell Rd (SR 1430)
Stovall
Goshen Rd (SR 1316)
Cornwall Rd (SR 1300)
Ben Thorp Rd (SR 1309)
Chewning Rd (SR 1514)
Huntsboro Rd (SR 1521)
Old Roxboro Rd (SR 1311)
Culbreth Rd (SR 1138)
Enon Rd (SR 1139)
Oxford
Old NC 75 (SR 1004)
Belltown Rd (SR 1133)
Fairport Rd (SR 1613)
Cannady Mill Rd (SR 1622)
Roberts Chapel Rd (SR 1123)
Range Rd (SR 1121)
Stem
Creedmoor
Butner
Hester Rd (SR 1129)
Brassfield Rd (SR 1700)
Lawrence Rd (SR 1710)
Woodland Church Rd (SR 1714)

2. Recommendations

This chapter presents recommendations for each mode of transportation in the 2017 Granville County CTP as shown in Figure 1. More detailed information on each recommendation is tabulated in Appendix C. Additionally, recommendations that were adopted and/or endorsed by all participating jurisdictions, except the Capital Area Metropolitan Planning Organization (CAMPO), can be found in Appendix I. Figure 1 contains both recommendations approved and not approved by CAMPO for reference purposes. A future CTP update or amendment will address discrepancies between the 2017 Granville CTP and the CAMPO Metropolitan Transportation Plan (MTP).

NCDOT adopted a "Complete Streets[1]" policy in July 2019. 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 designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, and motorists. 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 streets policy and concepts were utilized in the development of the CTP. The CTP proposes projects that include multi-modal project recommendations as documented in the problem statements within this chapter. Refer to Appendix C for recommended cross sections for all project proposals and Appendix D for more detailed information on the typical cross sections.

2.1 Implementation

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

Initiative for implementing the CTP rests predominately with the policy boards and citizens of the Granville County and its municipalities. As transportation needs

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

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 Kerr-Tar Rural Planning Organization (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[2] (SEPA). During the NEPA/SEPA process, the specific project location and cross section will be determined based on environmental analysis and public input. This CTP may be used to support transportation decision making and provide transportation planning data in the NEPA/SEPA process.

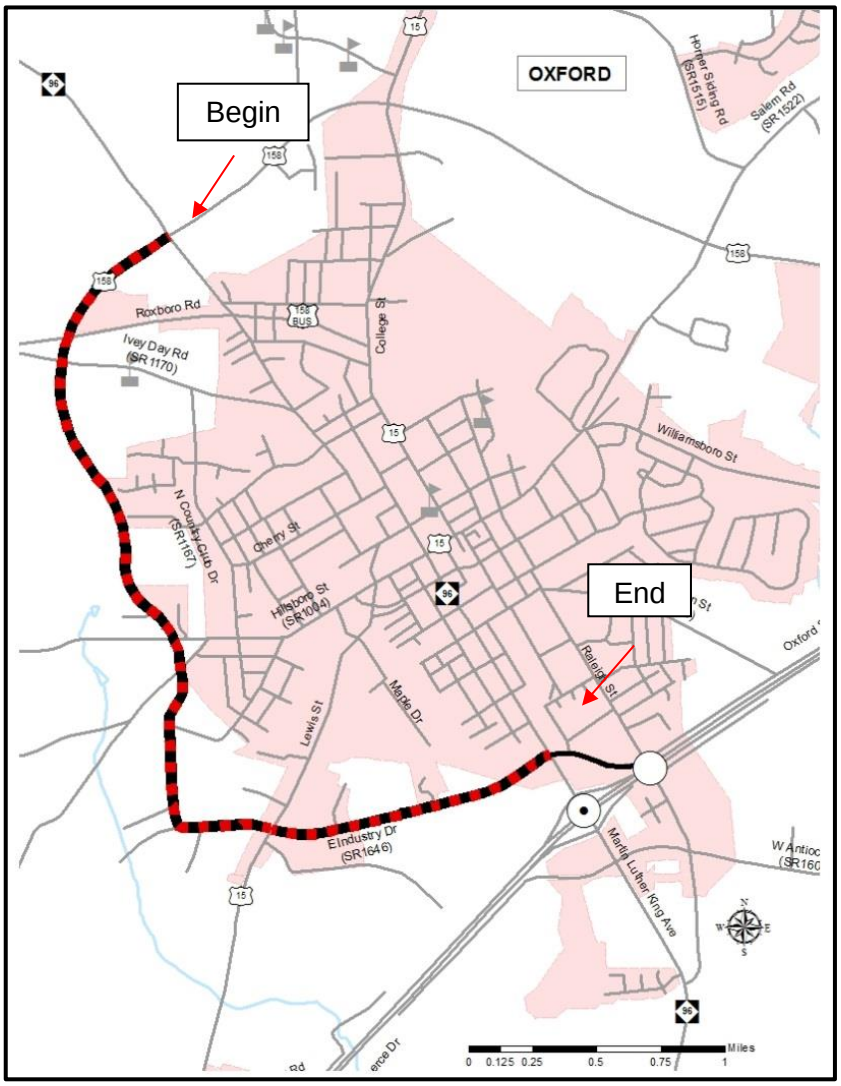
2.2 Problem Statements

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

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

Highway:

Industry Drive (SR 1646)	Project #: GRAN001-H
Proposed improvements from NC 96 to US 158	**Last updated on: 12/11/2018**



Identified Problem

The traffic volumes projected on Industry Drive (SR 1646) are estimated to be near to over capacity by 2045. There is a sharp curve on the existing route between US 15 (Lewis Street) and Hillsboro Street that can be a problem for freight and vehicular traffic. Improvements are needed to accommodate projected traffic volumes and improve around Oxford such that a minimum Level of Service (LOS) D can be achieved.

Justification of Need

Widening Industry Drive (SR 1646) will help relieve traffic congestion from downtown Oxford. This corridor serves industrial freight traffic, commuter traffic, and residential traffic in Oxford. This facility is being used as a loop facility around the City of Oxford. This widening is intended to improve the safety and capacity of existing roadway, while providing continued access and freight mobility to industrial sites in Oxford. The Industry Drive (SR 1646) widening should have a positive impact on economic development, and improve automobile and freight mobility and access in the City of Oxford.

CTP Project Proposal

Project Description

Industry Drive (SR 1646) is recommended to be widened from the two-lane facility to a four-lane divided boulevard facility with raised median.

Relationship to Other Plans

Improvements to Industry Drive (SR 1646) were identified in previously adopted in 2008 Granville County Comprehensive Transportation Plan and supported by all other municipalities in the county. Bicycle and pedestrian improvements recommended are consistent with the 2006 Granville County Greenway Master Plan. Industry Drive (SR 1646) is a Major Collector on the Federal Functional Classification system.

Public/Stakeholder Involvement

No significant concerns from the public were identified during the public/ stakeholder involvement process.

Other Highway Recommendations:

US 158, Local ID: GRAN002-H:

US 158 from the Person County line to the US 158 Oxford loop Road is expected to exceed capacity by 2045 with volumes increasing from 3,000 (2015) to 9,000 (2045) with a capacity of 15,100.

The traffic volumes projected in this section of US 158 will be near capacity by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It is recommended that the following sections of US 158 be widened to a four-lane divided boulevard facility.

- From the Person County line to the US 158 Oxford Loop Road (with part on new location realignment)
- From the US 158 Oxford Loop Road to the Vance County line.

US 158 is a Strategic Transportation Corridor (STC) in spanning east to west across the northern part of North Carolina. This improvement to US 158 should increase mobility through the northern portion of Granville County.

Main Street in Oxford, Local ID: GRAN003-H:

The 2015 traffic volume of 2000 is projected to be 6000 in 2045. This section will be near capacity of 9500 by 2045. Improvements are needed to accomodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It is recommended that this section be widened to a four-lane divided boulevard facility from East Spring Street to Williamsboro Street (US 158 Business).

Hillsboro Street (SR 1004) in Oxford, Local ID: GRAN004-H:

The 2015 traffic volume of 6000 is projected in this section to be near capacity of 9500 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It is recommended that this section be widened to a four-lane divided boulevard facility from the Oxford Loop (SR 1195) to US 15.

US 158 Business (Williamsboro Street) in Oxford, Local ID: GRAN005-H:

The 2015 traffic volume of 5500 is projected in this section to be near capacity of 10200 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It is recommended that this section be widened to a four-lane divided boulevard facility from US 15 to US 158. US 158 Business serves both commercial and residential traffic trying to access the Central Business District from points east and west of Oxford.

US 158 (Oxford Outer Loop), Local ID: GRAN006-H:

The 2015 traffic volume of 8000 is projected in 2045 to be 15,000. This portion of this section to be near to over capacity of 9500 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved.

Additionally, a crash assessment performed during the development of the CTP identified that this corridor experienced a number of crashes between January 1, 2011 and December 31, 2016. Sections of US 158 experienced a 5-year average of 5 crashes per year during this period. The proposed improvements may reduce the amount and severity of crashes at locations.

It is recommended that US 158 widened to a four-lane divided facility from NC 96 to Williamsboro Street. US 158 provide access between Reidsville in Rockingham County, Roxboro in Person County and Oxford in Granville County. The recommended improvements to US 158 will provide increased capacity, and greater maneuverability, possibly resulting in safer driving conditions.

US 15, Local ID: GRAN007-H:

The 2015 traffic volume of 7000 is projected in 2045 as 18,400. This portion of this section should be near to over capacity of 15,100 by 2045 during peak hours. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. This facility can be divided into the following sections.

- From the CAMPO boundary (Tar River Rd.) to I-85. Add turns lanes where necessary.
- From I-85 to Chewing Road (SR 1514) in Oxford. Widen the current two lane facility to a four-lane divided boulevard with median
- From Chewing Road (SR 1514) to Virginia State boundary. Add turns lanes where necessary.

These improvements are needed to improve traffic flow, safety and capacity along the existing facility. US 15 provides access from the Virginia state line to Oxford, from Oxford to Creedmoor, and Creedmoor to the city of Durham and the Research Triangle Park. Adding turn lanes will allow motorists to take turns without impeding the traffic flow and will help improve the north-south travel along US 15 through Creedmoor and Granville County.

NC 96, Local ID: GRAN008-H:

This route serves all of Granville County from the south-east portion of the county to the north-west corner. Improvements are needed to improve connectivity and mobility in the Granville County. NC 96 can be divided into the following sections.

- From the CAMPO boundary to East Industry Drive (SR 1646). Improve to a 24 ft cross section and add turn lanes where necessary.
- From East Industry Drive (SR 1646) to Cornwall Road (SR 1300). Widen from the current two-lane facility to a four-lane divided boulevard facility with raised median

NC 56, Local ID: GRAN009-H:

The 2015 traffic volume of 12,000 is projected to be 25,000 in 2045. NC 56 will be near to over capacity of 15,1000 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It recommended to be widened from current two-lane facility to a four-lane divided boulevard facility with raised median on NC 56 from I-85 to 33rd Street in Butner. These improvements are needed to improve traffic flow, safety and capacity along the existing facility. With the opening of the Creedmoor Connector traffic volumes are expected to drop along this section of NC 56.

26th St/Telecom Drive Connector (TIP U-5829) in Butner:

This project improves and extends Telecom Drive from an improved and realigned 26th Street/Wilkins Road to a new overpass over I-85 (see Appendix I for further information on the rest of the project). This project should relieve traffic on NC 56; improve access to potential development on both sides of I-85 and provide safer, more convenient bicycle and pedestrian connectivity. For additional information about this project, including Purpose and Need, contact the NCDOT Environmental Analysis Unit (EAU).

W Lyon Station Road (SR 1215), Local ID: GRAN010-H:

The 2015 traffic volume of 3,900 on W Lyon Station Road (SR 1215) are projected to be 8,000 in 2045. Making this section near capacity of 10,200 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved.

Most of the Butner's industrial development is located at the northern end of the road, while new housing development is being built at the southern end of the road. It is recommended to be widened from current two-lane facility to a four-lane divided boulevard facility with raised median (partially on new location) from NC 56 to Brogden Road (SR 1127). Improvements are needed to help relieve congestion on W Lyon Station Road (SR 1215) and improve mobility.

Salem Road (SR 1522), Local ID: GRAN011-H:

The 2015 traffic volume of 7,400 on Salem Road (SR 1522) are projected to be near capacity of 15,100 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It is recommended that Salem Road (SR 1522) be widened in the following sections:

- From Williamsboro Street to US 158. Widen to a four-lane boulevard with a median and turn lanes where necessary.
- From US 158 to Huntsboro Road (SR 1521). Modernize the roadway and add turn lanes where necessary.

Minor Widening Projects:

The following facilities have been identified as having traveled lanes less than 12 feet wide. As travel volume on these roadways increase, the need may arise to widen these facilities to include lane width of 12 feet and add turn lanes where necessary.

- Grassy Creek Road (SR 1431) from US 15 to Cromwell Road (SR 1300)
- Cromwell Road (SR 1300) from NC 96 to Grassy Creek Road (SR 1431)
- Rockwell Road (SR 1430) from US 15 to the Vance County line
- Chewning Road (SR 1514) from US 15 to the Vance County line
- Homer Siding Road (SR 1515) from Salem Road to Chewning Road (SR 1514)
- Tabbs Creek Road (SR 1521) from US 158 to Salem Road (SR 1522)
- Knotts Grove Road (SR 1608) from US 15 to NC 96
- Fairport Road (SR 1613) from NC 96 to the Vance County line
- Antioch Road (SR 1600) from Fairport Road (SR 1613) to US 158
- Candy Mill Road (SR 1622) from the CAMPO boundary to Fairport Road (SR 1613)
- Culbreth Road (SR 1138) from Old NC 75 (SR 1004) to US 158
- Roberts Chapel Road (SR 1123) from Range Road (SR 1126) to Range Road (SR 1123). Part on new location realignment.
- Old NC 75 (SR 1004) from the Durham County line to W Industry Drive (SR 1195)
- Belltown Road/Sanders Road/East Tally Ho Road (SR 1133) from Brogden Road/Creedmoor Road (SR 1127) to US 15
- Bryans Hill Road (SR 1192) from Belltown Road (SR 1133) to US 15
- Range Road (SR 1126) from Old NC 75 (SR 1004) to Range Road new location connector.
- Little Mountain Road (SR 1137) from new location connector to Culbreth Road (SR 1138)
- Sanders Road (SR 1132) from Belltown Road (SR 1133) to I-85
- Brogden Road/Creedmoor Road (SR 1127) from Belltown Road (SR 1133) to I-85
- Central Avenue (SR 1103) from Veasey Drive (SR 1174) to I-85
- I-85 Service Road (SR 1209) from Central Avenue (SR 1103) to end of the road
- Henderson Street (SR 1602) from Raleigh Street (SR 1650) to Oxford Service Road Connector (SR 1602)
- Oxford Service Road Connector/East Industry Drive (SR 1602) from Raleigh Street to US 158
- Watkins Wilkinson Road (SR 1422) from NC 96 to US 15
- Cherry Street from North Country Club Drive (SR 1167) to NC 96

- Burnette Road (SR 1163) from Hallie Burnette Road (SR 1162) to Old NC 75 (SR 1004)
- Smith Road (SR 1135) from Belltown Road (SR 1133) to I-85/CAMPO boundary

Minor Extensions/New Location Projects:

The following additional CTP proposals are for the routes that do not have capacity issues but are recommended to be extended or realigned to improve mobility and connectivity for the county.

- Range Road connector from Range Road (SR 1126) to Little Mountain Road (SR 1137)
- Little Mountain Road (SR 1137) connector from Old NC 75 (SR 1004) to Belltown Road (SR 1133)
- East Butner Connector from Central Avenue (SR 1103) to NC 56
- Goshen St Extension from Goshen Street to McClanahan Street
- Robin Rd Extension from Robin Road to NC 96
- Dove Rd Extension from Dove Road to Ivy Day Road (SR 1170)
- W Front St Extension from W Front Street to Maple Drive
- Orange St Extensions from Orange Street to W Front Street and from Orange Street to 6th Street
- Maple Drive Extension from Maple Drive to E Industry Drive
- 6th Street Extension from 6th Street to the Maple Drive Extension
- New Extension at Revlon from US 158 to new unpaved road (east of Revlon)
- New Extension from new unpaved road (east of Revlon) to the Vance County line
- New Commerce Drive Extension from New Commerce Drive to Knotts Grove Road
- Herbert Henley Rd Extension from Herbert Henley Rd to US 15
- 26th Street Extension from end of the road to I-85/CAMPO boundary

Public Transportation and Rail:

A public transportation and rail assessment was completed during the development of the CTP. The Kerr Area Rural Transit System (KARTS) and Granville County CTP Committee recommended some additional public transportation routes for the plan. The recommended Public Transportation and Rail map for Granville County is presented in **Figure 2, Sheet 4.**

Bus Route Recommendations:

- Along I-85 from Durham County line to Oxford.
- Along US 15 from Oxford to Stovall.
- Along NC 50 from Wake County line to Creedmoor.
- Along US 158 from Oxford to Vance County Line.

Loop Service Recommendations:

- Providing service between Butner, Creedmoor and Stem.
- Providing service in and around Creedmoor.
- Providing service in and around Oxford.

Park and Ride Locations:

- Primary facilities along I-85.
- One facility recommended serving Butner Federal Institution areas.

Bicycle Recommendations:

The NCDOT envisions that all citizens of North Carolina and visitors to the state should be able to walk and bicycle safely and conveniently to their chosen destinations with reasonable access to roadways. Information on events, funding, maps, policies, projects and processes dealing with these modes of transportation can be accessed at the Division of Bicycle and Pedestrian Transportation.

The Bicycle Element of the Granville County Comprehensive Transportation Plan is shown on Figure 1, Sheet 4. In accordance with American Association of State Highway and Transportation Officials (AASHTO), roadways identified as bicycle routes should incorporate the following standards as roadway improvements are made and funding is available:

- Curb and gutter sections require a minimum 5 feet bike lanes or 14 feet outside lanes.
- Shoulder sections require a minimum 4 feet paved shoulder.
- All bridges along roadways where bike facilities are recommended shall be equipped with 54 inch railings.

