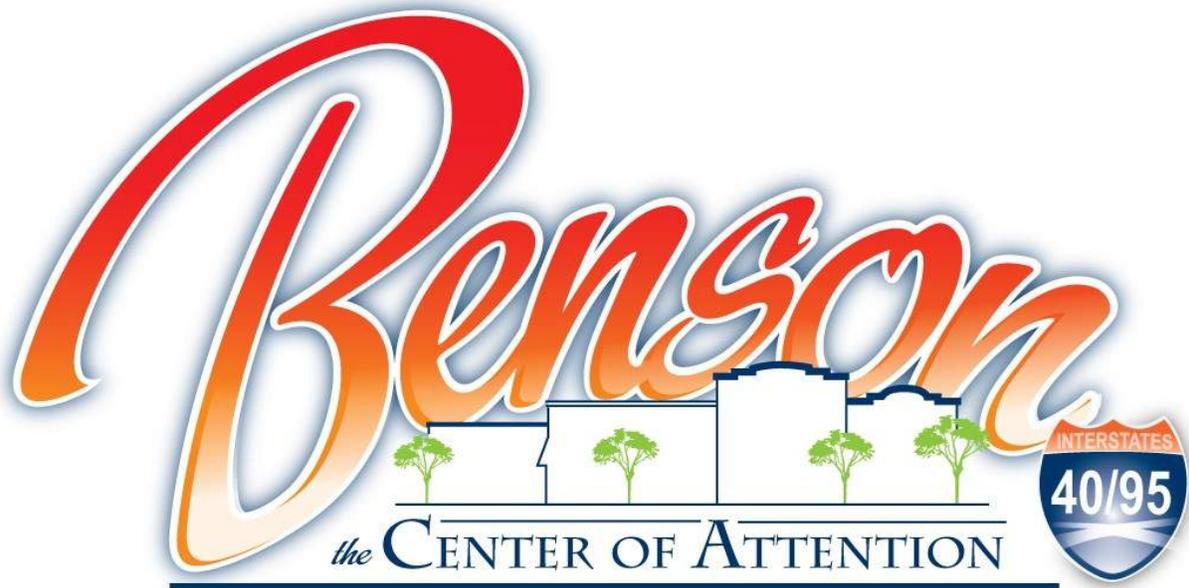


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# 2019 Town of Benson Community Transportation Plan



# **2019 Town of Benson Community Transportation Plan**

**Prepared for The Town of Benson**

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**In Cooperation With:**  
Town of Benson  
Johnston County  
Upper Coastal Plain Rural Planning Organization  
North Carolina Department of Transportation

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## Executive Summary

In April 2018, the Town of Benson issued a request for statement of qualifications and proposals seeking a consulting firm to prepare a Comprehensive Transportation Plan for the Town. The Town of Benson selected Ramey Kemp & Associates to prepare this plan. After the study had started, the decision was made to term this plan a Community Transportation Plan, rather than a Comprehensive Transportation Plan. This plan will be shared with Johnston County, the Upper Coastal Plain Rural Planning Organization, and NCDOT, in order that the recommendations from this plan can be taken into consideration during the next update of the Johnston County Comprehensive Transportation Plan.

This Community Transportation Plan (CTP) is a long-range multi-modal transportation plan to address Benson's transportation needs through the year 2045. Modes of transportation evaluated as part of this plan included: highway, bicycle, and pedestrian. This plan study did not address public transportation or rail modes, but applicable recommendations for the Benson area for these modes included in the 2011 Johnston County CTP are included in this plan. This CTP also does not cover routine maintenance or minor operations issues.

Findings of this CTP study were based on an analysis of the transportation system, environmental screening, and public input. This analysis is detailed in Chapter 1. The CTP maps are presented in Appendix A. Descriptive information and definitions for designations depicted on the CTP maps can be found in Appendix B. It is expected the recommendations included in this plan will be considered and adopted into the next update of the Johnston County Comprehensive Transportation Plan.

This report documents the recommendations for improvements included in the Town of Benson CTP. The major recommendations for improvements are listed below. More detailed information about these and other recommendations can be found in Section III.

- **Proposed new location roadway between SR 1304 (Banner Elk Road) and SR 1358 (Railroad Road):** The CTP project proposal would involve constructing a two-lane road on new location extending from the intersection of SR 1304 (Banner Elk Road) with NC 50 to the intersection of SR 1358 (Railroad Road) with NC 242.
- **Proposed Access Management Along NC 242 West of I-40:** The CTP project proposal would involve realigning the eastern end of SR 1381 (Woodall Dairy Road) to tee into NC 242 approximately 1,000 feet southwest of the eastbound I-40 ramps. SR 1380 (Federal Road Extension) will be realigned to tee into Woodall Dairy Road north of NC 242. In addition, an access road is proposed on the south side of NC 242 across from realigned Woodall Dairy Road. This access road would connect to a backage road to provide access to properties adjacent to the I-40/NC 242 interchange. Control of access would be obtained along NC 242 between the I-40 ramps and these new roadways.