Before any improvements are made to those facilities the Division of Bicycle and Pedestrian Transportation should be consulted.

All of the recommended bicycle routes evolved from:

- The Granville County Greenway Master Plan (2006).
- City of Oxford Bicycle Plan (2013).
- NC Lake District Regional Bike Plan (2016).

On-Road Recommendations:

All of the on-road bicycle routes are identified in the CTP Bicycle map legend and are shown as “Needs Improvement”. Due to this shared, or multi-modal, use of these facilities, it is recommended that sub-standard roadway sections be widened to a

standard 24-foot cross section with 5-foot paved curb and gutter. These improvements should enhance safety and the functional design of the facility. The Granville County CTP Committee also recommends that bicycle accommodations be considered during the planning and funding for all future pavement rehabilitation or resurfacing projects. When considering the widening of these facilities, it is recommended that the division of Bicycle and Pedestrian Transportation (NCDOT) be consulted. They can help provide the most appropriate improvements based on present and future bicycle traffic.

Multi-Use Paths:

The NCDOT envisions that all citizens of North Carolina and visitors to the state should be able to walk and bicycle safely and conveniently to their desired destinations with reasonable access to roadways. Increased bicycle and pedestrian safety and connectivity are needed within the Granville County. On-road bicycle facilities serve a specific purpose as do sidewalks, but multi use paths offer a unique combination of the two. They cater to both modes of transportation, while typical offering an off-road safer more recreational experience.

The purpose of the recommended multi-use paths in Granville County comprehensive transportation plan is to provide an adequate safe, and desirable facility that both pedestrian and bicyclist can use for local connectivity with the planning area.

All of the multi-use bicycle routes evolved from the Granville County Greenway Master Plan 2006 and are walking paths or greenway corridors that connect destinations within Granville County. These facilities would typically reduce short vehicle trips by providing citizens with an alternative method of transportation. For detailed information please refer to the following website.

http://www.granvillegreenways.org/master-plan/

- G1 (Proposed Granville County Greenway Corridor): North-South route connecting Oxford with NC Bike Route 4 (North Line Trace) and Clarksville, VA/Tobacco Heritage Trail. (Along US 15 North, or Norfolk Southern Railroad).

- G2 (Proposed Granville County Greenway Corridor): Spur off of G1 connecting over to an historical marker, the John Penn Gravesite. (Rockwell Road over to John Penn Road).

- G4 (Proposed Granville County Greenway Corridor): East-West route connecting Oxford (Granville Medical Center) to NC Bike Route 1 (Carolina Connection) and Henderson, passing Oxford-Henderson Airport (along Salem Road / Norfolk Southern Railroad).

- G5 (Proposed Granville County Greenway Corridor): Connect East Oxford industrial/residential complex (Revlon, Dill Manufacturing, and Autumn Park) with Mary Potter School and Oxford City Hall. (along sewer easements).

- G6 (Proposed Granville County Greenway Corridor): Oxford Loop Trail around Oxford (along US 158, Oxford Outer Loop, Industry Drive, Service Road[I-85]/sewer easements).

- G7 (Proposed Granville County Greenway Corridor): Larger loop north of Oxford connecting inner loop with Oxford Park, with US 15 with Kinton Forks/NC 96 with Lake Devin, with trail G12b.

- G8 (Proposed Granville County Greenway Corridor): North-South route connecting Lake Devin Recreation Area to Jonesland/Granville Athletic Park.

- G9 (Proposed Granville County Greenway Corridor): East-West route connecting Lake Devin to Oxford Loop Trail (G6).

- G12a (Proposed Granville County Greenway Corridor): North-South route connecting Granville Athletic Park to Granville Central High School, to Stem, to Holt Lake to Butner. Branch off before Butner to connect with nearby planned trails in Durham County along Old 75 (SR 1004).

- G12b (Proposed Granville County Greenway Corridor): North-South rail with trail route connecting Oxford to Butner along Norfolk Southern Railroad Line. At South-West Corner, at Falls of Neuse Lake, branch trail to connect with planned Durham County trails (Railroad easement).

- G13a (Proposed Granville County Greenway Corridor): Complete section of Virginia Tobacco Heritage Trail near Virgilina that dips into Granville County (along Norfolk Southern Railroad).

- G15 (Proposed Granville County Greenway Corridor): North-South route connecting Oxford Loop to Creedmoor, including an extension to Vance County line (along Seaboard Railroad).

- G17 (Proposed Granville County Greenway Corridor): East-West route connecting North Butner to Creedmoor to Wilton and NC Bike Route 1 (Carolina Connection) include connections to schools, development, new shopping area (along sewage easement, or NC 56).

- G19 (Proposed Granville County Greenway Corridor): East-West route running the length of the Tar River.

- G21 (Proposed Granville County Greenway Corridor): East-West route connecting central Butner to Creedmoor accessing residential, commercial and industrial developments.

Pedestrian Recommendations:

According to the Statewide Bicycle and Pedestrian Plan, North Carolina‘s vision for walking and biking is to have a state that “incorporates walking and bicycling into daily life, promoting safe access to destinations, physical activity opportunities for improved health, increased mobility for better transportation efficiency, retention and attraction of economic development, and resource conservation for better environmental stewardship.”

All of the pedestrian recommendations evolved from:

- Town of Butner Pedestrian Transportation Plan (2011).
- City of Oxford Comprehensive Pedestrian Plan (2012).
- Town of Stem Pedestrian Plan (2014).
- Town of Stovall Pedestrian Plan (2013).

The recommended projects in Granville County Comprehensive Transportation Plan would aid in meeting the state of North Carolina’s vision. For the projects from other plans see the specific plan for details.

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Appendix A
Resources and Contacts

Local Planning Organization

Kerr Tar Rural Planning Organization (http://www.kerrtarcog.org/)
Contact the RPO for information on long-range multi-modal planning services.
1724 Graham Avenue, Henderson, NC 27536 (252)436-2040

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 (https://www.ncdot.gov/about-us/our-people/leadership/Pages/default.aspx)
1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2800

Board of Transportation https://www.ncdot.gov/about-us/board-offices/boards/board-transportation/Pages/default.aspx
1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2820

Highway Division 5 (https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx)
2612 N. Duke Street Durham, 27704 (919)220-4600
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 Division (TPD)	*Information on long-range multi-modal planning services.* 1554 Mail Service Center Raleigh, NC 27699 (919) 707-0900
Strategic Prioritization Office	*Information concerning prioritization of transportation projects.* 1501 Mail Service Center Raleigh, NC 27699 (919) 707-4740
Environmental Analysis Unit (EAU)	*Information on environmental studies for projects that are included in the TIP.* 1548 Mail Service Center Raleigh, NC 27699 (919) 707-6000
State Asset	*Information regarding the status for unpaved roads to be paved,*

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

Management Unit	*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
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
Integrated Modal 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

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

Other Highway Map Definitions

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

Public Transportation and Rail Map

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

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

- **Operational Strategies** – Plans geared toward the non-single occupant vehicle. This includes but is not limited to HOV lanes or express bus service.
- **Rail Corridor** – Locations of railroad tracks that are either active or inactive tracks. These tracks were used for either freight or passenger service.
  - Active – rail service is currently provided in the corridor; may include freight and/or passenger service
  - Inactive – right of way exists; however, there is no service currently provided; tracks may or may not exist
  - Recommended – It is desirable for future rail to be considered to serve an area.
- **High Speed Rail Corridor** – Corridor designated by the U.S. Department of Transportation as a potential high speed rail corridor.
  - Existing – Corridor where high speed rail service is provided (there are currently no existing high speed corridor in North Carolina).
  - Recommended – Proposed corridor for high speed rail service.
- **Rail Stop** – A railroad station or stop along the railroad tracks.
- **Intermodal Connector** – A location where more than one mode of transportation meet such as where light rail and a bus route come together in one location or a bus station.
- **Park and Ride Lot** – A strategically located parking lot that is free of charge to anyone who parks a vehicle and commutes by transit or in a carpool.
- **Existing Grade Separation** – Locations where existing rail facilities and are physically separated from existing highways or other transportation facilities. These may be bridges, culverts, or other structures.
- **Proposed Grade Separation** – Locations where rail facilities are recommended to be physically separated from existing or recommended highways or other transportation facilities. These may be bridges, culverts, or other structures.

Bicycle Map

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

❖ **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

- **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's roadway characteristics shapefile. These right-of-way amounts are approximate and may vary.**Existing and Proposed Capacity:** The estimated capacities are given in vehicles per day (vpd) based on LOS D for existing facilities and LOS C for new facilities. These capacity estimates were developed based on the 2000 Highway Capacity Manual using the Transportation Planning Division'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 - 2018Transportation 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).

HIGHWAY																
	Section				2015 Existing System							2045 Proposed System				
Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015/ 2014 Traffic Volume	2045 Traffic Volume	CTP Classification	Proposed Cross Section	ROW (ft)	
					24	2	12									
Footnotes:					48	4 D	11									
(1) Undivided 4-lane with shoulder					33	3 OW	11									
(2) Raised median 2 lane with 8 ft on-street parking both sides					26	2	11									
					24	2	12									
I-85																
I-85	Durham Co.	Creedmore SPB	Granville County	0.45	48	4 D	11	350	70	62200	36000	45000	Freeway	4A	300	
I-85	CAMPO MAB	NC 96	Granville County	x	48	4 D	11	280	70	62200	32000	45000	Freeway	4A	300	
I-85	NC 96	US 158	Oxford	2.40	48	4 D	11	280	70	62200	31000	45000	Freeway	4A	300	
I-85	US 158	Vance Co.	Oxford	1.95	48	4 D	11	340	70	62200	33000	45000	Freeway	4A	300	
US 15																
US 15	I-85	US 158 Bus	Granville County	0.30	24	2	12	200	55	15100	2800	6500	Expressway	4B	130	
US 15	US 158 Bus	Virginia State Line														
US 158 (Durham Ave., Lewis St., Hillsboro St., College St.)			Granville County	6.13	20	2	12	80	55	15100	3000	8900	Expressway	4B	130	
US 158	SR 1146	SR 1303	Granville County	2.26	20	2	12	60	55	15100	3800	9500	Expressway	4B	130	
US 158	SR 1303	SR 1300	Granville County	0.40	24	2	12	60	55	15100	4300	9500	Expressway	4B	130	
US 158	SR 1300	SR 1170	Granville County	0.23	21	2	12	60	45	14600	3600	9500	Expressway	4B	130	
US 158	SR 1170	SR 1195	Granville County	0.70	21	2	12	60	45	14600	7000	8500	Expressway	4B	130	
US 158 (Oxford Outer Loop)	SR 1195	NC 96	Granville County	0.55	21	2	12	60	55	15100	5700	8500	Expressway	4B	130	
US 158 (Oxford Outer Loop)	NC 96	US 15	Granville County	1.37	21	2	12	60	55	15100	7,400	8500	Expressway	4B	130	
US 158	US 15	SR 1522	Granville County	1.38	22	2	12	60	55	15100	6,700	8500	Expressway	4B	130	
US 158	SR 1522	US 158 Bus	Oxford	0.50	24	2	12	60	55	15100	15000	22000	Expressway	4B	130	
US 158	US 158 Bus	I-85	Oxford	1.50	24	2	12	100	55	15100	6600	8500	Expressway	4B	130	
US 158	I-85	US 158 Bus	Granville County	0.30	24	2	12	200	55	15100	2800	6500	Expressway	4B	130	
US 158	US 158 Bus	Vance Co.														
US 158 Business (Roxboro Rd., College St., Williamsboro St.)			Oxford	0.65	24	2	12	0	45	12200	2800	5500	Expressway	4B	130	
US 158 Bus. (Roxboro Rd.)	US 158	NC 96	Oxford	0.55	21	2	12	0	35	11100	4100	6000	Expressway	4B	130	
US 158 Bus./NC 96 (Roxboro Rd.)	NC 96	US 15	Oxford	1.80	36	3	12	0	35	11100	11000	14000	Expressway	4B	130	
See US 15 (College St.)	*US 15*	*US 15*	Oxford	0.09	62	2	12	80	20	11000	5700	11000	Expressway	4G	110	
US 158 Bus. (Williamsboro St.)	US 15	SR 1602	Oxford	0.45	62	2	12	80	20	11000	5500	10000	Expressway	4G	110	
US 158 Bus. (Williamsboro St.)	SR 1602	Military St.	Oxford	0.14	24	2	12	60	35	11100	5500	10000	Expressway	4G	110	
US 158 Bus. (Williamsboro St.)	Military Rd.	SR 1522	Oxford	1.55	24	2	12	60	35	11100	9000	12100	Expressway	4G	0	
US 158 Bus. (Williamsboro St.)	SR 1522	US 158	Granville County	0.33	22	2	12	100	55	15100	3800	8500	Expressway	4B	130	
US 158 Business	US 158	Vance Co.														
NC 49			Granville County	1.58	20	2	10	60	55	14100	700	1200	Boulevards	2A	60	
NC 49	Person Co.	NC 96	Granville County	0.18	20	2	10	60	55	14100	1700	2500	Boulevards	2A	60	
NC 49-96	NC 96	Virginia														
NC 56 (West Lake Rd., Durham Ave., West Wilton Ave., East Wilton Ave.)			Butner	2.20	24	2	12	60	35	11100	12000	25000	Boulevards	4D	110	
NC 56	SR 1103	SR 1215	Butner	0.43	40	3	12	60	35	12700	16000	25000	Boulevards	4D	110	
NC 56	SR 1215	SR 1108	Butner	0.17	31	3	12	60	35	12700	16000	25000	Boulevards	4D	110	
NC 56	SR 1108	Capital Dr.	Butner	0.20	21	2	12	60	35	11100	10000	15000	Boulevards	4D	110	
NC 56	Capital Dr.	Pond Dr.	Butner	0.16	31	3	12	60	35	12700	10000	15000	Boulevards	4D	110	
NC 56	Pond Dr.	Mill Stream Cir.	Butner	0.69	21	2	12	60	35	11100	9400	15000	Boulevards	4D	110	
NC 56	Mill Stream Cir.	Creedmoor WCL	Granville County	0.35	22	2	12	60	45	14600	8100	12000	Boulevards	4D	110	
NC 96																
NC 96	CAMPO MAB	SR 1608	Granville County	1.88	32	2	12	80	55	15100	5000	9800	Boulevards	2A	60	
NC 96	SR 1608	SR 1609	Oxford	0.91	32	2	12	80	45	14600	7500	9800	Boulevards	2G	85	
NC 96	SR 1609	SR 1606	Oxford	0.43	52	4	12	80	35	22200	13000	15000	Boulevards	2L	80	
NC 96 (Linden Ave.)	SR 1646	Mimosa St.	Oxford	0.38	35	2	12	60	25	11000	13000	20000	Boulevards	2L	80	
NC 96 (Linden Ave.)	Mimosa St.	SR 1207	Oxford	0.11	40	2	12	80	35	11100	10000	18000	Boulevards	2L	80	
NC 96 (Linden Ave.)	SR 1207	US 15	Oxford	0.40	60	4	12	0	20		5,900		Boulevards			
See US 15/NC 96 (Hillsboro St.)	*US 15*	*US 158 Bus.*	Granville County	5.90	24	2	12	100	55	15100	2200	6000	Boulevards	2A	60	
NC 96 (Little Satterwhite Rd.)	SR 1458	SR 1324	Granville County	5.59	20	2	12	60	55	15100	1800	5000	Boulevards	2A	60	
NC 96 (Little Satterwhite Rd.)	SR 1324	SR 1332	Granville County	1.90	20	2	12	60	55	15100	1400	5000	Boulevards	2A	60	
NC 96 (Little Satterwhite Rd.)	SR 1332	NC 49														

HIGHWAY				2015 Existing System								2045 Proposed System			
	Section														
Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015/ 2014 Traffic Volume	2045 Traffic Volume	CTP Classification	Proposed Cross Section	ROW (ft)
SR 1004 (Old Route 75, Providence Rd., Hillsboro St.)			Granville County	6.12	25	2	12	60	55	15100	5500	12000	Other Major Thoroughfares	2B	
Old Route 75	Durham Co.	Stem SCL	Stem	1.12	21	2	12	60	35	10200	3200	12000	Other Major Thoroughfares	2B	60
Old Route 75	Stem SCL	Stem NCL	Granville County	0.54	25	2	12	60	55	15100	4500	13000	Other Major Thoroughfares	2B	60
Old Route 75	Stem NCL	SR 1138	Granville County	2.25	25	2	12	60	55	15100	4200	12000	Other Major Thoroughfares	2B	60
Old Route 75	SR 1138	SR 1159	Oxford	3.47	25	2	12	100	55	15100	2300	9800	Other Major Thoroughfares	2B	60
Providence Rd.	SR 1159	SR 1157	Oxford	1.67	25	2	12	100	55	15100	2200	9800	Other Major Thoroughfares	2B	60
Providence Rd.	SR 1157	SR 1161	Oxford	0.88	24	2	12	60	55	15100	2200	7500	Other Major Thoroughfares	2B	60
Providence Rd.	SR 1161	SR 1162	Oxford	0.86	24	2	12	60	45	11700	2700	6500	Other Major Thoroughfares	2B	60
Providence Rd.	SR 1162	SR 1164	Oxford	0.30	24	2	12	60	55	15100	3400	6000	Other Major Thoroughfares	2E	60
Hillsboro St.	SR 1164	SR 1195	Oxford	0.17	21	2	12	60	35	10200	2100	6000	Other Major Thoroughfares	2E	60
Hillsboro St.	SR 1195	SR 1166	Oxford	0.27	20	2	12	50	35	10200	4100	7600	Other Major Thoroughfares	2E	60
Hillsboro St.	SR 1166	SR 1169	Oxford	0.43	36	2	12	45	35	10200	3200	7600	Other Major Thoroughfares	2E	60
Hillsboro St.	SR 1169	US 15													
SR 1100 (W B St.)			Butner	1.74	22	2	12	60	45	11700	510		Other Major Thoroughfares	2G	85
W B St.	I-85	Southern RR	Butner	2.79	36	3	12	80	45	11700	3500		Other Major Thoroughfares	3C	80
W B St.	Southern RR	SR 1103													
SR 1103 (Gate 2 Rd., Central Ave.)			Butner	1.86	22	2	12	100	45	11700	14,000	14000	Other Major Thoroughfares	2G	85
Central Ave.	I-85	SR 1117													
SR 1112 (33rd St.)			Butner	2.14	24	2	12	60	25	10000	3900	5000	Other Major Thoroughfares	2E	60
33rd St.	NC 56	SR 1004													
SR 1120 (Veasey Rd.)			Butner	1.38	22	2	11	60	45	11300	3200	5800	Other Major Thoroughfares	2G	85
Veasey Rd.	SR 1004	SR 1174												2A	60
SR 1121 (Range Rd.)			Granville County	2.38	20	2	10	60	55	12000	2,100	3500	Other Major Thoroughfares	2A	60
Range Rd.	SR 1004	Durham Co.												2A	60
SR 1127 (Stem Rd., Brogden Rd., Creedmoor Rd., Main St.)			Creedmoor	0.24	20	2	10	60	35	9500	1300	5000	Other Major Thoroughfares	2E	60
Brogden Rd.	Creedmoor NCL	CAMPO MAB	Granville County	0.55	24	2	12	x	35	10200	3800	5000	Other Major Thoroughfares	2E	60
Creedmoor Rd.	CAMPO MAB	SR 1132	Stem	0.11	20	2	10	x	35	9500	2700	5000	Other Major Thoroughfares	2E	60
Main St.	SR 1132	SR 1004													