- **NC 50 North/South Market Street Connector:** The CTP project proposal would involve constructing a roadway on new location connecting NC 50 north of Benson with South Market Street. A grade separation would be provided at the CSX rail line and US 301. Access to US 301 from the new roadway would be provided via SR 1301 (McLamb-Tart Road). A multi-use path would be constructed along the proposed new roadway. STIP Project I-5986B will construct a grade separation connecting South Market Street on the west side of I-95 with SR 1101 (Cub Road) on the east side of I-95.
- **SR 1101 (Cub Road)/NC 50 South Connector:** The CTP project proposal would involve constructing a roadway on new location connecting NC 50 south of Benson with NC 242 south of Benson and SR 1101 (Cub Road). A multi-use path would be constructed along the proposed new roadway. STIP Project I-5986B will construct a grade separation connecting South Market Street on the west side of I-95 with SR 1101 (Cub Road) on the east side of I-95.
- **SR 1834 (Stewart Road)/SR 1102 (Massengill Farm Road) Improvements:** The CTP project proposal involves improvements to SR 1834 (Stewart Road)/SR 1102 (Massengill Farm Road) between SR 1840 (Robin Hood Road) in Harnett County to NC 242 in Johnston County. The improvements will include realigning the south end of Stewart Road to tie directly into Robin Hood Road, improving the alignment of the roadway, and realigning Massengill Farm Road to intersect with NC 242 just north of SR 1103 (Ashley Road).
- **SR 1709 (Hodges Chapel Road) Improvements:** The CTP project proposal would involve improving and realigning the portion of SR 1709 (Hodges Chapel Road) between US 301 and I-95. Hodges Chapel Road would be widened to 24 feet of pavement with four-foot paved shoulders. The portion of Hodges Chapel Road north of SR 1810 (Stewart Road) will be realigned in order to bypass the two sharp curves on existing Hodges Chapel Road.
- **NC 242, US 301 to South of SR 1168 (Tarheel Road):** The CTP project proposal involves widening the portion of NC 242 from US 301 to south of SR 1168 (Tarheel Road) to four lanes with a 23-foot median and curb and gutter. A multi-use path is proposed on the west side of NC 242.
- **NC 242, South of SR 1168 (Tarheel Road) to I-40:** The CTP project proposal involves widening NC 242 to four lanes with a 23-foot median and curb and gutter. NC 242 at the Tarheel Road intersection would be realigned to improve the sight distance at this intersection. A multi-use path is proposed on the west side of NC 242. This project is funded in the draft 2020-2029 State Transportation Improvement Program as STIP Project R-5761.

- **SR 1168 Improvements:** The CTP project proposal involves improving the portion of SR 1168 (Tarheel Road) between NC 50 and NC 242 by widening the roadway to 24 feet of pavement and adding four-foot paved shoulders. The project would also involve realigning portions of Tarheel Road in order to improve sharp curves along the road.
- **NC 27 West Improvements:** The CTP project proposal involves widening NC 27 between SR 1302 (Mingo Road) and NC 50 northwest of Benson to a three-lane roadway with curb and gutter. The roadway will have 12-foot travel lanes, five-foot bike lanes, and five-foot sidewalks on both sides of the road.

DRAFT

# I. BENSON COMMUNITY TRANSPORTATION PLAN VISION AND GOALS

The Benson CTP study steering committee agreed on the following vision for the Benson Community Transportation Plan study:

The Benson Community Transportation Plan (CTP) will identify transportation goals and strategies to address immediate and future transportation needs that are sensitive to the community and the environment and will support continued economic development in Benson. Benson's CTP process will be open to all citizens who wish to participate. The CTP is a plan intended for all of Benson's citizens.

The CTP study has the following goals:

- Identify goals and strategies to address immediate and future transportation needs of the community.
- Determine appropriate design for all travel modes.
- Determine appropriate system connectivity within the study area.
- Define roadway alignments with sufficient detail to utilize for right of way protection purposes.
- Identify future alternate truck routes to divert truck traffic from the downtown center.
- Determine appropriate design for future widening of NC 242 north of Benson.
- Evaluate and determine bicycle/pedestrian alternatives in accordance with adopted Town plans and policies.



Figure I-1: Benson Singing Grove

## **II. ANALYSIS OF THE EXISTING AND FUTURE TRANSPORTATION SYSTEM**

A Community Transportation Plan (CTP) is developed to ensure the transportation system will meet the needs of the community during 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 community. This document should be utilized by the Town of Benson to ensure that planned transportation facilities reflect the needs of the public, while minimizing disruption to homes, businesses and environmental resources.

Development of a CTP involves the following:

- 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, goals, and objectives

### ***A. Analysis Methodology and Data Requirements***

Reliable forecasts of future traffic volumes must be developed 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.

The transportation system analysis 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.

#### ***1. Roadway System Analysis***

An important stage in the development of a CTP is the analysis of the existing transportation system's ability to serve area travel demand. Roadway deficiencies may result from inadequate pavement widths, intersection geometries, 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.

During the development of this plan, travel demand was projected from 2017 to 2045 by two methods. The first method was a trend line analysis based on Annual Average Daily Traffic (AADT) from 1990 to 2017. The second projection method was to use the growth rates for the Benson area used in the 2011 Johnston County CTP and applying those rates to either 2016 or 2017 AADT.

Existing and future travel demand was compared to existing roadway capacities. Capacity deficiencies occur when the traffic volume on 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 A6 and A8 for existing and future capacity deficiencies. The 2045 traffic volumes in Figure A7 are an estimate of the traffic volume in 2045 with only existing and committed projects assumed to be in place, where committed is defined as projects programmed for construction in either the 2018–2027 North Carolina State Transportation Improvement Program (STIP) or the draft 2020-2029 STIP. Projects included in the STIP for the Benson area are listed below and shown on Figure A10.



Figure II-1: NC 50-242 (East Main Street) in Downtown Benson

- STIP Project I-5986B – This project involves widening I-95 to eight lanes, from SR 1101 (Longbranch Road) in Harnett County to I-40 in Johnston County. This project will also construct a grade separation over I-95 connecting South Market Street west of I-95 with SR 1101 (Cub Road) east of I-95. The project is scheduled for right of way acquisition in fiscal year 2019 and construction in fiscal year 2021 in the approved 2018-2027 STIP.
- Project W-5704H: - This project involves converting the US 301 (Wall Street)/NC 50-242 (Main Street) intersection to a roundabout. The project is scheduled for right of way acquisition in fiscal year 2019 and construction in fiscal year 2020.
- STIP Project R-5761 – This project involves widening NC 242 from SR 1168 (Tarheel Road) to I-40. The project is scheduled for right of way acquisition in 2027 and construction in 2029 in the draft 2020-2029 STIP.