HIGHWAY				2015 Existing System								2045 Proposed System			
Facility	Section From	Section To	Jurisdiction	Dist. (mi)	Total Width (ft	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015/ 2014 Traffic Volume	2045 Traffic Volume	CTP Classification	Proposed Cross Section	ROW (ft)
SR 1132 (Sanders Rd., Tally Ho Rd.)			Granville County	1.57	20	2	10	60	45	10900	890	5000	Other Major Thoroughfares	2G	85
Sanders Rd.	US 15	I-85	Granville County	1.50	20	2	10	60	45	10900	2100	5000	Other Major Thoroughfares	2G	85
Sanders Rd.	I-85	SR 1133	Granville County	0.76	20	2	10	60	45	10900	1600	5000	Other Major Thoroughfares	2G	85
Sanders Rd.	SR 1133	Stem ECL	Stem	0.56	20	2	10	60	35	9500	2600	5000	Other Major Thoroughfares	2E	60
Tally Ho. Rd.	Stem ECL	SR 1127	Stem	0.28	20	2	10	60	35	9500	1500	5000	Other Major Thoroughfares	2E	60
Tally Ho. Rd.	SR 1127	SR 1004													
SR 1135 (Smith Rd.)			Granville County	1.60	20	2	10	60	55	14100	720	2700	Other Major Thoroughfares	2A	60
Smith Rd.	I-85	SR 1133													
SR 1137 (Little Mountain Rd.)			Granville County	0.85	20	2	10	x	55	14100	490	1000	Other Major Thoroughfares	2A	60
Little Mountain Rd.	SR 1004	SR 1126													
SR 1138 (Culbreth Rd.)			Granville County	3.54	24	2	12	60	55	15100	2000	9800	Other Major Thoroughfares	2A	60
Culbreth Rd.	US 158	SR 1139	Granville County	3.50	20	2	10	60	55	14100	2000	9800	Other Major Thoroughfares	2A	60
Culbreth Rd.	SR 1139	SR 1004													
SR 1139 (Enon Rd.)			Granville County	0.73	21	2	10	60	55	14100	1300	3500	Other Major Thoroughfares	2A	60
Enon Rd.	US 158	SR 1164	Granville County	3.66	20	2	10	60	55	14100	1000	3000	Other Major Thoroughfares	2A	60
Enon Rd.	SR 1164	SR 1156	Granville County	2.80	20	2	10	60	45	10900	980	2000	Other Major Thoroughfares	2G	85
Enon Rd.	SR 1156	SR 1138	Granville County	4.60	20	2	10	60	55	14100	100,036		Other Major Thoroughfares	2A	60
Enon Rd.	SR 1138	Person County													
SR 1162 (Hallie Burnette Rd.)			Granville County	0.68	20	2	10	60	55	14100	130	450	Other Major Thoroughfares	2A	60
Hallie Burnette Rd.	SR 1163	SR 1004													
SR 1163 (Burnette Rd.)			Granville County	0.19	20	2	10	60	55	14100	150	450	Other Major Thoroughfares	2A	60
Burnette Rd.	SR 1164	SR 1162													
SR 1164 (Lake Devin Rd.)			Granville County	1.24	20	2	10	60	55	14100	420	1100	Other Major Thoroughfares	2A	60
Lake Devin Rd.	SR 1139	SR 1163	Granville County	1.05	20	2	10	60	55	14100	530	1100	Other Major Thoroughfares	2A	60
Lake Devin Rd.	SR 1163	SR 1004													
SR 1167 (Country Club Rd.)			Oxford	1.00	20	2	10	60	35	9500	1400	2000	Other Major Thoroughfares	2E	60
Country Club Rd.	SR 1170	SR 1004													
SR 1170 (Ivey Day Rd., Goshen St.)			Granville County	0.78	22	2	10	60	45	10900	1100	3500	Other Major Thoroughfares	2G	85
Ivey Day Rd.	US 158	SR 1167	Oxford	0.40	18	2	10	60	45	10900	1700	4000	Other Major Thoroughfares	2G	85
Ivey Day Rd.	SR 1167	Goshen St.	Oxford	0.16	20	2	10	50	35	9500	680	5500	Other Major Thoroughfares	2E	60
Goshen St.	Goshen St.	SR 1232													
SR 1174 (Veasey Rd.)			Butner	0.08	22	2	10	60	35	9500	3,200	5800	Other Major Thoroughfares	2E	60
Veasey Rd.	SR 1103	SR 1120													
SR 1192 (Bryans Hill Rd)			Granville County	1.30	24	2	10	60	45	10900	650	1400	Other Major Thoroughfares	2G	85
Bryans Hill Rd	US 15	I 85	Granville County	0.25	22	2	10	60	45	10900	510	1400	Other Major Thoroughfares	2G	85
Bryans Hil Rd	I 85	SR 1133													
SR 1195 (Industry Dr., Oxford Outer Loop)			Oxford	0.36	24	2	12	60	45	14600	10000	15000	Other Major Thoroughfares	2G	85
Industry Dr.	US 15	SR 1225	Oxford	0.63	24	2	12	60	45	14600	7400	15000	Other Major Thoroughfares	2G	85
Industry Dr.	SR 1225	SR 1004	Oxford	0.13	28	2	12	60	45	14600	7700	14600	Other Major Thoroughfares	2G	85
Oxford Outer Loop	SR 1004	SR 1166	Oxford	1.30	40	3	12	100	45	16000	8200	14600	Other Major Thoroughfares	2G	85
Oxford Outer Loop	SR 1166	US 158													
SR 1206 (Broad St.)			Oxford	0.26	40	2	12	50	35	10200	3400	7000	Other Major Thoroughfares	2E	60
Broad St.	SR 1232	Cherry St.	Oxford	0.30	40	2	12	50	35	10200	5400	14000	Other Major Thoroughfares	2E	60
Broad St.	Cherry St.	US 15													
SR 1207 (Spring St.)			Oxford	0.17	64	2	12	80	35	10200	4000	6500	Other Major Thoroughfares	2E	60
Spring St.	SR 1602	NC 96	Oxford	0.17	48	4	12	65	35	22200	3100	6000	Other Major Thoroughfares	4D	110
Spring St.	NC 96	Orange St.	Oxford	0.12	48	4	12	65	35	22200	3610	6000	Other Major Thoroughfares	4D	110
Spring St.	Orange St.	US 15	Oxford	0.09	48	4	12	65	35	22200	1400	6000	Other Major Thoroughfares	4D	110
Spring St.	US 15	SR 1004													

HIGHWAY				2015 Existing System								2045 Proposed System			
	Section														
Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015/ 2014 Traffic Volume	2045 Traffic Volume	CTP Classification	Proposed Cross Section	ROW (ft)
SR 1215 (W Lyon Station Rd.)			Butner	2.40	22	2	10	60	45	10900	4800	8000	Other Major Thoroughfares	2G	85
W Lyon Station Rd.	NC 56	SR 1127													
														2A	60
SR 1232 (Alexander Ave., Quail Ridge Rd.)			Oxford	0.25	20	2	10	30	35	9500	2800	6500	Other Major Thoroughfares	2E	60
Alexander Ave.	US 15	SR 1170	Oxford	0.55	21	2	10	60	35	9500	3600	6500	Other Major Thoroughfares	2E	60
Quail Ridge Rd.	SR 1170	SR 1167													
SR 1236 (Penn Ave.)			Oxford	0.21	40	4	10	60	35	22200	1500	3500	Other Major Thoroughfares	4D	110
McClanahan St.	SR 1004	Standard St.													
SR 1239 (Central Ave.)			Granville County	1.21	22	2	10	60	55	14100	3000	7500	Other Major Thoroughfares	2A	60
Central Ave.	SR 1112	SR 1117													
SR 1300 (Cornwall Rd.)			Granville County	3.19	20	2	10	60	55	14100	430			2A	60
Cornwall Rd.	SR 1400	SR 1410	Granville County	2.52	20	2	10	60	55	14100	1200	2000	Other Major Thoroughfares	2A	60
Cornwall Rd.	SR 1410	SR 1430	Granville County	3.87	20	2	10	60	55	14100	1400	2500	Other Major Thoroughfares	2A	60
Cornwall Rd.	SR 1430	SR 1425	Granville County	2.83	20	2	10	60	55	14100	2200	3500	Other Major Thoroughfares	2A	60
Cornwall Rd.	SR 1425	NC 96	Granville County	1.71	20	2	10	60	55	14100	660	3500	Other Major Thoroughfares	2A	60
Cornwall Rd.	NC 96	SR 1301	Granville County	0.55	20	2	10	60	45	10900	1200	3500	Other Major Thoroughfares	2G	85
Cornwall Rd.	SR 1301	US 158													
SR 1309 (Old Roxboro Rd., Thorpe Rd.)			Granville County	3.00	19	2	10	60	45	10900	1300	2800	Other Major Thoroughfares	2G	85
Old Roxboro Rd.	US 158	SR 1311	Granville County	3.16	19	2	10	60	55	14100	x	1700	Other Major Thoroughfares	2A	60
Thorpe Rd.	SR 1311	SR 1316													
SR 1311 (Old Roxboro Rd.)			Granville County	2.54	19	2	10	60	55	14100	880	1700	Other Major Thoroughfares	2A	60
Old Roxboro Rd.	Person Co.	SR 1309													
SR 1316 (Goshen Rd)			Granville County	1.20	18	2	10	60	55	14100	180	1300	Other Major Thoroughfares	2A	60
Goshen Rd	SR 1309	SR 1321													
SR 1321 (Goshen Rd)			Granville County	2.00	18	2	10	60	55	14100	380	1300	Other Major Thoroughfares	2A	60
Goshen Rd	SR 1316	NC 96													
SR 1332 (Blue Wing Rd.)			Granville County	1.62	20	2	10	60	55	14100	330	760	Other Major Thoroughfares	2A	60
Blue Wing Rd.	NC 49	NC 96													
SR 1400 (Grassy Creek Virgilina Rd.)			Granville County	1.54	18	2	10	60	55	14100	180	700	Other Major Thoroughfares	2B	60
Grassy Creek Virgilina Rd.	SR 1403	SR 1407	Granville County	1.66	18	2	10	60	55	14100	240	700	Other Major Thoroughfares	2B	60
Grassy Creek Virgilina Rd.	SR 1407	SR 1300	Granville County	2.03	18	2	10	60	55	14100	330	1000	Other Major Thoroughfares	2B	60
Grassy Creek Virgilina Rd.	SR 1300	SR 1439	Granville County	1.04	18	2	10	60	55	14100	480	1000	Other Major Thoroughfares	2B	60
Grassy Creek Virgilina Rd.	SR 1439	SR 1431													
SR 1403 (Amis Chapel Rd.)			Granville County	0.13	20	2	10	60	55	14100	370	1100	Other Major Thoroughfares	2A	60
Amis Chapel Rd.	NC 96	SR 1404	Granville County	2.71	18	2	10	60	55	14100	370	1100	Other Major Thoroughfares	2A	60
Amis Chapel Rd.	SR 1404	SR 1400													
SR 1410 (Oak Hill Rd)			Granville County	4.88	18	2	10	60	55	14100	350	900	Other Major Thoroughfares	2A	60
Oak Hill Rd	NC 96	SR 1300													
SR 1422 (Watkins Wilkinson Rd.)			Granville County	1.66	20	2	10	60	55	14100	570	800	Other Major Thoroughfares	2B	60
Watkins Wilkinson Rd.	NC 96	SR 1462													
SR 1430 (Rockwell Rd.)			Granville County	0.60	20	2	10	60	35	9500	1900	4000	Other Major Thoroughfares	2E	60
Rockwell Rd.	SR 1431	US 15	Stovall	0.62	20	2	10	60	20	9300	1600	3600	Other Major Thoroughfares	2E	60
Rockwell Rd.	US 15	Stovall ECL	Granville County	1.92	20	2	10	60	55	14100	820	3600	Other Major Thoroughfares	2A	60
Rockwell Rd.	Stovall ECL	SR 1510	Granville County	1.20	20	2	10	60	55	14100	360	1200	Other Major Thoroughfares	2A	60
Rockwell Rd.	SR 1510	Vance Co.													
SR 1431 (Grassy Creek Rd.)			Granville County	5.30	22	2	10	60	55	14100	350	2000	Other Major Thoroughfares	2B	60
Grassy Creek Rd.	SR 1430	SR 1400													
SR 1436 (Dalton Mill Rd)			Granville County	3.22	24	2	10	80	55	14100	x	1100	Other Major Thoroughfares	2B	60
Dalton Mill Rd	SR 1300	SR 1431													

HIGHWAY					2015 Existing System							2045 Proposed System			
	Section			Dist. (mi)	Total Width (ft	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015/ 2014 Traffic Volume	2045 Traffic Volume	CTP Classification	Proposed Cross Section	ROW (ft)
Facility	From	To	Jurisdiction												
SR 1445 (Buckhorn Rd., Herbert Faucette Rd.)			Granville County	2.34	18	2	10	60	55	14100	860	2300	Other Major Thoroughfares	2B	60
Buckhorn Rd.	Vance Co.	US 15													
SR 1448 (Pittard Rd)			Granville County	1.07	20	2	10	60	55	14100	x	260	Other Major Thoroughfares	2B	60
Pittard Rd	SR 1445	SR 1443													
SR 1453 (Webb School Rd)			Granville County	0.42	20	2	10	60	55	14100	1,600	8800	Other Major Thoroughfares	2B	60
Webb School Rd	SR 1462	US 15													
SR 1462 (Watkins Wilkinson Rd.)			Granville County	0.51	24	2	10	60	55	14100	570	8800	Other Major Thoroughfares	2B	60
Watkins Wilkinson Rd.	SR 1422	US 15													
SR 1501 (Townsville Rd.)			Granville County	2.12	20	2	10	60	55	14100	730	1500	Other Major Thoroughfares	2B	60
Townsville Rd.	US 15	SR 1503	Granville County	2.03	20	2	10	60	55	14100	400	1500	Other Major Thoroughfares	2B	60
Townsville Rd.	SR 1503	Virginia													
SR 1513 (Huntsboro Rd.)			Granville County	0.69	20	2	10	60	55	14100	1,500	5500	Other Major Thoroughfares	2B	60
Huntsboro Rd.	Vance Co.	SR 1514													
SR 1514 (Chewning Rd.)			Granville County	2.02	20	2	10	60	55	14100	1300	2200	Other Major Thoroughfares	2B	60
Chewning Rd.	Vance Co.	SR 1520	Granville County	3.03	20	2	10	60	55	14100	2100	4000	Other Major Thoroughfares	2B	60
Chewning Rd.	SR 1520	US 15													
SR 1515 (Horner Siding Rd.)			Granville County	4.30	20	2	10	60	55	14100	1300	2900	Other Major Thoroughfares	2B	60
Horner Siding Rd.	SR 1514	SR 1522													
SR 1521 (Huntsboro Rd., Tabbs Creek Rd.)			Granville County	0.70	20	2	10	60	55	14100	1400	5500	Other Major Thoroughfares	2B	60
Huntsboro Rd.	SR 1514	Flat Creek	Granville County	2.60	20	2	10	60	55	14100	1500	5500	Other Major Thoroughfares	2B	60
Huntsboro Rd.	Flat Creek	SR 1522	Granville County	2.36	22	2	10	60	55	14100	1700	3500	Other Major Thoroughfares	2B	60
Tabbs Creek Rd.	SR 1522	US 158													
SR 1522 (Salem Rd.)			Granville County	0.88	20	2	10	60	35	9500	1600	4700	Other Major Thoroughfares	2E	60
Salem Rd.	US 158 Bus	US 158	Granville County	0.32	20	2	10	60	45	13600	2900	4700	Other Major Thoroughfares	2G	85
Salem Rd.	US 158	SR 1515	Granville County	1.90	20	2	10	60	45	13600	1300	4700	Other Major Thoroughfares	2G	85
Salem Rd.	SR 1515	SR 1521	Granville County	1.91	18	2	10	60	55	14100	850	2500	Other Major Thoroughfares	2A	60
Salem Rd.	SR 1521	Vance Co.													
SR 1523 (Landis Rd.)			Granville County	1.39	18	2	10	30	55	14100	x	300	Other Major Thoroughfares	2A	60
Landis Rd.	SR 1522	SR 1521													
SR 1600 (Antioch Rd.)			Granville County	1.99	18	2	10	60	45	13600	1800	5000	Other Major Thoroughfares	2G	85
Antioch Rd.	US 158	SR 1606	Granville County	2.08	18	2	10	60	45	13600	770	2000	Other Major Thoroughfares	2G	85
Antioch Rd.	SR 1606	SR 1613													
SR 1602 (Henderson St., E Front St., Main St.)			Oxford	1.00	20	2	10	60	55	14100	750	5000	Other Major Thoroughfares	2A	60
Henderson St.	SR 1646	Raleigh St.	Oxford	0.15	20	2	10	60	35	9500	2,300	5000	Other Major Thoroughfares	2E	60
E Front St.	Raleigh St.	Main St.	Oxford	0.19	20	2	10	60	35	9500	2100	8000	Other Major Thoroughfares	2E	60
Main St.	Front St.	SR 1207	Oxford	0.14	20	2	10	60	35	9500	3700	8000	Other Major Thoroughfares	2E	60
Main St.	SR 1207	US 158 Bus													
SR 1606 (West Antioch Dr.)			Oxford	0.74	18	2	10	60	45	10900	900	2000	Other Major Thoroughfares	2B	60
West Antioch Rd.	SR 1600	Coon Creek	Granville County	1.00	18	2	10	60	45	10900	1700	2000	Other Major Thoroughfares	2B	60
West Antioch Rd.	Coon Creek	NC 96													
SR 1607 (Knotts Grove Rd.)			Granville County	1.31	20	2	10	60	55	14100	1700	5000	Other Major Thoroughfares	2B	60
Knotts Grove Rd.	SR 1648	SR 1608													
SR 1609 (Fairport Rd.)			Granville County	1.42	20	2	10	x	55	14100	2300	5000	Other Major Thoroughfares	2B	60
Fairport Rd.	NC 96	SR 1612	Granville County	0.25	24	2	10	60	55	14100	2000	5000	Other Major Thoroughfares	2B	60
Fairport Rd.	SR 1612	SR 1613													
SR 1613 (Fairport Rd.)			Granville County	4.33	20	2	10	60	55	14100	1500	5000	Other Major Thoroughfares	2B	60
Fairport Rd.	SR 1609	Vance Co.													

HIGHWAY	Section			2015 Existing System								2045 Proposed System			
Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2015/ 2014 Traffic Volume	2045 Traffic Volume	CTP Classification	Proposed Cross Section	ROW (ft)
SR 1646 (Industry Dr., Henderson St.)			Granville County	1.00	24	2	12	60	35	10200	10000	15000	Other Major Thoroughfares	4D	110
Industry Dr.	US 15	Oxford SCL	Oxford	0.15	36	3	12	80	35	11700	8700	15000	Other Major Thoroughfares	4D	110
Industry Dr.	Oxford SCL	NC 96	Oxford	1.01	28	2	12	60	35	10200	7400	15000	Other Major Thoroughfares	4D	110
Industry Dr.	NC 96	SR 1602	Oxford	1.06	24	2	12	60	55	10200	3400	15000	Other Major Thoroughfares	4B	130
Henderson St.	SR 1602	US 158													
SR 1647 (Herbert Henley Rd.)			Granville County	1.07	20	2	10	x	55	14100	x	1000	Other Major Thoroughfares	2B	60
Herbert Henley Rd.	US 15	Dead End	Granville County	1.42	24	2	10	100		14100	x	1000	Other Major Thoroughfares	2B	60
Herbert Henley Rd.	Dead End	SR 1646													
SR 1648 (Knotts Grove Rd.)			Granville County	0.80	21	2	10	60	55	14100	1700	5000	Other Major Thoroughfares	2B	60
Knotts Grove Rd.	US 15	SR 1607													
SR 1649 (New Commerce Dr.)			Granville County	1.08	20	2	10	x	35	9500	120	2000	Other Major Thoroughfares	2E	60
New Commerce Dr.	NC 96	Dead End	Granville County	0.70	24	2	10	100	35	9500	x	2000	Other Major Thoroughfares	2E	60
New Commerce Dr.	Dead End	SR 1607													
SR 1650 (Raleigh St.)			Oxford	0.85	22	2	10	x	35	9500	130	4500	Other Major Thoroughfares	2E	60
Raleigh St.	SR 1606	Dead End	Oxford	0.64	24	2	10	100	55	14100	x	4500	Other Major Thoroughfares	2A	60
Raleigh St.	Dead End	SR 1652													
SR 1652 (Tabbs Creek Church Rd.)			Oxford	1.01	20	2	10	x	55	14100	1700	3500	Other Major Thoroughfares	2A	60
Tabbs Creek Church Rd.	SR 1522	US 158													
SR 1665 (Spring St.)			Oxford	0.25	20	2	10	60	35	9500	1300	4000	Other Major Thoroughfares	2E	60
Spring St.	US 158 Bus	Parker St.													
Cherry St.			Oxford	0.12	18	2	10	30	35	9500	1800	3200	Other Major Thoroughfares	2E	60
Cherry St.	SR 1206	Goshen St.	Oxford	0.57	18	2	10	30	35	9500	490	1500	Other Major Thoroughfares	2E	60
Cherry St.	Goshen St.	SR 1167													
Goshen St.			Oxford	0.46	20	2	12	50	35	11100	3000	5500	Other Major Thoroughfares	2E	60
Goshen St.	US 158	SR 1170													
See SR 1170 (Goshen St.)			Oxford	0.26	30	2	10	50	35	9500	680	1200	Other Major Thoroughfares	2E	60
Goshen St.	SR 1232	Cherry St.													
McClanahan St.			Oxford	0.28	52	4	10	70	35	19000	2000	3500	Other Major Thoroughfares	4D	110
McClanahan St.	SR 1004	SR 1206													
Orange St.			Oxford	0.11	29	2	10	x	35	9500	x	8000	Other Major Thoroughfares	2E	60
Orange St.	US 15	Spring St.	Oxford	0.14	29	2	10	x	35	9500	x	8000	Other Major Thoroughfares	2E	60
Orange St.	Spring St.	Sycamore St.	Oxford	0.11	24	2	10	100	35	9500	x	8000	Other Major Thoroughfares	2E	60
Orange St.	Sycamore St.	W Front St.	Oxford	0.35	22	2	10	x	35	9500	x	8000	Other Major Thoroughfares	2E	60
Orange St.	W Front St.	5th St.	Oxford	0.06	24	2	10	x	35	9500	x	8000	Other Major Thoroughfares	2E	60
Orange St.	5th St.	Easy St.													
Raleigh St.			Oxford	0.78	24	2	12	50	35	10200	x	4500	Other Major Thoroughfares	2E	60
Raleigh St.	SR 1646	SR 1602													
Spring St.			Oxford	0.81	48	2	10	60	35	9500	1340	3000	Other Major Thoroughfares	2E	60
Spring St.	US 158	SR 1602													
W Front St.			Oxford	0.30	32	2	12	60	35	10200	2300	5000	Other Major Thoroughfares	2E	60
W Front St.	Raleigh St.	NC 96	Oxford	0.20	28	2	12	40	35	10200	x	5000	Other Major Thoroughfares	2E	60
W Front St.	NC 96	Elm St.	Oxford	0.11	24	2	12	100	35	10200	x	5000	Other Major Thoroughfares	2E	60
W Front St.	Elm St.	Maple St.													
Creedmoor Connector				1.91	x	x		x					Freeway	4D	110
Creedmoor Connector	NC 56	US 15		1.10	x	x		x					Freeway	4D	110
Creedmoor Connector	US 15	NC 50		1.60	x	x		x					Freeway	4D	110
Creedmoor Connector	NC 50	SR 1700													
Oxford Orphanage Rd. (New Connector)				1.03	24	2		100							

Oxford Orphanage Rd	US 15/NC 96	US 158 Bus														
Northern Connector (New Connector 1)				0.87	24	2		100								
Northern Connector	Oxford Orphange R	US 158														
Northeastern Connector (New Connector 2)				0.96	24	2		100								
Northeastern Connector	US 158 Bus	US 158														
HIGHWAY					**2015 Existing System**							**2045 Proposed System**				
	Section															
Facility	**From**	**To**	**Jurisdiction**	**Dist. (mi)**	**Total Width (ft**	**Lanes**	**Lane Width (ft)**	**ROW (ft)**	**Speed Limit (mph)**	**Existing Capacity (vpd)**	**2015/ 2014 Traffic Volume**	**2045 Traffic Volume**	**CTP Classification**	**Proposed Cross Section**	**ROW (ft)**	
NEW LOCATION PROJECTS:				0.96	x	N/A		80								
Roxboro Rd Ext	Roxboro Rd.	US 158		0.83	x	N/A		80								
Oxford Northern Connector	Roxboro Rd Ext	US 158		0.30	x	N/A		80								
Holly Dr Ext	Holly Dr.	Northeastern Connector		0.73	x	N/A		80								
Northeastern Connector	Denard St.	US 158		0.30	x	N/A		80								
Maple Dr. Ext	E Industry Dr.	Maple Dr.		0.10	x	N/A		80								
6th St Ext	6th St	Maple Dr. Ext.		0.15	x	N/A		80								
W Front St Ext	Maple Dr.	Orange St.		0.74	x	N/A		100								
Old Weaver Northside Connector	Old Weaver Trail	Northside Rd		2.05	x	N/A		120								
Creedmoor Loop C	US 15	Brassfield Rd		0.63	x	N/A		80								
Oxford Service Rd Connector	Pulpwood Yard Rd	Tabbs Creek Church Rd		2.05	x	N/A		100								
Butner Western Loop	W B St	Veasey Rd		1.13	x	N/A		80								
Roberts Chapel Rd Relocation	Range Rd	Roberts Chapel		1.18	x	N/A		80								
W D St Ext.	Highland Dr.	W D St.		0.34	x	N/A		80								
WD St. - WB St. Connector	WB St.	WD St. Ext		1.23	x	N/A		80								
Herbert Henley Rd Ext	Herbert Henley Rd	US 15		1.28	x	N/A		80								
Sanders Rd Ext East	US 15	Hester Rd.		1.21	x	N/A		80								
Sanders Rd Ext West	Belltown Rd	Old NC 75		1.28	x	N/A		80								
24th St. Ext.	E Lyon Station Rd	EC St.		2.31	x	N/A		80								
I 85 Service Road	Gate 2 Road	NC 56		1.59	x	N/A		120								
Creedmoor Loop A	NC 56	US 15														
Munns Rd New Location Section	SR 1728	Munns Rd														

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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.

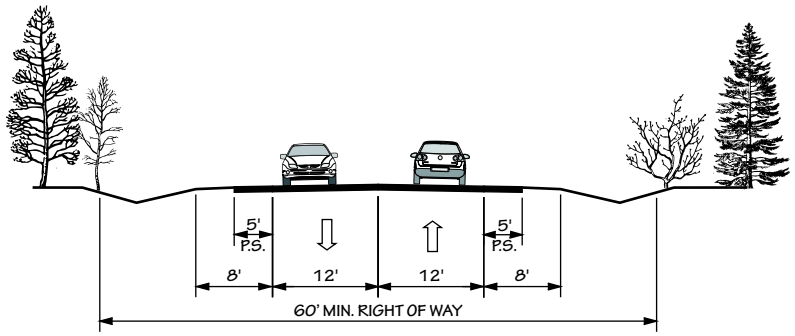
On all existing and proposed roadways delineated on the CTP, adequate right-of-way should be protected or acquired for the recommended cross sections. In addition to cross section and right-of-way recommendations for improvements, Appendix C may recommend ultimate needed right-of-way for the following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

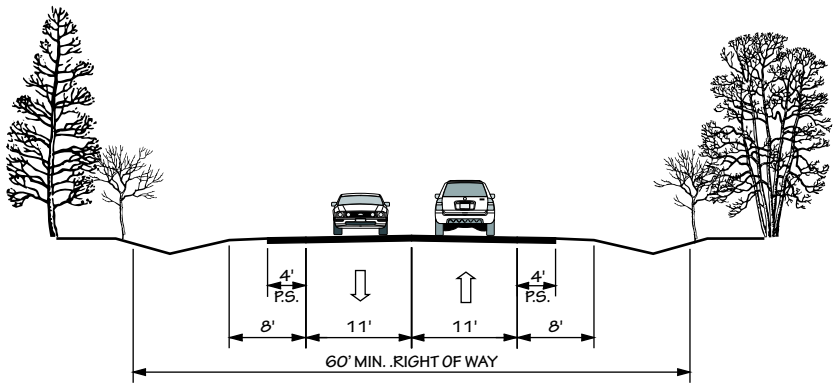
2A



2 LANE UNDIVIDED WITH PAVED SHOULDERS

POSTED SPEED 55 MPH

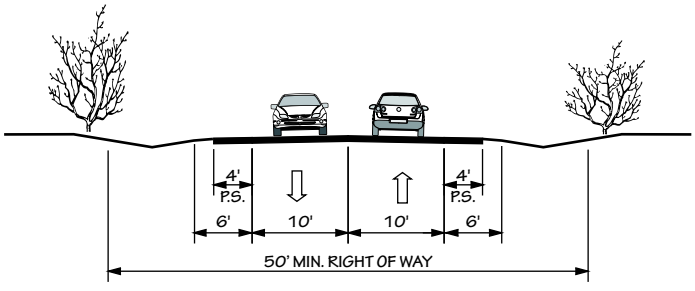
2B



2 LANES UNDIVIDED

POSTED SPEED 45 MPH OR LESS

2C



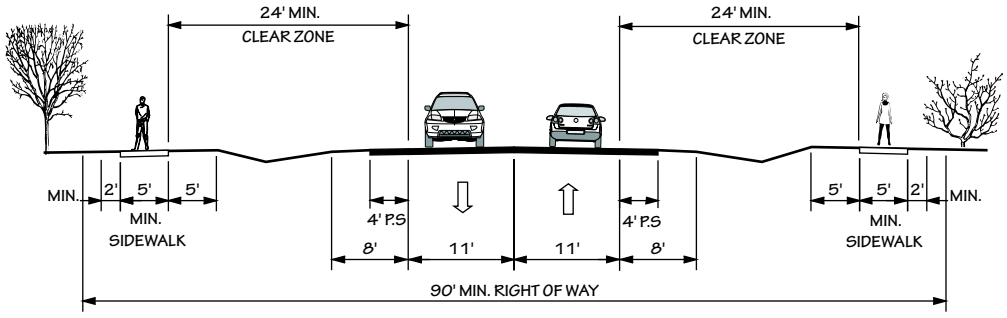
2 LANE UNDIVIDED WITH PAVED SHOULDERS

POSTED SPEED 25 - 35 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

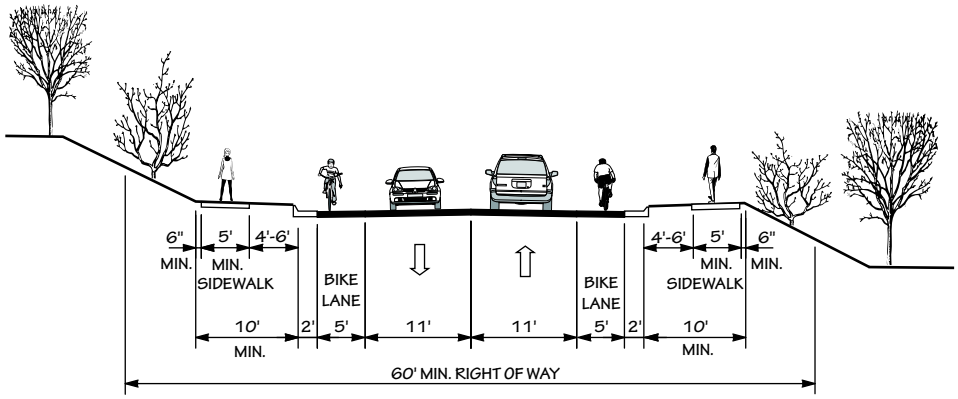
2D



2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 25-45 MPH

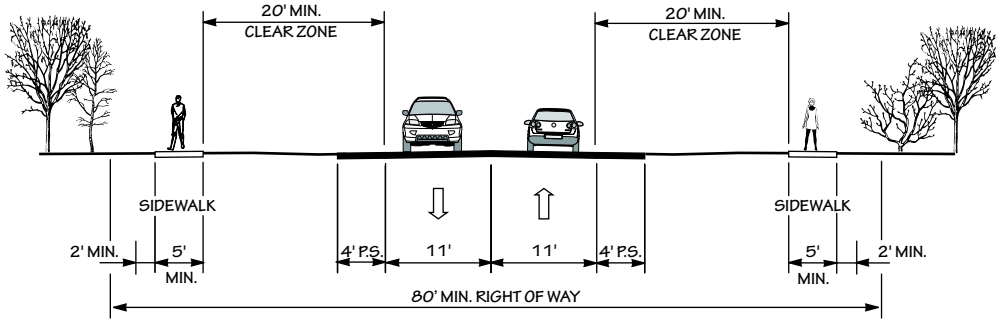
2E



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

POSTED SPEED 25-45 MPH

2F



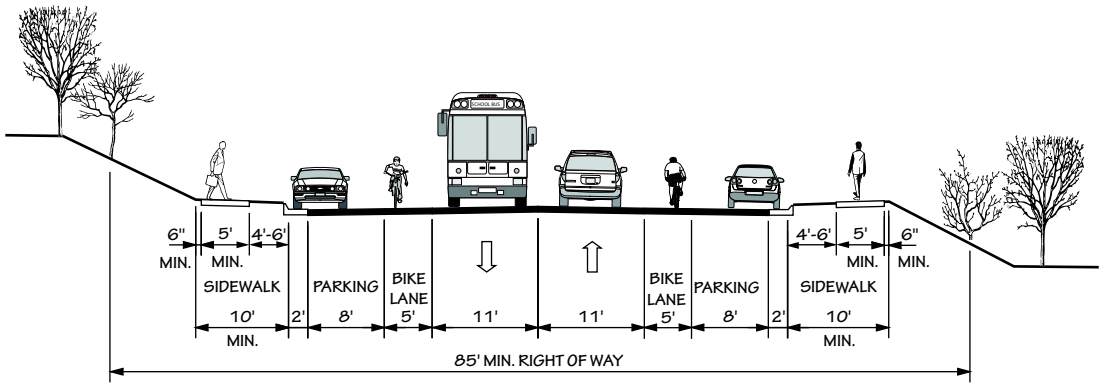
2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS
IN CAMA COUNTIES