Capacity is defined by the Highway Capacity Manual as “the maximum sustainable flow rate at which vehicles or persons reasonably can be expected to traverse a point or uniform segment of a lane or roadway during a specified time period under given roadway, geometric, traffic, environmental, and control conditions...”. Factors which affect the capacity of a roadway include the following:

- Geometry of the road (including number of lanes), horizontal and vertical alignment, and proximity of perceived obstructions

- Typical users of the road, such as commuters, recreational travelers, and truck traffic
- Number of streets and driveways intersecting the road
- Development along the road, including residential, commercial, agricultural, and industrial developments
- Number of traffic signals along the route

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 in the Benson CTP study area was developed based on the 2000 Highway Capacity Manual using the NCDOT 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 D for detailed information on level of service.

### **Roadway Congestion**

Roadways with Highest Volumes in Benson Area:

- I-95 (2017 volumes 57,000-63,000 vehicles per day)
- I-40 (2017 volumes 22,000-43,000 vehicles per day)
- Main Street (NC 27-50-242) (2017 volumes 4,300-11,000 vehicles per day)
- US 301 (Wall Street) (2017 volumes 3,900-8,400 vehicles per day)
- NC 50 (north of Benson) (2017 volumes 2,600-4,200 vehicles per day)
- NC 242 (north of Benson) (2017 volumes 3,400-6,400 vehicles per day)

Major Intersections in Benson Area:

- NC 50-242 (Main Street)/I-95 ramps
- NC 50-242 (Main Street)/US 301 (Wall Street)
- NC 50-242 (Main Street)/S. Dunn Street
- US 301 (Wall Street)/NC 242
- NC 27 (Main Street)/NC 50
- NC 242/I-40 ramps

### **Safety Assessment**

Traffic crashes can be an indicator of congestion and roadway problems. Highway safety scores and intersection crash frequencies were examined for the Benson CTP

study area for the years 2014 through 2018. Figure A9 presents safety data for roadways and intersections in the study area.

**Benson Area Intersections with Highest Number of Crashes (2013-2017):**

- NC 50-242 (Main Street)/US 301 (Wall Street) (44 crashes)
- US 301 near Parrish Drive (22 crashes)
- NC 50-242 (Main Street)/NC 242 (17 crashes)
- US 301/North Honeycutt Street (16 crashes)
- NC 50-242 (Main Street)/Elm Street (14 crashes)

**Benson Area Roadways with Fatal or Severe Injury Crashes (2013-2017)**

- I-95 (11 crashes)
- I-40 (11 crashes)
- NC 50 (3 crashes)
- NC 242 (south of Benson) (3 crashes)
- SR 1107 (Dragstrip Road) (2 crashes)
- US 301 (2 crashes)
- SR 1330 (Raleigh Road) (2 crashes)
- SR 1168 (Tarheel Road) (1 crash)
- SR 1143 (Stricklands Crossroads Road) (1 crash)

**2. *Public Transportation and Rail***

Public transportation and rail provide alternatives to highways for transporting people and goods from one place to another.

**Public Transportation**

There are no fixed or scheduled public transportation services that serve Benson or Johnston County. On-demand public transportation services in Benson and Johnston County is provided by the Johnston County Area Transit System (JCATS). JCATS operates a fleet of over 30 buses and vans and offers transportation to clients of human service agencies and other residents of Johnston County. Those wishing to use the service must schedule their ride the day before. There is typically no charge for public service agency clients, while in-county trips are \$5.00 and out-of-county trips are \$15.00 for the general public. In 2014, JCATS provided 105,000 trips.

Railroad tracks owned and operated by CSX Transportation pass through downtown Benson. This rail line serves 20 to 25 freight and six passenger trains a day. Passenger trains pass through Benson traveling 79 miles per hour. None of the passenger trains make a stop in Benson.

### **3. Bicycles and Pedestrians**

NCDOT's Bicycle Policy, updated in 1991, provides guidelines for planning, design, construction, maintenance, and operations pertaining to bicycle facilities and accommodations. All bicycle improvements undertaken by NCDOT are based on this policy.

The 2000 NCDOT Pedestrian Policy Guidelines specify that NCDOT will participate with localities in the construction of sidewalks as incidental features of highway improvement projects. At the request of a locality, NCDOT funds a portion of sidewalk construction if the local government will agree to participate in the construction cost of the sidewalk and accept maintenance responsibilities and liability for the sidewalk. Local participation is determined using a sliding scale based on population. Benson's share of sidewalk construction costs on NCDOT projects would be 20%.

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 in Section III and on Figures A3 and A4. The East Coast Greenway, a 3,000-mile walking and bicycling route extending from Florida to Maine, passes through the Benson area along the US 301 corridor.

### **4. Land Use**

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

## **Rail**



*Figure II-2: Railroad Crossing on Main Street in Downtown Benson*

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; 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 government offices and service employment establishments.
- Agricultural: Land devoted to the raising of livestock 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. Figure A11 presents the future land use plan for Benson.

## ***B. Consideration of the Natural and Human Environment***

Environmental features are a key consideration in the transportation planning process. Section 102 of the National Environmental Policy Act (NEPA) requires consideration of impacts on wetlands, wildlife, water quality, historic properties, and public lands. While a full NEPA evaluation was not conducted as part of the CTP, 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 Section III 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.

Environmental features occurring within the Town of Benson CTP study area are shown on Figure A11.

### **C. Public Involvement**

Two public meetings were held during the development of the Benson CTP. The first public meeting was held at the beginning of the study. The second public meeting was held following completion of the draft CTP. A survey was distributed at the first public meeting. In addition, a steering committee composed of Town staff, NCDOT staff, area business owners, and private citizens was formed.

In addition to the meetings, information was posted on the Town's website throughout the study process.

The first public meeting was held on December 11, 2018 at the Benson Conference Center. The purpose of the meeting was to make the public aware the CTP study had begun, explain the study process and offer an opportunity for the public to share their comments and concerns regarding Benson's transportation needs. A survey form was included in the meeting handout.



*Figure II-3: December 2018 Public Meeting*

Approximately 30 people attended the public meeting, including consultant and Town staff. One hundred thirty seven people submitted survey forms, either at the meeting, through the mail, on-line, or by hand delivering the forms to Town Hall. Appendix F presents the results of the Benson CTP Transportation Survey.

Throughout the course of the study, consultant and Town staff have worked cooperatively with the Benson CTP Steering Committee, which included representatives from the Town Board of Commissioners, county staff, the Upper Coastal Plain RPO, NCDOT Division 4, representatives of local businesses, and others. The committee provided information on current local plans, discussed transportation vision and goals, and proposed CTP recommendations. Appendix E contains information regarding the steering committee; including a listing of committee members and copies of the steering committee meeting minutes.

### III. RECOMMENDATIONS

This chapter presents recommendations for each mode of transportation in the 2019 Town of Benson CTP. These recommendations are presented below and shown on the project maps in Appendix A.

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

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

#### A. *Unaddressed Deficiencies*

One unaddressed deficiency is the portion of NC 50-242 (Main Street) between I-95 and US 301 (Wall Street) through downtown Benson. As shown on Figure A8, traffic volumes on this facility are expected to exceed the roadway's capacity by the year 2045. It is expected the proposed NC 50 North/South Market Street and SR 1101 (Cub Road)/NC 50 South Connectors will divert approximately 2,000 vehicles per day from Main Street through downtown in the year 2045. However, even with this diversion, it is expected traffic volumes on Main Street will still exceed capacity.



*Figure III-1: NC 50-242 (East Main Street) at South Market Street*

Potential improvements to increase capacity on Main Street might include converting Main Street to a one-way street or removing on-street parking to provide space for additional travel lanes. However, because these would be such drastic changes to the downtown area, the recommendation of this CTP is to reevaluate

needed improvements on Main Street after the two NC 50 connectors have opened to traffic. It may be that the connectors will divert more traffic from Main Street than what has been predicted for this CTP.

## ***B. Implementation***

The CTP is based on the projected growth for the planning area. Actual growth patterns may differ from the anticipated patterns, which might make it necessary to accelerate or delay the implementation of some recommendations found in this plan. Some portions of the plan may require revisions to accommodate unexpected changes in development. Therefore, any changes made to one element of the CTP should be consistent with the other elements.

It is anticipated the recommendations found in the Benson CTP will be considered and included in the next update of the Johnston County CTP. Recommendations included in the Johnston County CTP may then be submitted for prioritization and potentially funded in the State Transportation Improvement Program. The Town of Benson should prioritize potential projects locally and submit them to the Upper Coastal Plain RPO for regional prioritization and submittal to NCDOT. The Town of Benson 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 represent 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 requirements of the National Environmental Policy Act (NEPA) or the North Carolina Environmental Policy Act (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 for the NEPA/SEPA process.

## ***C. 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 assist with submitting projects for prioritization and to help support decisions made in the NEPA/SEPA process.

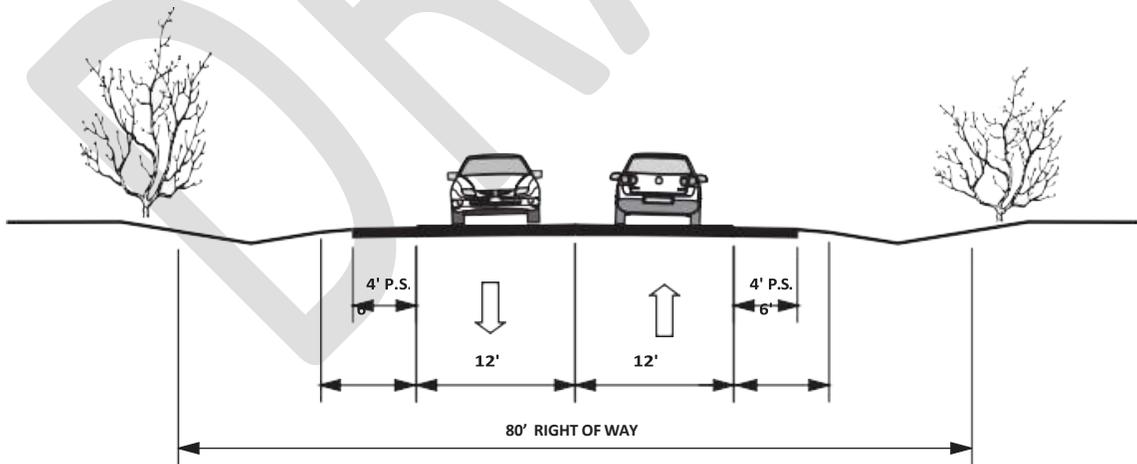
**1. Highway**

|  |  |               |          |
|--|--|---------------|----------|
| <b>Project ID</b>                              | BENSON001  |               |          |
| <b>Route</b>                                   | New Route  | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | SR 1304 (Banner Elk Road)  |               |          |
| <b>To/Cross Street</b>                         | SR 1358 (Railroad Road)  |               |          |
| <b>Description of Work</b>                     | Construct a two-lane roadway on new location connecting SR 1304 (Banner Elk Road) at NC 50 with SR 1358 (Railroad Road) at NC 242. Twelve-foot lanes and six-foot shoulders (four-foot paved) are proposed. The proposed four-foot paved shoulders would accommodate bicycles. Proposed right of way would be 80 feet wide and no control of access is proposed.   |               |          |
| <b>Primary Need Category</b>                   | System Linkage/Connectivity  |               |          |
| <b>Secondary Need Category</b>                 | Mobility   |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> |  |               |          |
| <b>Justification of Need</b>                   | The I-40/NC 242 interchange provides Benson and areas north and west of Benson with access to the rest of the State via I-40 and I-95. Traffic traveling between the northwestern side of Benson and I-40 currently access NC 242 from either SR 1168 (Tarheel Road), SR 1359 (Dogeye Road), or by traveling south to US 301 in Benson and then to NC 242. This results in additional travel time and distance for some motorists. |               |          |
| <b>Benefits of Proposed Solution</b>           | An additional east/west route between NC 50 and NC 242 would improve connectivity for the area.  |               |          |