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

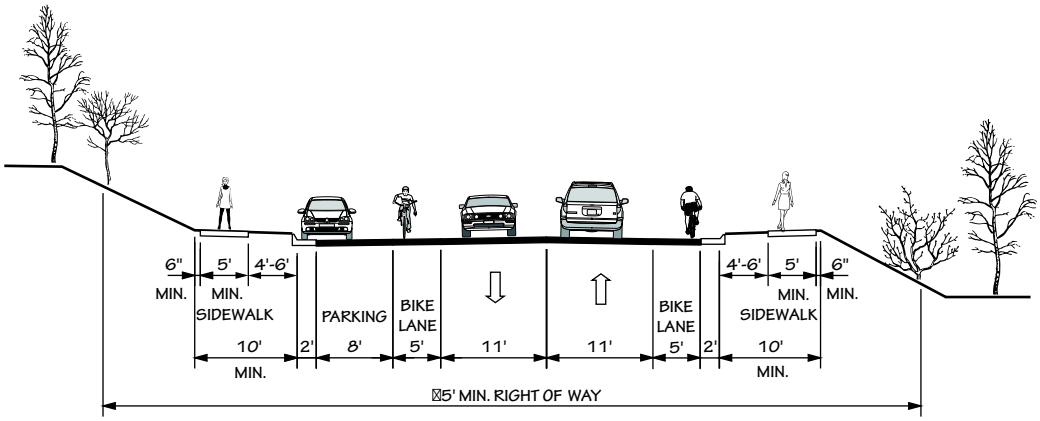
2G



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

POSTED SPEED 25-45 MPH

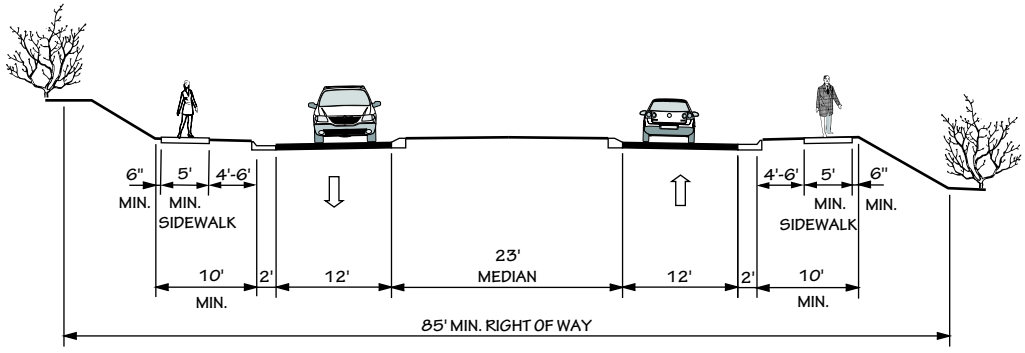
2H



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

POSTED SPEED 25-45 MPH

2I



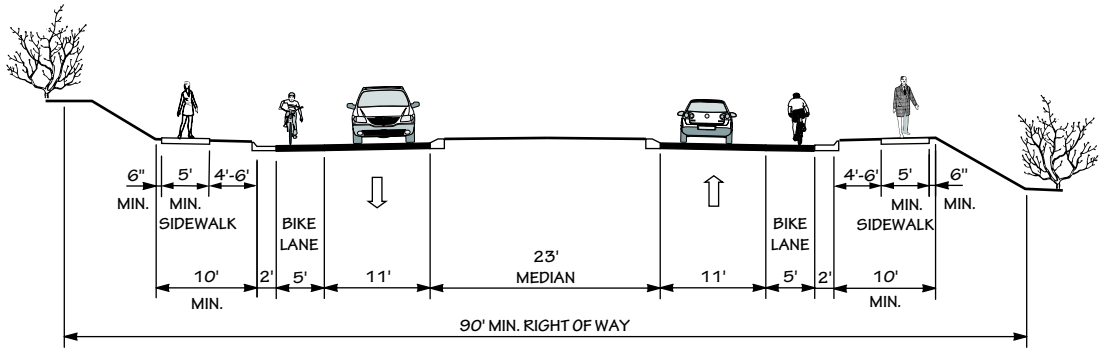
2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER AND SIDEWALKS

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

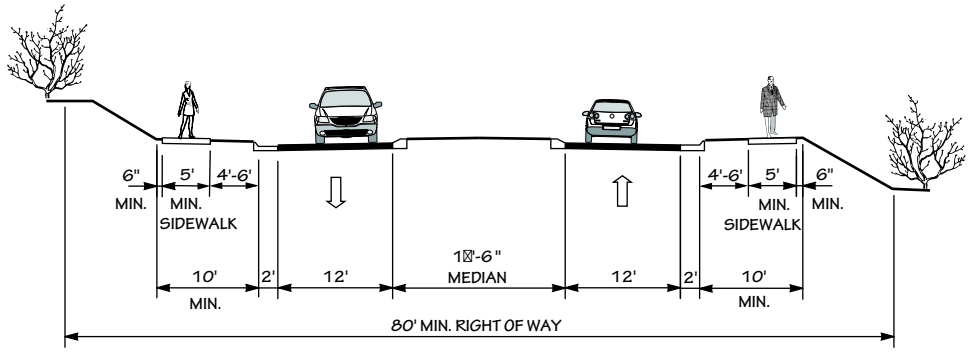
2J



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

POSTED SPEED 25-45 MPH

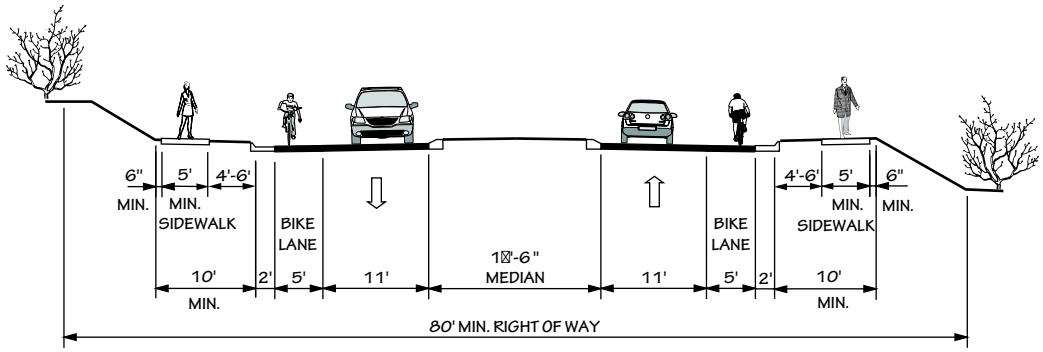
2K



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

POSTED SPEED 25-45 MPH

2L



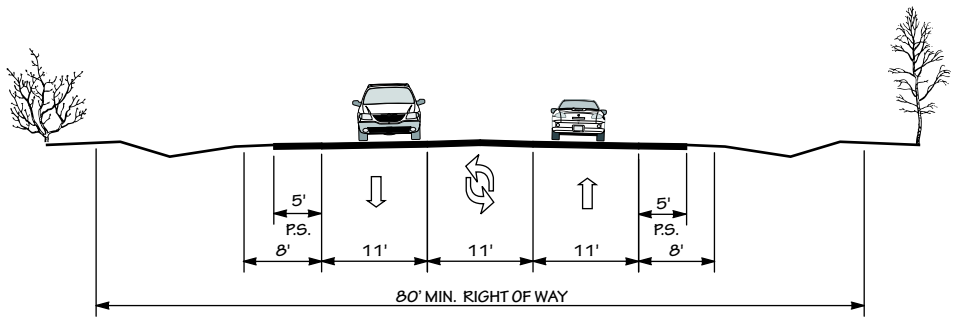
2 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

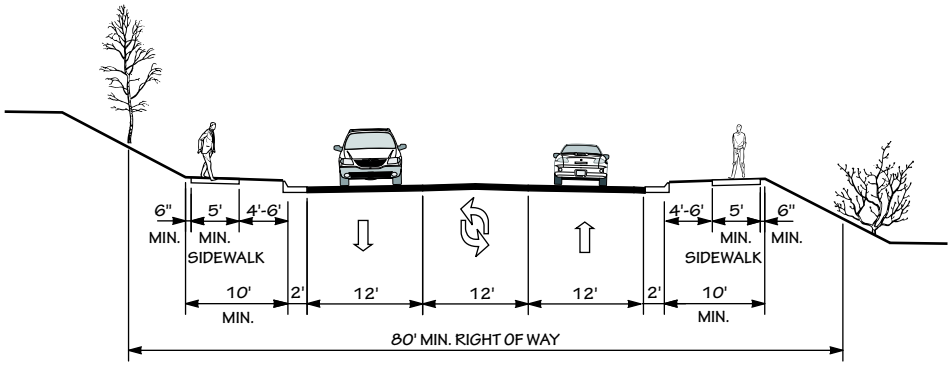
3A



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

POSTED SPEED 25-55 MPH

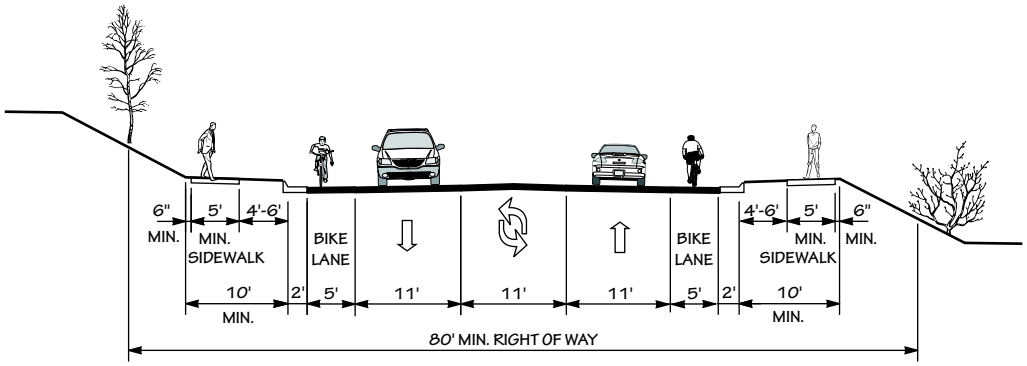
3B



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

POSTED SPEED 25-45 MPH

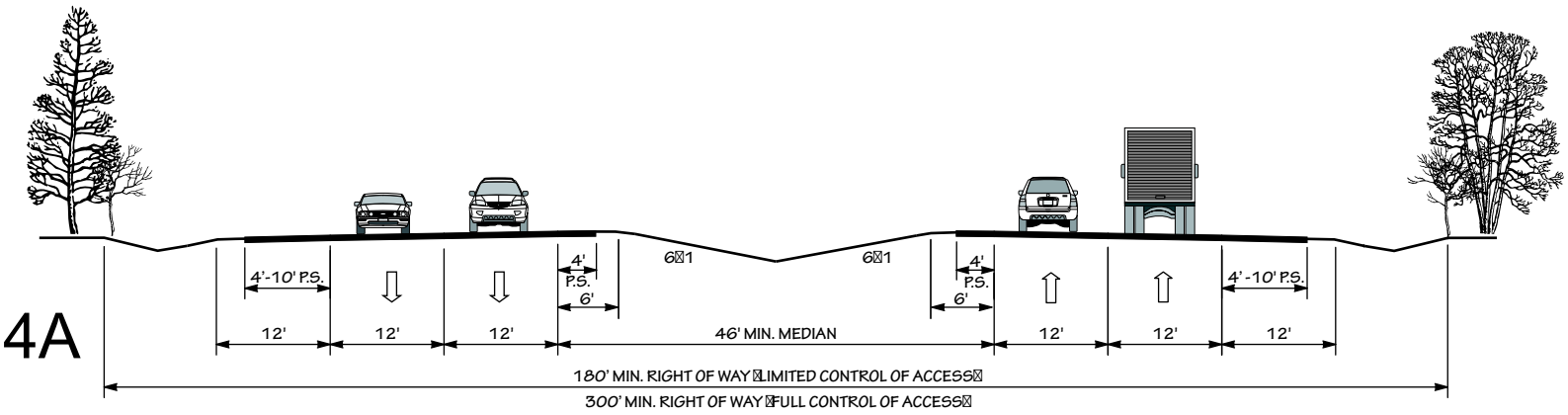
3C



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

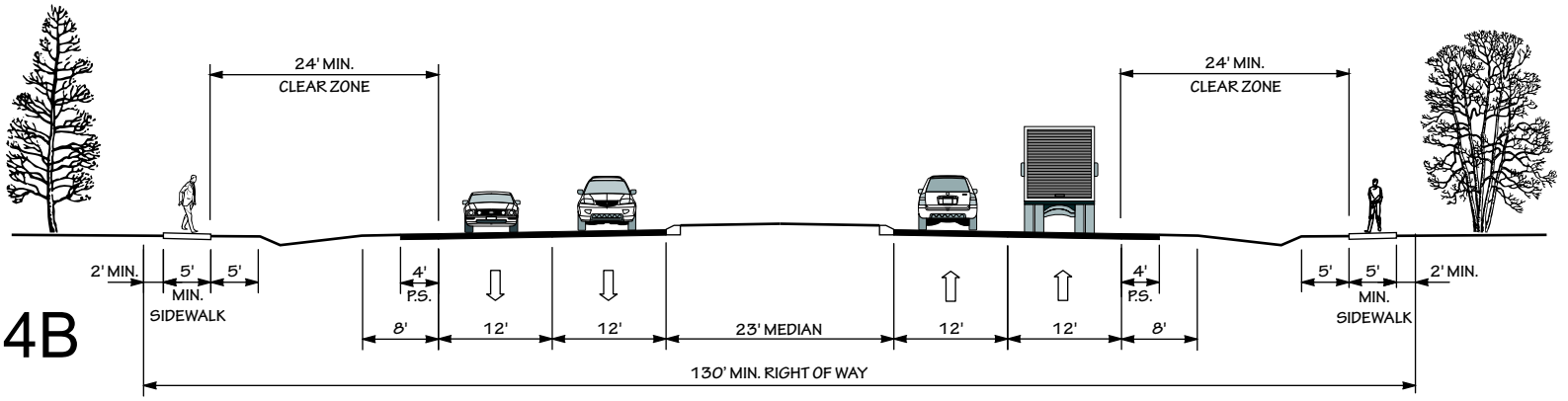
POSTED SPEED 25-45 MPH

"TYPICAL" HIGHWAY CROSS SECTIONS



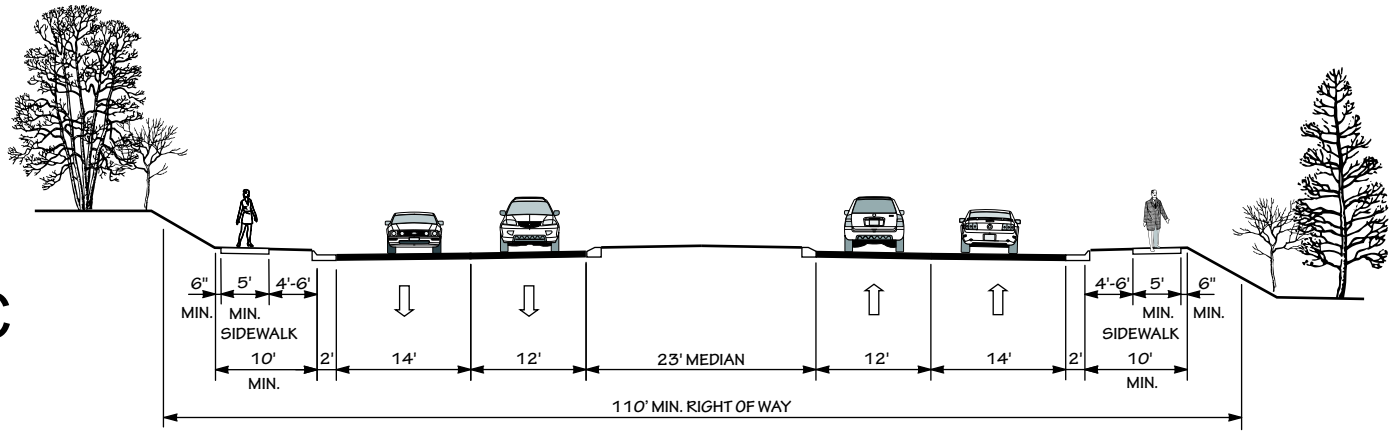
4 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS

POSTED SPEED 45-50 MPH



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

POSTED SPEED 35-55 MPH



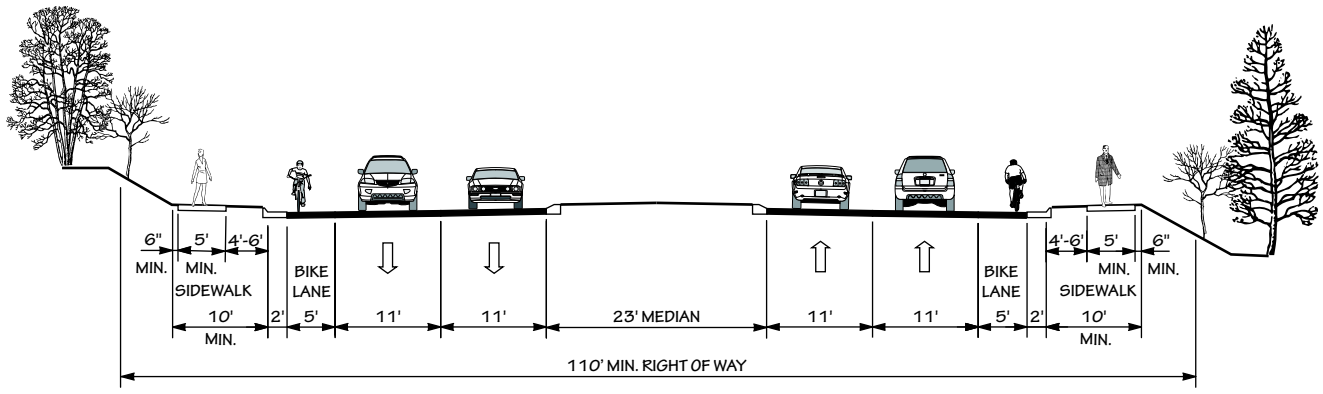
4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

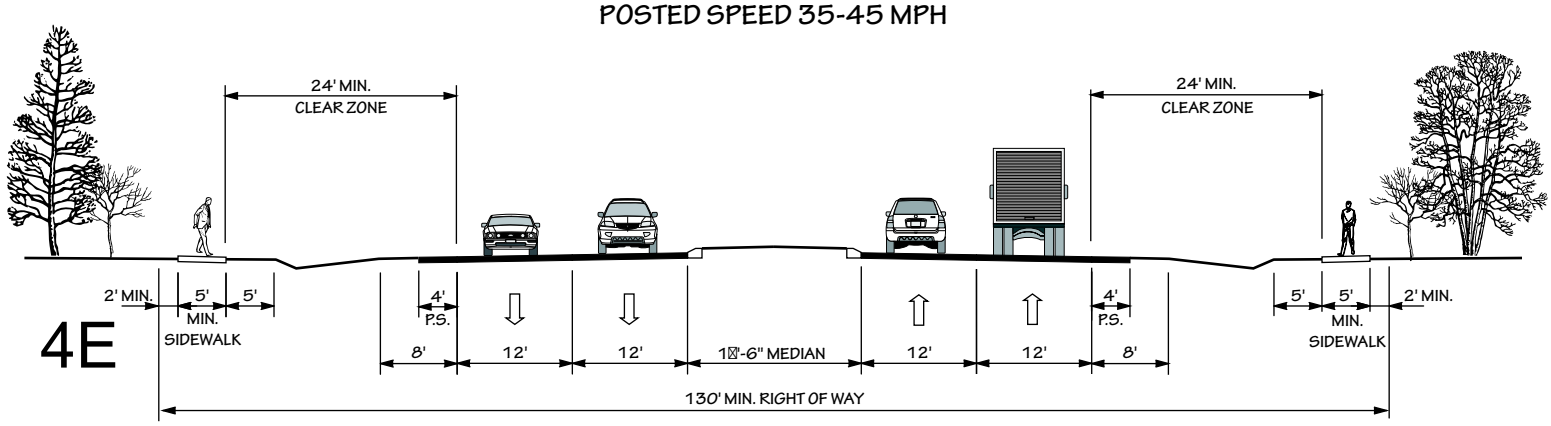
4D



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

POSTED SPEED 35-45 MPH

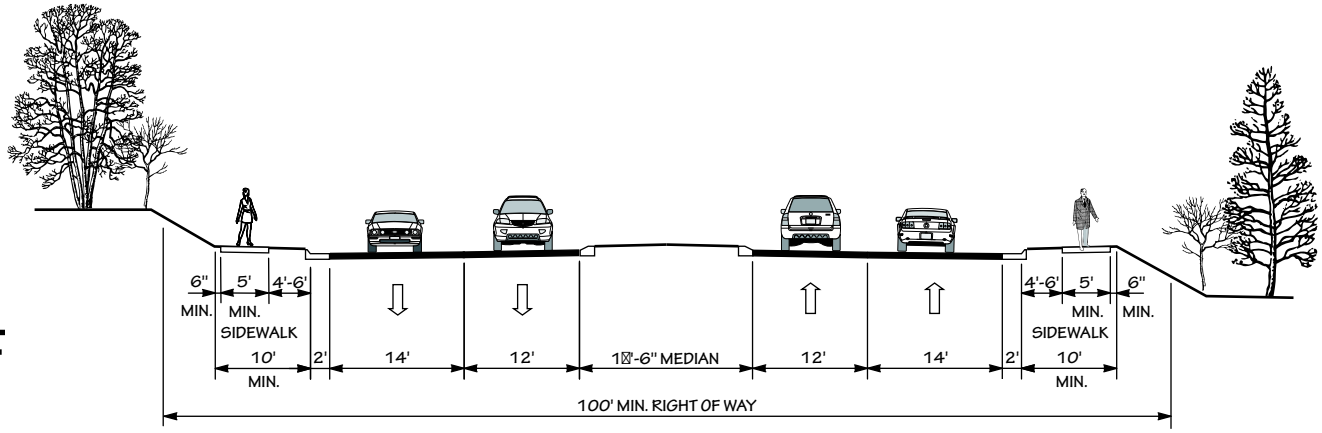
4E



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

POSTED SPEED 35-55 MPH

4F



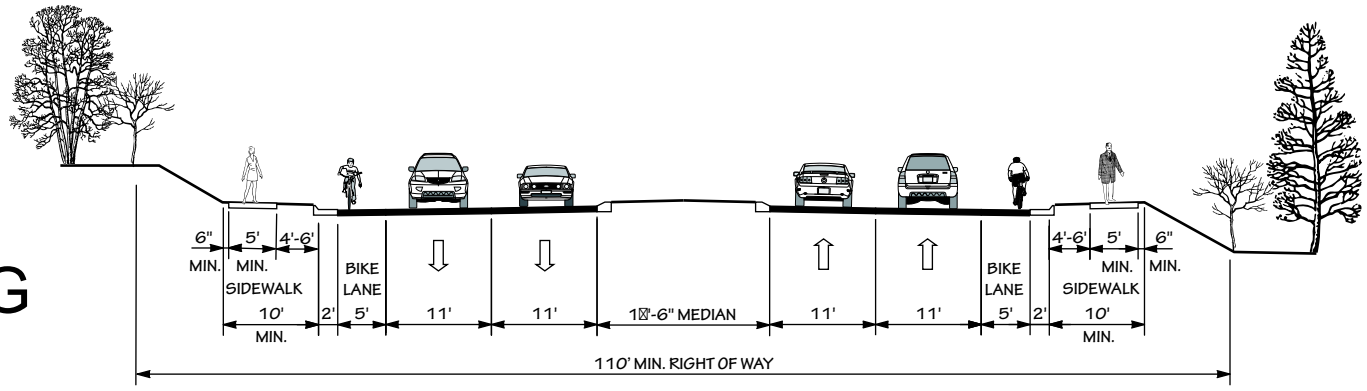
4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

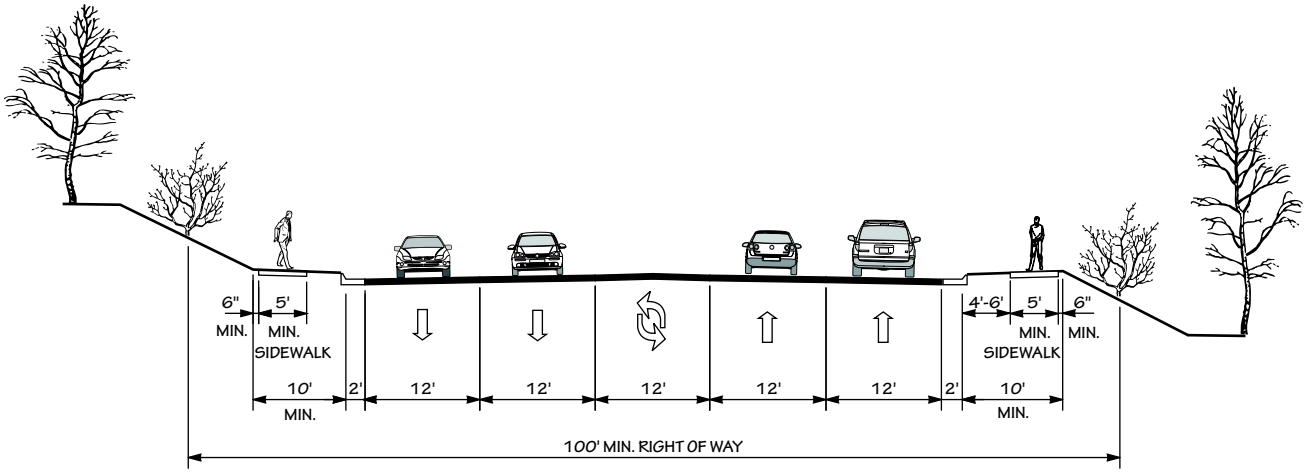
4G



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

POSTED SPEED 35-45 MPH

5A

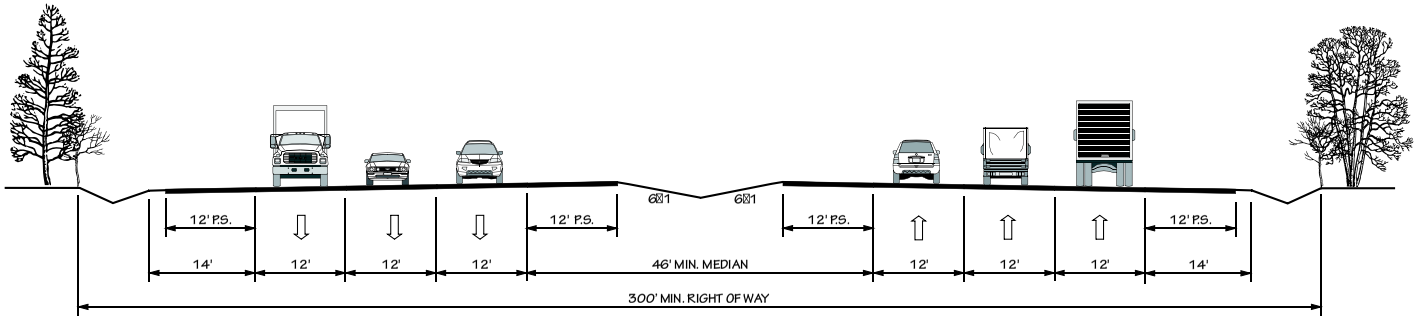


4 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, AND SIDEWALKS

POSTED SPEED 35-45 MPH

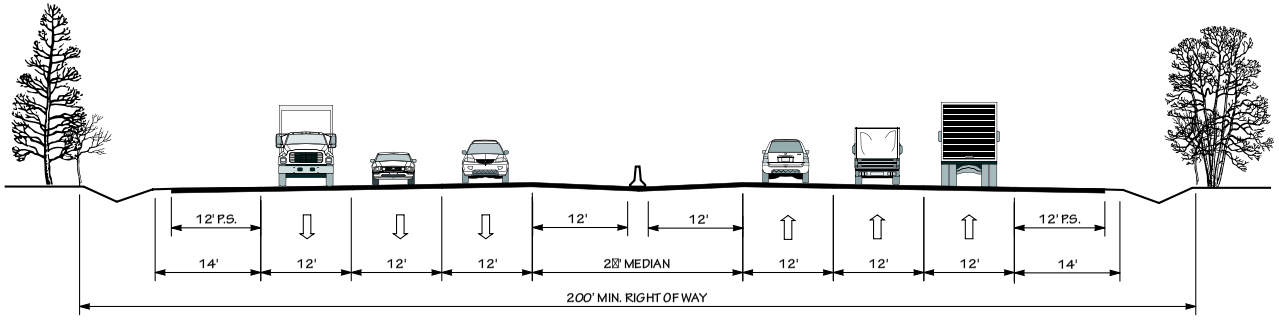
Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS



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

POSTED SPEED 45-50 MPH

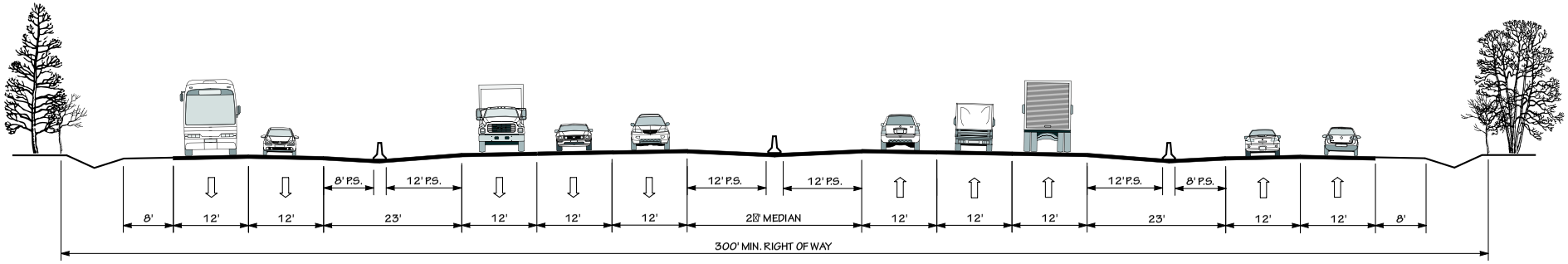


6B 6 LANE DIVIDED (27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS

POSTED SPEED 55-60 MPH

Revised 05/05/2014

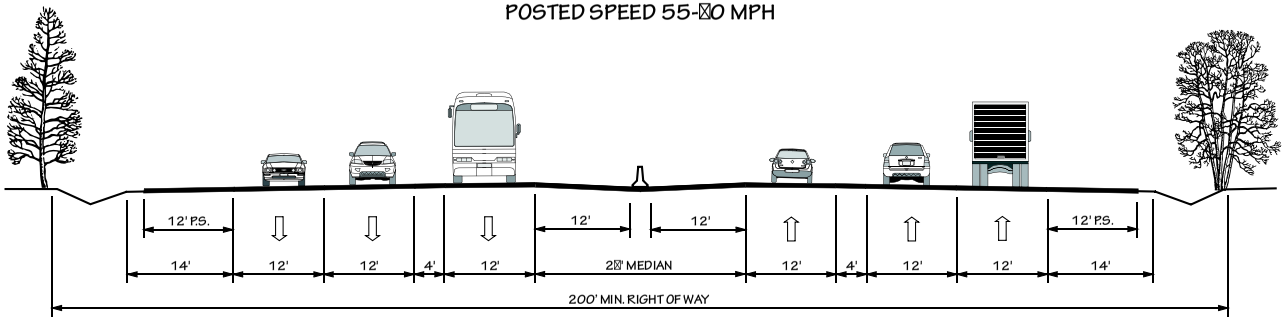
"TYPICAL" HIGHWAY CROSS SECTIONS



6C

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

POSTED SPEED 55-60 MPH



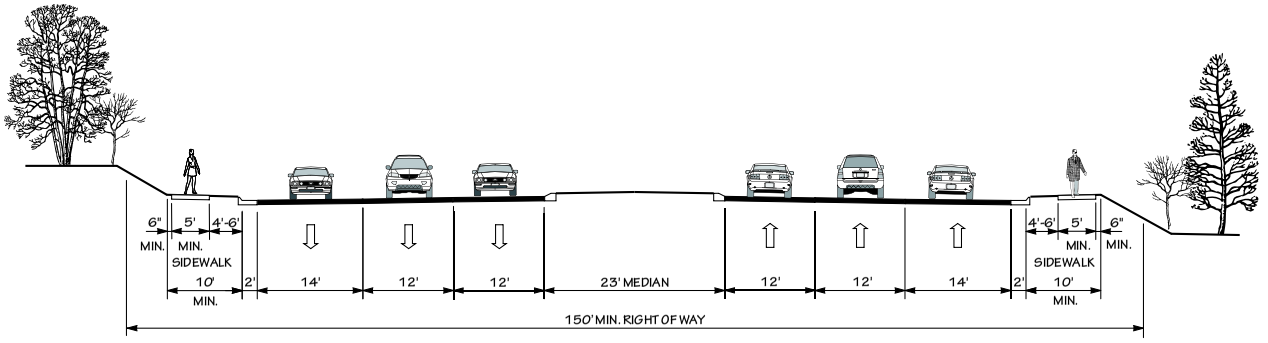
6D

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

POSTED SPEED 55-60 MPH

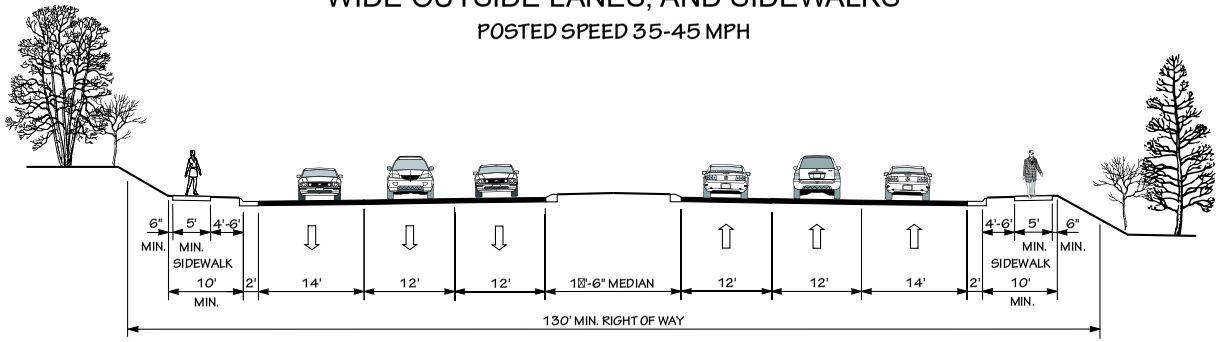
Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS



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

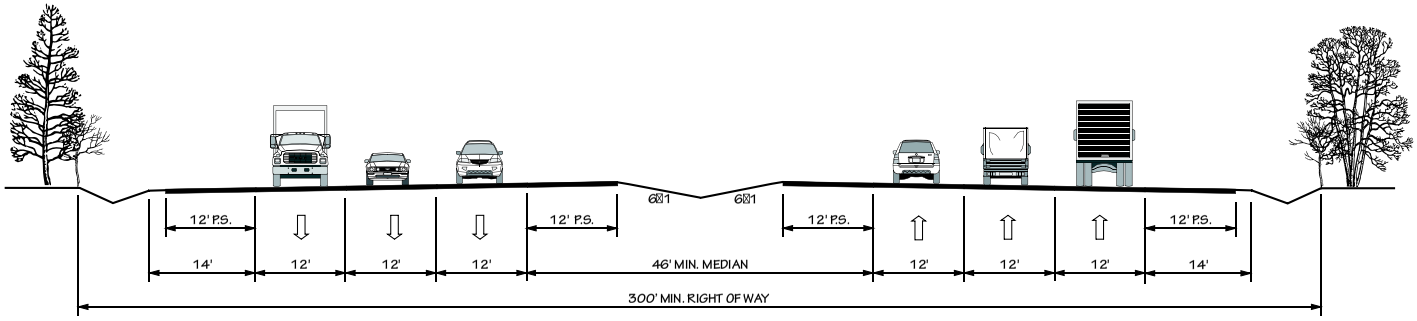
POSTED SPEED 35-45 MPH



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

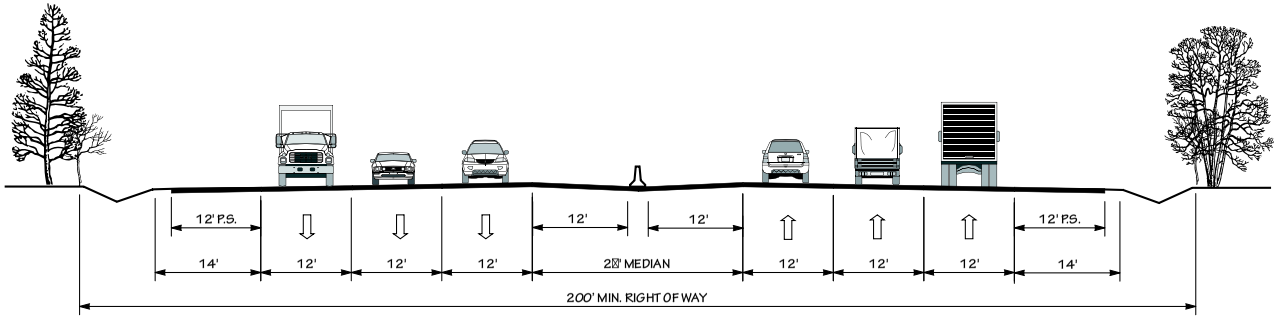
POSTED SPEED 35-45 MPH

"TYPICAL" HIGHWAY CROSS SECTIONS



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

POSTED SPEED 45-50 MPH



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

POSTED SPEED 55-60 MPH

Revised 05/05/2014

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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
2	NC56	LEDGE CREEK	FO	
4	US15	LEDGE CREEK	FO	
12	SR1609	TABB'S CREEK	SD & FO	
17	SR1623	SAND CREEK	SD	
18	SR1625	FORK CREEK	FO	
22	SR1700	BEAVERDAM CREEK	FO	
23	SR1700	BEAVER DAM CREEK	FO	
25	SR1710	SMITH CREEK	SD & FO	
34	SR1716	W. P. NEW LIGHT CREEK	SD	
40	US158	TABBS CREEK	SD	
42	SR1724	LEDGE CREEK	FO	
62	SR1004	KNAP OF REEDS CREEK	FO	
70	SR1004	TAR RIVER	FO	
74	SR1133	TAR RIVER	SD	
90	SR1145	CREEK	FO	
93	SR1156	OWEN CREEK	SD & FO	
96	SR1139	TAR RIVER	SD & FO	
107	SR1303	N FORK TAR RIVER	SD & FO	
116	SR1323	GRASSY CREEK	SD	
125	SR1400	AARON'S CREEK	SD & FO	
129	SR1400	LITTLE JOHNSON CREEK	SD & FO	
138	SR1300	GRASSY CREEK	SD	
143	SR1442	JOHNSTON CREEK	FO	
144	SR1443	JOHNHKERR RESERVOIR	FO	
148	SR1620	GIBBS CREEK	SD & FO	
154	SR1443	SPEWMARROW CREEK	FO	
176	SR1618	BOLLINS CREEK	SD	
178	SR1304	FOX CREEK	FO	
188	SR1608	FISHING CREEK	SD & FO	
199	SR1629	FORK CREEK	SD & FO	
203	SR1440	JOHNSON CREEK	FO	
220	SR1139	FORK OF REEDS CREEK	FO	
224	SR1501	CREEK	SD & FO	
241	SR1524	TABBS CREEK	SD & FO	
64	PEDESTRIAN WALKWAY	I85	FO	

Appendix G
Socio-Economic Data Forecasting Methodology

In the development of the Granville County CTP, existing and anticipated deficiencies were determined through an analysis of the transportation system looking at both current and future travel patterns. Two analysis methods were used: one for the non-modeled/rural areas and another for the more urbanized area around city of Creedmoor and city of Oxford.

For the non-modeled/rural portion of Granville County, travel demand was projected from 2015 to 2045 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1995 to 2015. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. For this CTP, the 2006 Granville County Land Use Plan was used and is illustrated in Figures 9 and 10, respectively.

The City of Oxford travel demand was projected from 2015 to 2045 using a computerized 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 2045. Additionally, travel demand models require a broad range of socio-economic input data such as population and employment. These inputs are available from sources like the U.S. Census Bureau for the year 2010, but data for 2045 is also required.

The CTP Steering Committee worked with NCDOT to estimate population growth, economic development potential, and land use trends to determine the potential impacts on the future transportation system in 2045. This data was endorsed by the Granville County Comprehensive Transportation Plan Steering Committee on July 2016.

Figure 9: Existing Land Development Plan Map (2018 Granville Comprehensive Plan)

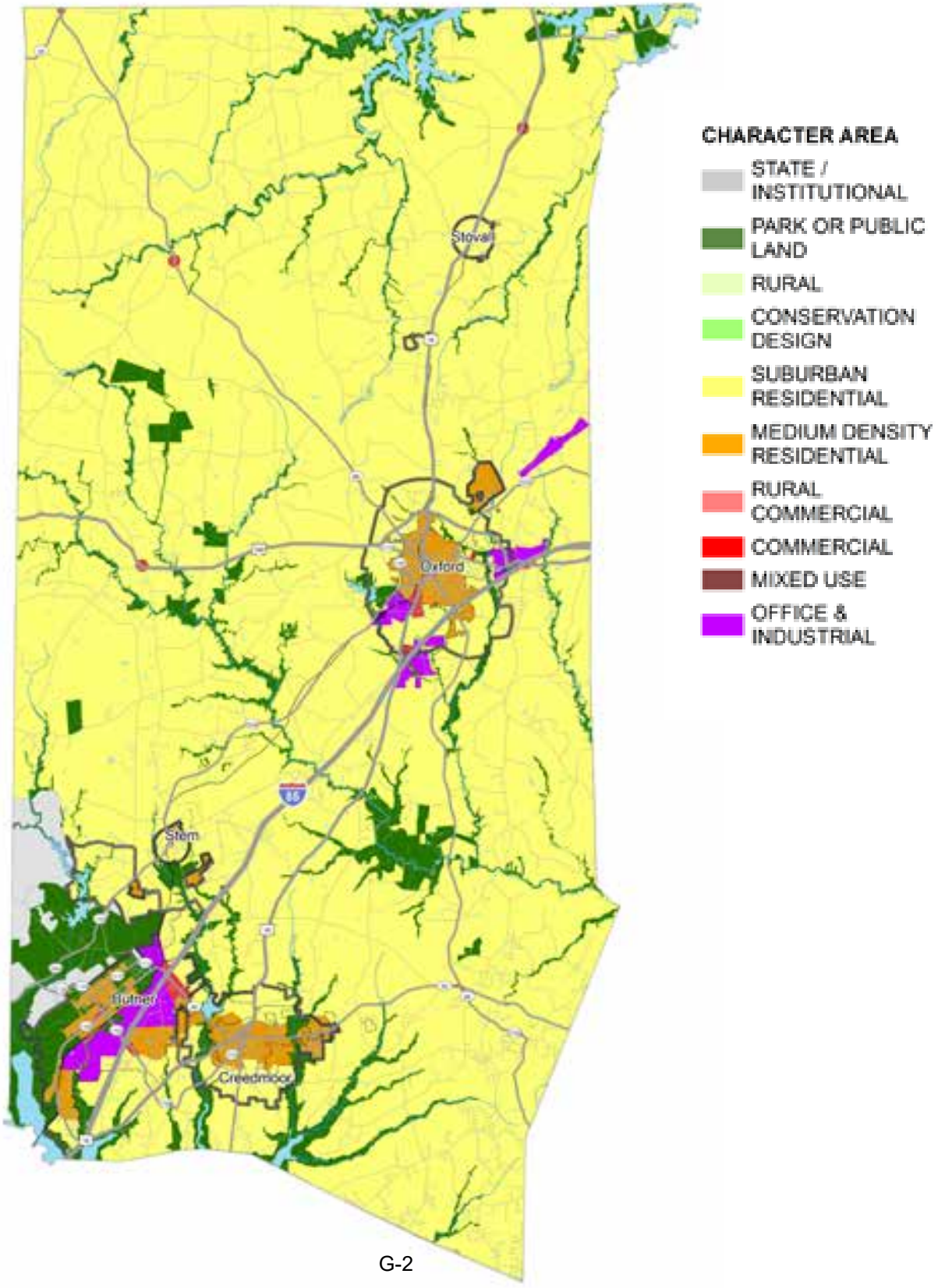
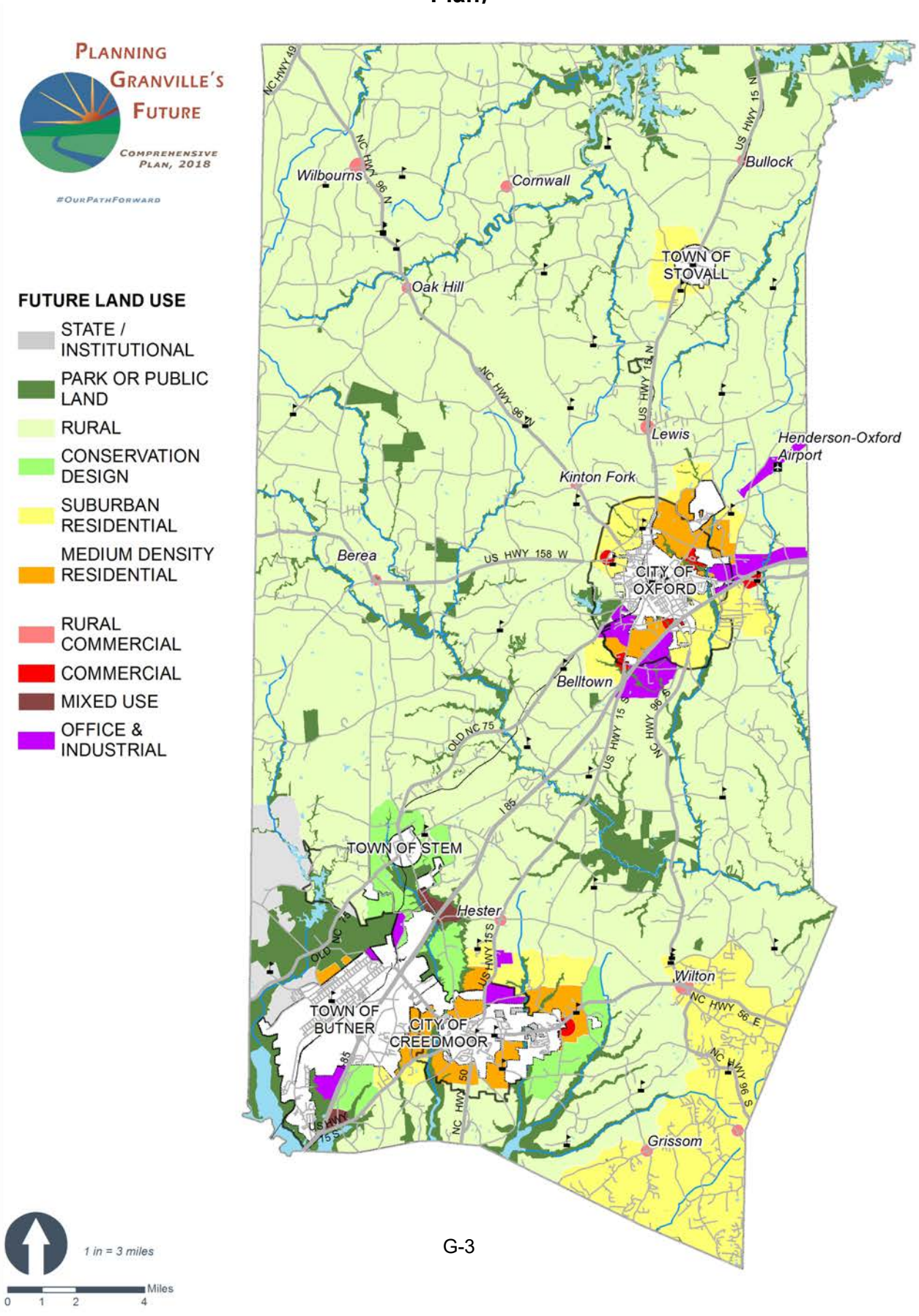


Figure 10: Future Land Development Plan Map (2018 Granville Comprehensive Plan)



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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 Granville County CTP is given below.

❖ Edgar Smoak	Granville County, Commissioner
❖ Mike Felts	Granville County, Manager
❖ Barry Baker	Granville County, Planning Director
❖ Justin Jorgensen	Granville County, Transportation Planner
❖ Scott Phillips	Granville County, Development Services Director
❖ Harry Mills	Granville County, Economic Development
❖ Vicky Cates	Town of Butner, Mayor
❖ Tommy Marrow	Town of Butner, Manager
❖ Jessica Gladwin	Town of Butner, Planner
❖ Melissa Hodges	Town of Butner, Planner
❖ Daryl Moss	City of Creedmoor, Mayor
❖ Michael Bonfield	City of Creedmoor, Manager
❖ Michael Frangos	City of Creedmoor, Planning Director
❖ Jackie Sergent	City of Oxford, Mayor
❖ Amy Ratliff	City of Oxford, City Engineer
❖ Bob Davis	City of Oxford, City Engineer
❖ Cheryl Hart	City of Oxford, Planning Director
❖ Lonnie Cole	Town of Stem, Commissioner
❖ Janet Parrott	Town of Stovall, Mayor
❖ Annie Cotton	Citizen Member
❖ Becky Currin	Citizen Member
❖ Rupal Desai	NCDOT, Transportation Planning Division
❖ Scott Walston	NCDOT, Transportation Planning Division
❖ Jason Lee	NCDOT, Granville County Maintenance NCDOT,
❖ Joey Hopkins	Division 5
❖ David Kealson	NCDOT, Division 5
❖ Ann Stroobant	Kerr-Tar RPO
❖ Paul Black	Capitol Area MPO

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.

CTP Community Vision, Goals and Objectives Statement

The CTP Committee developed a goals and objectives statement to ensure that the final CTP met its community vision.

Vision:

1) Enhance connectivity throughout the county by developing a transportation network that promotes and adequately supports economic development and is compatible with the environment and land use patterns.
2) Provide convenient, safe, reliable and affordable transportation choices and education to the public on those choices.
3) Develop a regional transportation network that improves quality of life while protecting and enhancing the environment.

Goals:

1) Improve Economic Development Countywide
   Objective 1: Improve access to major retail developments and industrial sites such as Triangle North and Falls Lake Commerce Center.
   Objective 2: Provide adequate facilities for truck travel on all truck-route designated roads in the county, including safe alternatives that reduce freight traffic within downtown districts.
2) Create better connectivity and mobility throughout the county and municipalities.
   Objective 1: Improve major NC and US routes to four-lane facilities where appropriate, and widen to a standard 24' cross section in other areas
   Objective 2: Provide adequate facilities to accommodate commuter traffic within Granville County as well as between Granville County and the Wake/Durham/RTP area.

3) Provide a comprehensive multi-modal transportation network that should improve air quality through reduction of single-occupancy vehicle trips.
Objective 1: Provide transit, bicycle, and pedestrian options for transportation within the county.
Objective 2: Educate the public about transportation options, and the benefits of choosing alternative modes of transportation.

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.

Public Meetings

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

Public Workshop # 1
The first meeting was held on October 5th, 2017 at the Granville County Senior Center in Oxford. The session was publicized in the local newspaper and was held from 4pm to 7pm. This workshop introduced the CTP draft maps to the public, as well as what could be expected of the final plan. Seven citizens were in attendance. They were given the opportunity to look over the maps and give additional feedback if anything needed to be added, removed, or changed. There were minimal comments about the plan. Those comments were included in the update of the plan.

Public Workshop # 2
The second meeting was held on October 10th, 2017 at the South Branch Library in Butner. This workshop showed the CTP draft maps to the public, approximately three citizens were in attendance. The Committee went over the adjustments from the previous meeting and they had the chance to give additional feedback if anything needed to be added, removed, or changed. There were a few comments given in reference to the Bicycle element.