**BENSON 001-NEW ROUTE-SR 1304 (BANNER ELK RD.) TO  
SR 1358 (RAILROAD RD.)**



**PROPOSED TYPICAL SECTION**

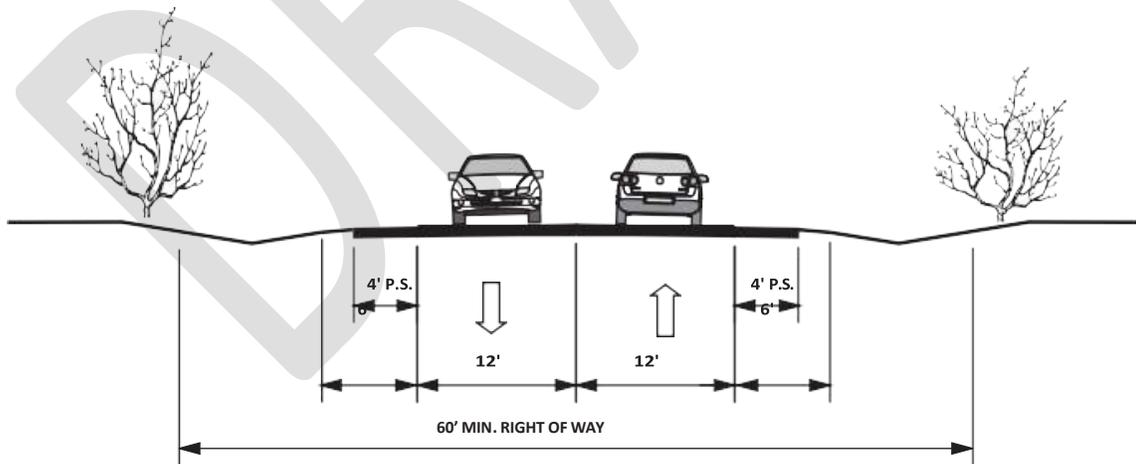


|  |   |               |          |
|--|---|---------------|----------|
| <b>Project ID</b>                              | BENSON002   |               |          |
| <b>Route</b>                                   | SR 1380 Federal Road Ext.)  | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | 1,000 feet south of NC 242/I-40 interchange eastbound ramps   |               |          |
| <b>To/Cross Street</b>                         | NC 242/I-40 interchange eastbound ramps   |               |          |
| <b>Description of Work</b>                     | <p>The proposed project would involve realigning the eastern end of SR 1381 (Woodall Dairy Road) to tee into NC 242 approximately 1,000 feet southwest of the eastbound I-40 ramps. SR 1380 (Federal Road Extension) will be realigned to tee into Woodall Dairy Road north of NC 242. In addition, an access road is proposed on the south side of NC 242 across from realigned Woodall Dairy Road. This access road would connect to a backage road to provide access to properties adjacent to the I-40/NC 242 interchange. Control of access would be obtained along NC 242 between the I-40 ramps and these new roadways. The proposed realignment of Woodall Dairy Road and Federal Road Extension would potentially be constructed and the proposed control of access acquired as part of future improvements to NC 242 (BENSON008, STIP Project R-5761). The access road and backage road on the south side of NC 242 would likely be built as part of future land development.</p> |               |          |
| <b>Primary Need Category</b>                   | Improved Traffic Operations   |               |          |
| <b>Secondary Need Category</b>                 | Safety  |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A   |               |          |
| <b>Justification of Need</b>                   | <p>Access points too close to interchange ramps can have a detrimental effect on traffic operations near freeway interchanges. Queuing from ramp intersections can block side roads and driveways. Turning traffic into driveways and side streets can result in delays. Providing sufficient distance between intersections and access points improves the operation and safety of roadways.</p>   |               |          |
| <b>Benefits of Proposed Solution</b>           | <p>Moving access points away from the I-40 interchange will improve the operation and safety of the interchange intersections with NC 242.</p>  |               |          |

# BENSON002-NC 242 ACCESS MANAGEMENT IMPROVEMENTS



## PROPOSED TYPICAL SECTION

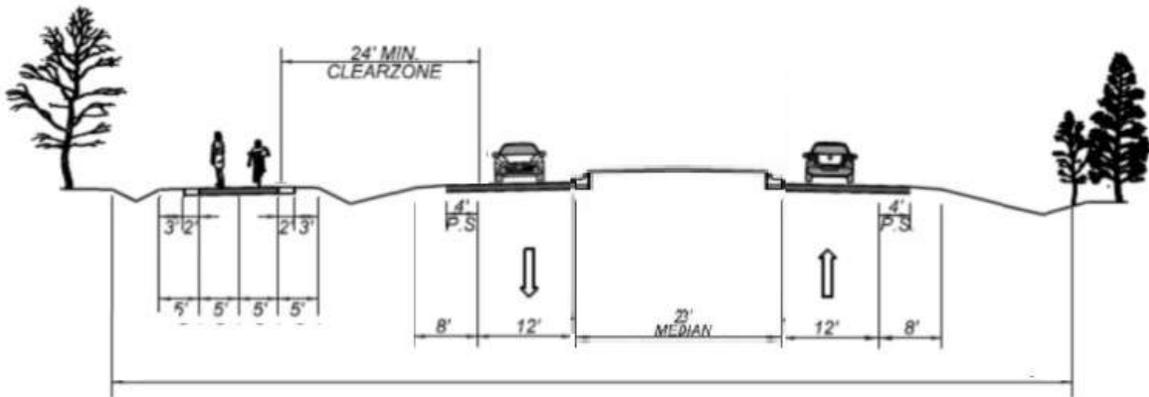


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|--|--|---------------|----------|
| <b>Project ID</b>                              | BENSON003  |               |          |
| <b>Route</b>                                   | New Route  | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | South Market Street west of I-95   |               |          |
| <b>To/Cross Street</b>                         | NC 50 north of NC 27   |               |          |
| <b>Description of Work</b>                     | <p>The CTP project proposal would involve constructing a roadway on new location connecting NC 50 north of Benson with South Market Street. A grade separation would be provided at the CSX rail line and US 301. Access to US 301 from the new roadway would be provided via SR 1301 (McLamb-Tart Road). STIP Project I-5986B will construct a grade separation connecting South Market Street on the west side of I-95 with SR 1101 (Cub Road) on the east side of I-95.</p> <p>A two-lane, median divided roadway with 12-foot lanes and eight-foot shoulders (four-foot paved) is proposed. A 23-foot raised median would separate opposing travel lanes. Proposed right of way would be 125 feet wide in order to accommodate a future four-lane roadway and partial control of access (one driveway per parcel) is proposed. A multi-use path would be constructed along the proposed new roadway.</p> |               |          |
| <b>Primary Need Category</b>                   | System Linkage/Connectivity  |               |          |
| <b>Secondary Need Category</b>                 | Mobility   |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A  |               |          |
| <b>Justification of Need</b>                   | <p>26 to 31 trains a day pass through Benson, some of them traveling at 79 miles per hour. During the time the train is passing, access between the eastern and western sections of Benson is virtually cutoff. Backups along Main Street and other roadways crossing the tracks result. If the at-grade crossings have to be closed for maintenance or for some reason a train blocks the crossings, this results in serious disruption and delays to traffic flow in Benson. Emergency response times would also be substantially increased between the east and west sides of Benson.</p> <p>Existing NC 50-242 (Main Street) through downtown Benson is predicted to be over capacity by the year 2045. The proposed NC 50 North Connector in combination with the proposed NC 242/NC 50 South Connector (Benson004) would reduce the amount of through traffic on Main Street.</p>                      |               |          |
| <b>Benefits of Proposed Solution</b>           | <p>In addition to providing a grade separated rail crossing, the proposed new roadway would provide another north/south connector for traffic traveling to or from the area north of Benson across I-95. A grade separation over I-95 connecting South Market Street with SR 1101 (Cub Road) is proposed as part of the I-95 widening project (STIP Project I-5986B).</p> <p>The proposed connector would also improve access to I-95 and I-40 for industrial areas located on the west side of I-95 south of Benson. Trucks could use the proposed NC 50 connector and the proposed Banner Elk Road/Railroad Road connector and NC 242 to access I-40 and the proposed NC 50 connector and SR 1102 (Massengill Farm Road), SR 1840 (Robin Hood Road), and SR 1709 (Hodges Chapel Road) to access I-95 without having to go through downtown Benson or cross railroad tracks at-grade.</p>                   |               |          |