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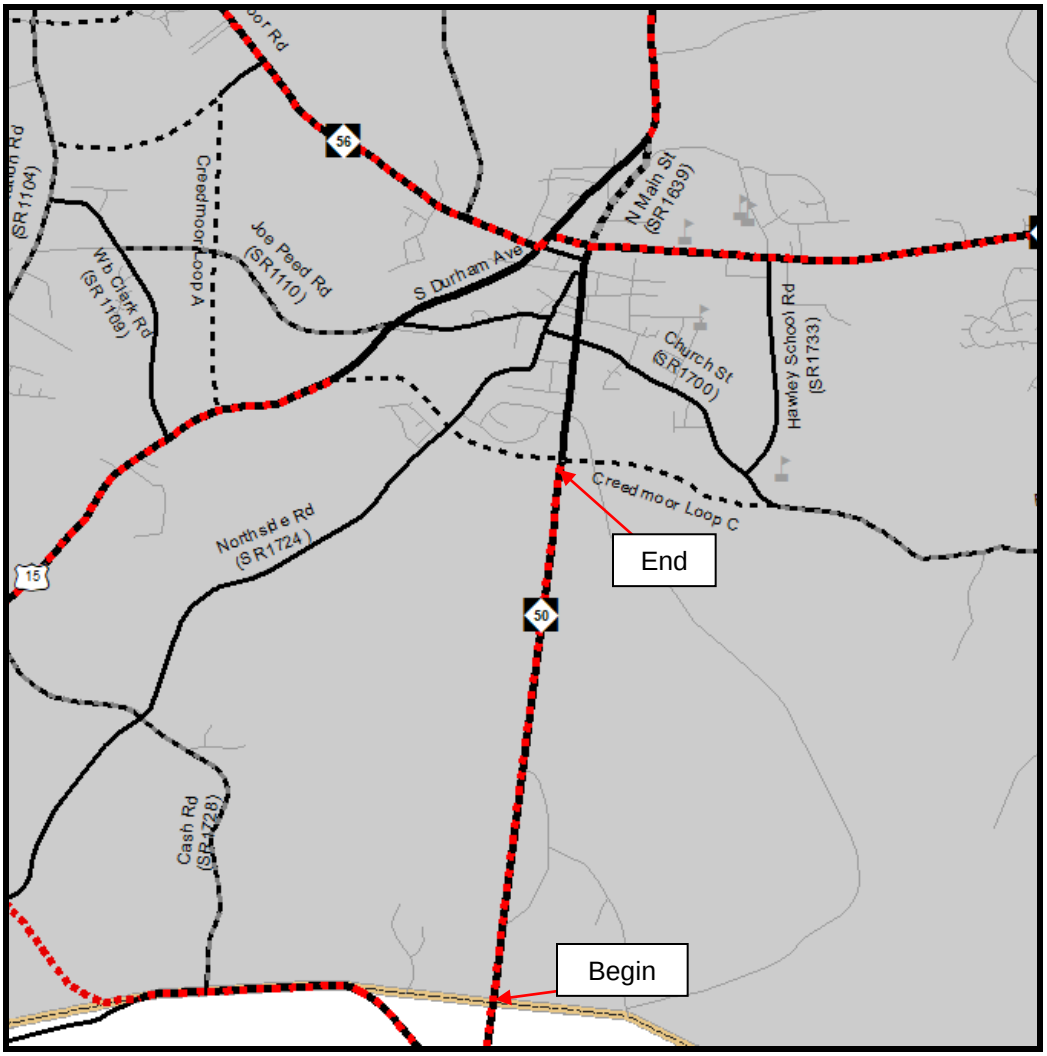
Appendix I
Unadopted Recommendations within the Capital Area Metropolitan Planning Organization

The CTP Maps show the Capital Area Metropolitan Planning Organization (CAMPO) area greyed out. The CAMPO area has been separated from the plan after the study began. Appendix I includes projects in the greyed out CAMPO Area that are not adopted.

NC 50 **Proposed improvements from Wake County Line to Creedmoor Loop**	**Project #: N/A** **Last updated on: 12/11/2018**



Identified Problem

The 2015 traffic volume of 7800 is projected to be 18000 in 2045. This section will be over capacity of 15100 by 2045. Improvements are needed to accommodate projected traffic volumes and improve mobility between Raleigh and Creedmoor such that a minimum Level of Service (LOS) D can be achieved.

Justification of Need

NC 50 is the only major route providing direct access between Creedmoor and Raleigh. Citizens and motorists in Northern Granville County also rely on NC 50 for regional connectivity to the Raleigh area. The route is heavily used by commuters from Granville County into the RTP Area. Additionally, the route is used as a link between Raleigh and the

State and Federal institutions in Butner. The area along NC 50 is primarily residential, with many undeveloped tracts of land. NC 50 is currently operating at a less than desirable level for users, especially during peak hours.

NC 50 is currently a two lane facility. NC 50 is a major north-south corridor in Granville County, connecting Creedmoor to Wake County. The growth in Creedmoor, southern Granville County and northern Wake County has resulted in increased transportation demands on this 2-lane facility. This widening is intended to improve the safety and capacity on the existing roadway.

CTP Project Proposal

Project Description

The proposed project (GRAN00X) is to widen the existing 2 lane facility to a 4 lane divided boulevard facility with a median from the Wake County line to the proposed Creedmoor Connector.

Relationship to Land Use Plans

The Granville County Comprehensive Plan (2002) states that the city of Creedmoor is anticipating an influx of both urban and suburban residential growth.

Linkage to Other Plans and Proposed Project History

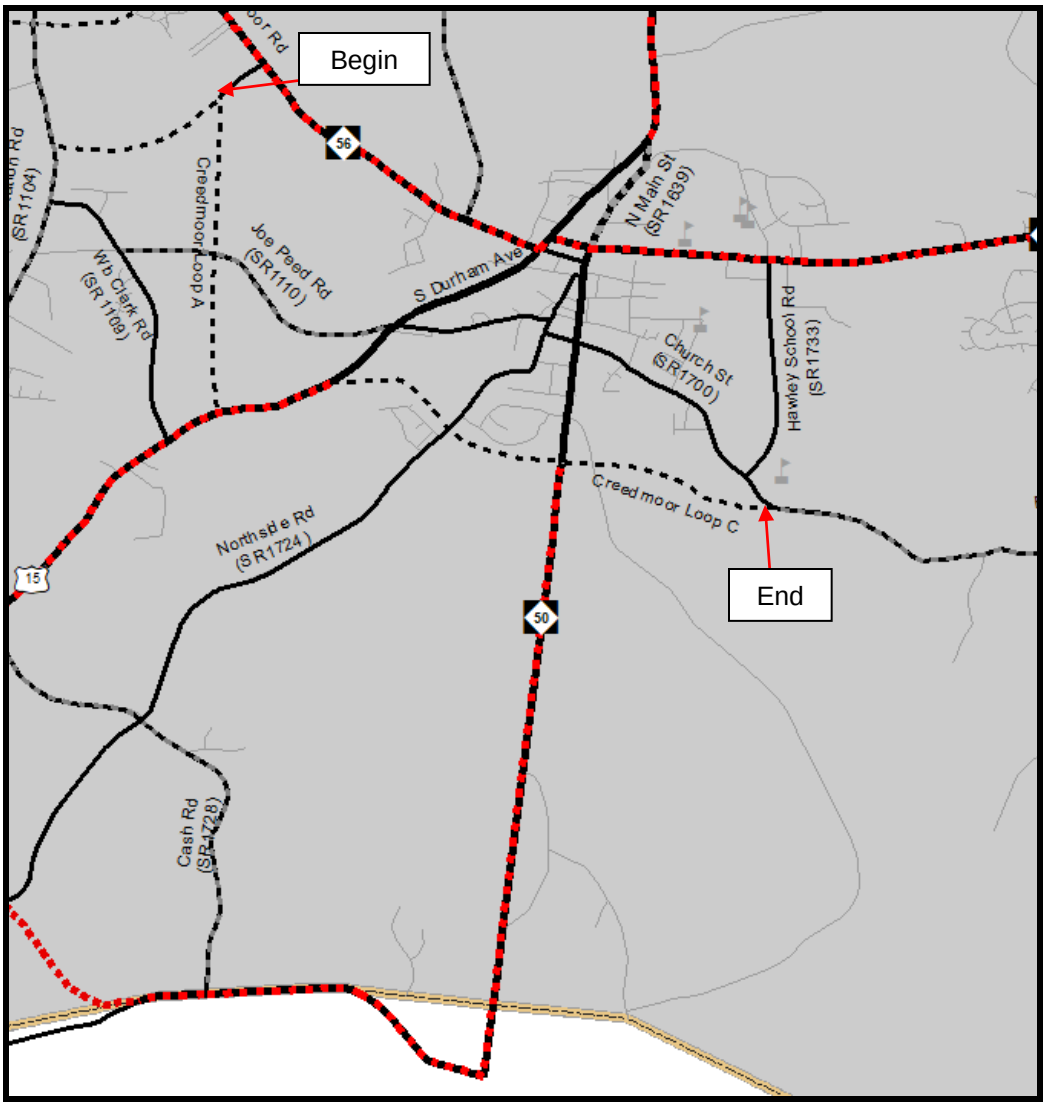
Improvements to NC 50 were identified in the previously adopted 2008 Granville County Comprehensive Transportation Plan and supported by all other municipalities in the county. It is also identified in NC 50 Corridor Study and CAMPO's 2045 Metropolitan transportation plan. Improvements to this route have been a consistent priority of the County and funding is being sought through regional channels including the MPO and RPO. An advanced planning study to identify possible solutions to the existing problems has been funded by the Capital Area MPO. Recommended bicycle/pedestrian improvements are consistent with the adopted 2006 Granville County Greenway Master Plan. Please check below link for more detailed information.

http://www.granvillegreenways.org/master-plan/

Natural and Human Environmental Context

Various instances of rare plants and animals have been noted throughout Granville County. A large portion of southern Granville County lies within a protected watershed area. A detailed field investigation is recommended prior to construction in this area.

Creedmoor Loop **Proposed improvements from NC 56 to Brassfield Road (SR 1700)**	**Project #: N/A** **Last updated on: 12/11/2018**



Identified Problem

The 2015 traffic volume of 6000 is projected to be 15000 on NC 56 from I-85 to Hawley School Road (SR 1733) will be near capacity of 15100 and with more congestion during peak hours by 2045. NC 56 is main east-west corridor in southern part of the county. The proposed Creedmoor Loop is needed to accommodate projected traffic volumes on NC 56 and improve mobility in and around Creedmoor such that a minimum Level of Service (LOS) D can be achieved.

Justification of Need

The proposed Creedmoor Loop is intended to provide better automobile and freight mobility in and around the City of Creedmoor. This facility should help to reduce congestion in downtown Creedmoor and along NC 56. The western section of Creedmoor Connector is intended to alleviate traffic on NC 56 by providing alternative access to I-85 south via US 15 south for motorists traveling from Creedmoor and points east. If this facility is not constructed then congestion and delays on NC 56 should worsen, and crashes may increase due to the projected increased volumes.

CTP Project Proposal

Project Description

This is a new location recommendation intended to improve conditions on NC 56 and Downtown Creedmoor. It is recommended that a new two lane facility should be constructed on four lane right of way and in the future if there is a need then four lanes divided boulevard facility with limited control of access can be constructed on the southwestern and southeastern sides of Creedmoor. This new facility is divided into three sections: from NC 56 to US 15; along a section of US 15; and from US 15 to Brassfield Road (SR 1700). This project, in conjunction with recommendations on Hayes Road (SR 1702) and Brassfield Road (SR 1700), should complete a southern loop around Creedmoor

Relationship to Land Use Plans

The 2002 Granville County Comprehensive Plan states that the city of Creedmoor is anticipating an influx of both urban and suburban residential growth.

Linkage to Other Plans and Proposed Project History

The Creedmoor Loop Project was identified in the previously adopted in 2008 Granville County Comprehensive Transportation Plan and was supported by all other municipalities in the county. It is also identified in CAMPO's 2045 Metropolitan transportation plan. A northern portion of Creedmoor Loop A was constructed in 2015.

Natural and Human Environmental Context

There are various sightings of rare plants and animals throughout Granville County. A detailed field investigation is recommended prior to construction in this area.

Other Highway Recommendations:
US 15, Local ID: N/A:

The 2015 traffic volume of 5700 is projected in 2045 to be 12000. This portion of this section should be near to over capacity of 15100 by 2045 during peak hours. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. This facility can be divided into multiple sections:

- US 15 (Munns Road) from I-85 to the Creedmoor Loop (section C). Widen to a 4-lane divided boulevard.
- US 15 from North Main Street (SR 1639) to Hester Road (SR 1129). Widen to a 4-lane divided boulevard.
- US 15 from Hester Road (SR 1129) to Capital Area Metropolitan Planning Area (CAMPO) boundary. Improve existing 2-lane major thoroughfare.

These improvements are needed to improve traffic flow, safety and capacity along the existing facility. US 15 provides access from the Virginia State line to Oxford and from Oxford to Creedmoor and Creedmoor to the city of Durham and the Research Triangle Park. Adding turn lanes will allow motorists to take turns without impeding the traffic flow and will help improve the north-south travel along US 15 through Creedmoor and Granville County.

NC 56, Local ID: N/A:

The 2015 traffic volume of 10000 is projected to be 15000 in 2045. NC 56 will be near to over capacity of 15100 by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It recommended to be widened from current 2-lane facility to a 4-lane divided boulevard facility with raised median on NC 56 from Franklin County Line to I-85. These improvements are needed to improve traffic flow, safety and capacity along the existing facility. With the opening of the Creedmoor Connector traffic volumes are expected to drop along this section of NC 56.

NC 96, Local ID: N/A:

This route serves all of Granville County from the south-east portion of the county to the north-west corner. Improvements are needed to improve connectivity and mobility in the Granville County. It is recommended that NC 96 be improved to a 24 ft cross section and add turn lanes where necessary from Franklin County to the CAMPO boundary.

Realignment of NC 56 (TIP R-5707):

Existing conditions require that east-west trips on NC 56 make two turning movements, utilizing part of US 15, in order to travel through Creedmoor. To improve traffic flow and safety it is recommended to realign NC 56 where it crosses US 15. This widening is intended to improve the safety and capacity of existing roadway.

Additionally, a crash assessment performed during the development of the CTP identified that this corridor experienced an average of 35 crashes between January 1, 2006 and

December 31, 2010. For additional information about this project, including Purpose and Need, contact the NCDOT Project Development and Environmental Analysis Branch.

26th St/Telecom Drive Connector (TIP U-5829):

This project improves and extends Telecom Drive from East Lyon Station Road westward to a new I-85 overpass (connecting with the rest of U-5829). This project would relieve traffic on NC 56; improve access to potential development on both sides of I-85 and provide safer, more convenient bicycle and pedestrian connectivity. For Additional information about this project, including Purpose and Need, contact the NCDOT Environmental Analysis Unit.

Northside Road (SR 1724)/Old Weaver Trail (SR 1901) with connector, Local ID: N/A:

The traffic volumes projected on Northside Road (SR 1724) and Old Weaver Trail (SR 1901) will be near to over capacity by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It recommended to be widened from current 2-lane facility to a 4-lane divided boulevard facility with raised median from Munns Road (US 15) to NC 50. Additionally, a new location connector is recommended to provide better east-west connectivity between these two routes. These improvements are needed to improve traffic flow, safety, and capacity along the existing facility.

Munns Road (SR 1725), Local ID: N/A:

The traffic volumes projected on Munns Road (SR 1725) will be near to over capacity by 2045. Improvements are needed to accommodate projected traffic volumes such that a minimum of Level of Service (LOS) D can be achieved. It recommended to be widened from current two-lane facility to a four-lane divided boulevard facility with raised median from US 15 to Northside Drive (SR 1724). Additionally, a new location realignment to Gate 2 Road (SR 1103) will provide improved north-south connectivity between southern Granville County and the Town of Butner/I-85. These improvements are needed to improve traffic flow, safety, and capacity along the existing facility.

Minor Widening Projects:

The following facilities have been identified as having travel lanes less than 12 feet wide. As travel volume on these roadways increase, the need may arise to widen these facilities to include lane width of 12 feet and add turn lanes where necessary.

- North Main Street (SR 1639) from US 15 to NC 56
- Brogden Road (SR 1127) from NC 56 to I-85/CAMPO boundary
- Joe Peed Road (SR 1110) from W.B. Clark Road (SR 1109) to US 15
- East Lyon Station Road (SR 1104) from Gate 2 Road (SR 1103) to NC 56
- Hayes Road (SR 1702) from Brassfield Road (SR 1700) to NC 56
- Cash Road (SR 1728) from Old Weaver Trail (SR 1901) to US 15
- Gate 2 Road (SR 1103) from I-85/CAMPO boundary to US 15
- Hester Road (SR 1129) from Brogden Road (SR 1127) to NC 56
- Brassfield Road (SR 1700) from the end of the Creedmoor Loop (Section C) to NC 96
- Sanders Road (SR 1132) from I-85/CAMPO boundary to US 15
- Bruce Garner Road (SR 1712)/Wayside Farm Road (SR 1711) from the Wake County line to NC 96
- Woodland Church Road (SR 1714) from the Wake County line to Wayside Farm Road (SR 1711)
- Cannady Mill Road (SR 1622) from NC 96 to the CAMPO boundary
- Smith Road (SR 1135) from I-85/CAMPO boundary to US 15

Minor Extensions/New Location Projects:

- Northside Road Extension from Munns Rd to Old Weaver Trail Rd
- West Lyon Station Rd Extension from W Lyon Station Rd (SR 1237) to NC 56
- Unnamed Road extension west of Creedmoor, from end of the road to East Lyon Station Road (SR 1104)
- 26th Street Extension from I-85/CAMPO boundary to NC 56
- Gate 2 Road (SR 1103) realignment from Gate 2 Road (SR 1103) to US 15
- Sanders Road (SR 1132) extension from US 15 to Hester Road (SR 1129)
- Lawrence Road (SR 1710) realignment from Lawrence Road (SR 1710) to Horseshoe Road (SR 1709)