**BENSON003-NEW ROUTE-SOUTH MARKET ST. TO NC 50 NORTH OF NC 27**



**PROPOSED TYPICAL SECTION**

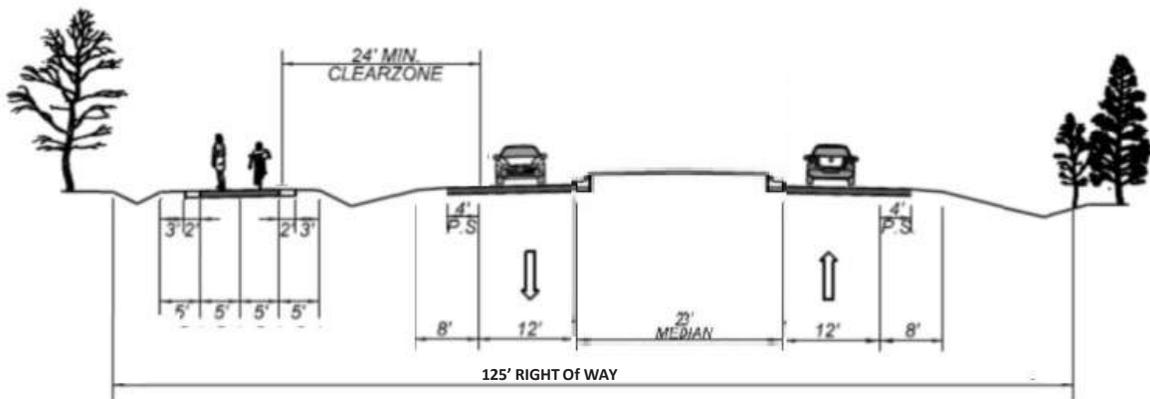


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|--|---|---------------|----------|
| <b>Project ID</b>                              | BENSON004   |               |          |
| <b>Route</b>                                   | New Route   | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | NC 50 south of Benson   |               |          |
| <b>To/Cross Street</b>                         | SR 1101 (Cub Road) east of I-95   |               |          |
| <b>Description of Work</b>                     | <p>The CTP project proposal would involve constructing a roadway on new location connecting NC 50 south of Benson with NC 242 south of Benson and SR 1101 (Cub Road). STIP Project I-5986B will construct a grade separation connecting South Market Street on the west side of I-95 with SR 1101 (Cub Road) on the east side of I-95.</p> <p>A two-lane, median divided roadway with 12-foot lanes and eight-foot shoulders (four-foot paved) is proposed. A 23-foot raised median would separate opposing travel lanes. Proposed right of way would be 125 feet wide in order to accommodate a future four-lane roadway and partial control of access (one driveway per parcel) is proposed. A multi-use path would be constructed along the proposed new roadway.</p>  |               |          |
| <b>Primary Need Category</b>                   | System Linkage/Connectivity   |               |          |
| <b>Secondary Need Category</b>                 | Mobility  |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A   |               |          |
| <b>Justification of Need</b>                   | Existing NC 50-242 (Main Street) through downtown Benson is predicted to be over capacity by the year 2045. The proposed NC 50 South connector in combination with the proposed NC 50 North Connector would reduce the amount of through traffic on Main Street.  |               |          |
| <b>Benefits of Proposed Solution</b>           | <p>The proposed new roadway would provide another north/south connector for traffic traveling to or from the area south of Benson across I-95. A grade separation over I-95 connecting South Market Street with SR 1101 (Cub Road) is proposed as part of the I-95 widening project (STIP Project I-5986B).</p> <p>The proposed connector would also improve access to I-95 and I-40 for industrial areas located on the east side of I-95 south of Benson. Trucks could use the proposed NC 50 South connector, the proposed NC 50 North connector, and the proposed Banner Elk Road/Railroad Road connector and NC 242 to access I 40 and the proposed NC 50 connector and SR 1102 (Massengill Farm Road), SR 1840 (Robin Hood Road), and SR 1709 (Hodges Chapel Road) to access I-95 without having to go through downtown Benson.</p> |               |          |

**BENSON004-NEW ROUTE-NC 50 SOUTH OF BENSON TO SR 1101 (CUB RD.)**



**PROPOSED TYPICAL SECTION**

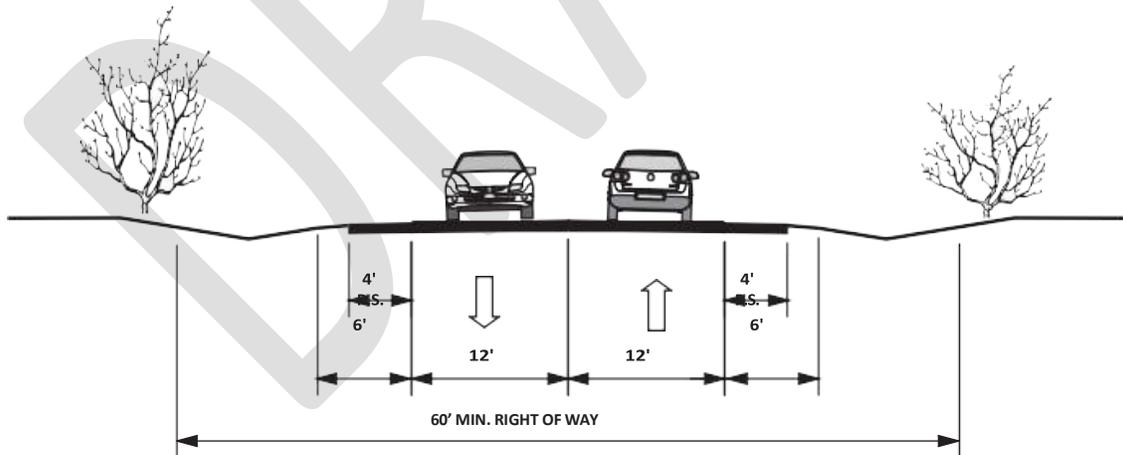


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|--|--|---------------|------------------|
| <b>Project ID</b>                              | BENSON005  |               |                  |
| <b>Route</b>                                   | SR 1834 (Stewart Road)/SR 1102 (Massengill Farm Road)  | <b>County</b> | Harnett/Johnston |
| <b>From/Cross Street</b>                       | SR 1840 (Robin Hood Road) in Harnett County  |               |                  |
| <b>To/Cross Street</b>                         | NC 242 south of Benson   |               |                  |
| <b>Description of Work</b>                     | <p>The CTP project proposal involves improvements to SR 1834 (Stewart Road)/SR 1102 (Massengill Farm Road) between SR 1840 (Robin Hood Road) in Harnett County to NC 242 in Johnston County. The improvements will include realigning the south end of Stewart Road to tie directly into Robin Hood Road, improving the alignment of the roadway and realigning Massengill Farm Road to intersect with NC 242 just north of SR 1103 (Ashley Road).</p> <p>SR 1834/SR 1102 will be widened to a 24-foot roadway with four-foot paved shoulders. Proposed right of way for realigned portions of the roadway will be 60 feet wide. No control of access is proposed.</p> |               |                  |
| <b>Primary Need Category</b>                   | System Linkage/Connectivity  |               |                  |
| <b>Secondary Need Category</b>                 | Mobility   |               |                  |
| <b>Additional Needs/Other Desired Outcomes</b> | Improve safety for trucks.   |               |                  |
| <b>Justification of Need</b>                   | The Industrial area south of Benson and east of I-95 lacks direct access to I-95. Trucks wishing to access I-95 must travel northward on NC 242 or southward on Massengill Farm Road to reach either the NC 50-242 interchange in downtown Benson or the SR 1709 (Hodges Chapel Road) interchange in Harnett County. Existing Massengill Farm Road has several sharp curves and narrow lanes.  |               |                  |
| <b>Benefits of Proposed Solution</b>           | Improving Massengill Farm Road would reduce travel time and improve safety for trucks traveling between the industrial area south of Benson and east of I-95 and the Hodges Chapel Road interchange.   |               |                  |

**BENSON005- SR 1834 (STEWART ROAD)/SR 1102 (MASSENGILL FARM ROAD)**



**PROPOSED TYPICAL SECTION**

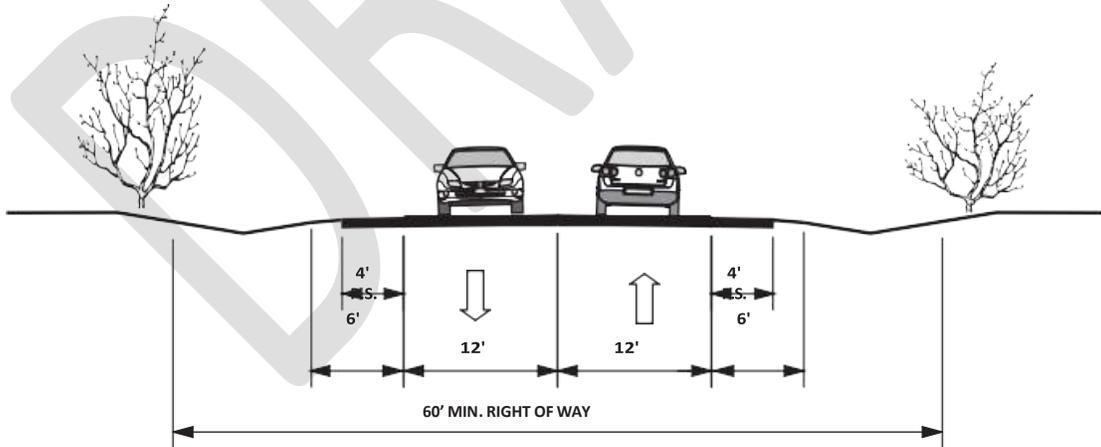


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|--|---|---------------|---------|
| <b>Project ID</b>                              | BENSON006   |               |         |
| <b>Route</b>                                   | SR 1709 (Hodges Chapel Road)  | <b>County</b> | Harnett |
| <b>From/Cross Street</b>                       | US 301  |               |         |
| <b>To/Cross Street</b>                         | I-95  |               |         |
| <b>Description of Work</b>                     | The CTP project proposal would involve improving and realigning the portion of SR 1709 (Hodges Chapel Road) between US 301 and I-95. Hodges Chapel Road would be widened to 24 feet of pavement with four-foot paved shoulders. The portion of Hodges Chapel Road north of SR 1810 (Stewart Road) will be realigned in order to bypass the two sharp curves on existing Hodges Chapel Road. |               |         |
| <b>Primary Need Category</b>                   | System Linkage/Connectivity   |               |         |
| <b>Secondary Need Category</b>                 | Safety  |               |         |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A   |               |         |
| <b>Justification of Need</b>                   | The portion of Hodges Chapel Road between US 301 and I-95 is narrow, with 9-foot lanes and has two very sharp curves. Hodges Chapel Road provides access to I-95 for the industrial area south of Benson and west of I-95.  |               |         |
| <b>Benefits of Proposed Solution</b>           | Improving Hodges Chapel Road would reduce travel time and improve safety for trucks traveling between I-95 and the industrial area south of Benson and west of I-95.  |               |         |

BENSON006-SR 1709 (HODGES CHAPEL RD)-US 301 TO I-95



PROPOSED TYPICAL SECTION

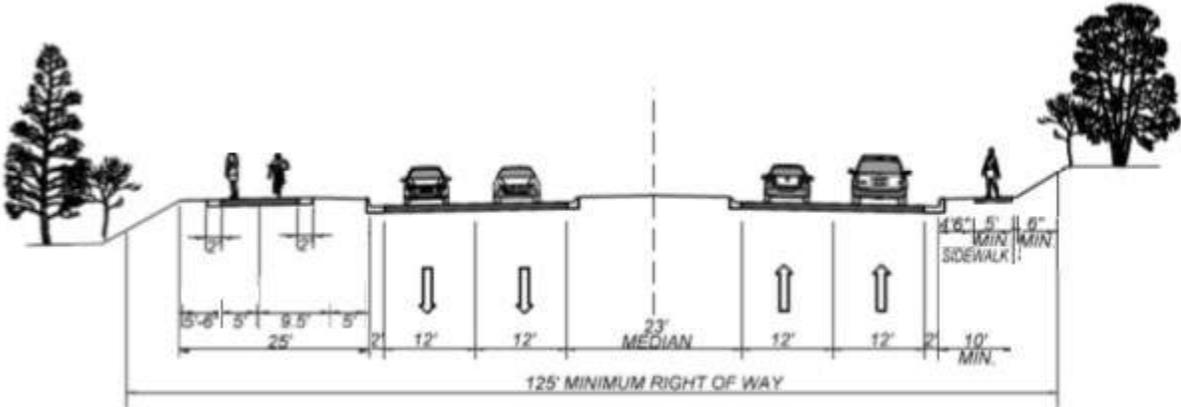


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|--|--|---------------|----------|
| <b>Project ID</b>                              | BENSON007 (STIP Project R-5761)  |               |          |
| <b>Route</b>                                   | NC 242   | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | US 301   |               |          |
| <b>To/Cross Street</b>                         | South of SR 1168 (Tarheel Road)  |               |          |
| <b>Description of Work</b>                     | <p>The CTP project proposal involves widening NC 242 to four lanes with a 23-foot median and curb and gutter. A multi-use path is proposed on the west side of NC 242.</p> <p>Proposed right of way for the project would be 125 feet wide. Partial control of access is proposed (one driveway per parcel).</p> |               |          |
| <b>Primary Need Category</b>                   | Mobility   |               |          |
| <b>Secondary Need Category</b>                 | Safety   |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A  |               |          |
| <b>Justification of Need</b>                   | Recent development and proposed new development in the near future means an increase in AADT thereby creating the need for a controlled access facility for safe mobility.   |               |          |
| <b>Benefits of Proposed Solution</b>           | The proposed widening of NC 242 will reduce congestion, improve travel time and improve safety for the subject section of NC 242.  |               |          |

**BENSON007-NC 242-US 301 TO SOUTH OF SR 1168 (TARHEEL RD.)**



**PROPOSED TYPICAL SECTION**

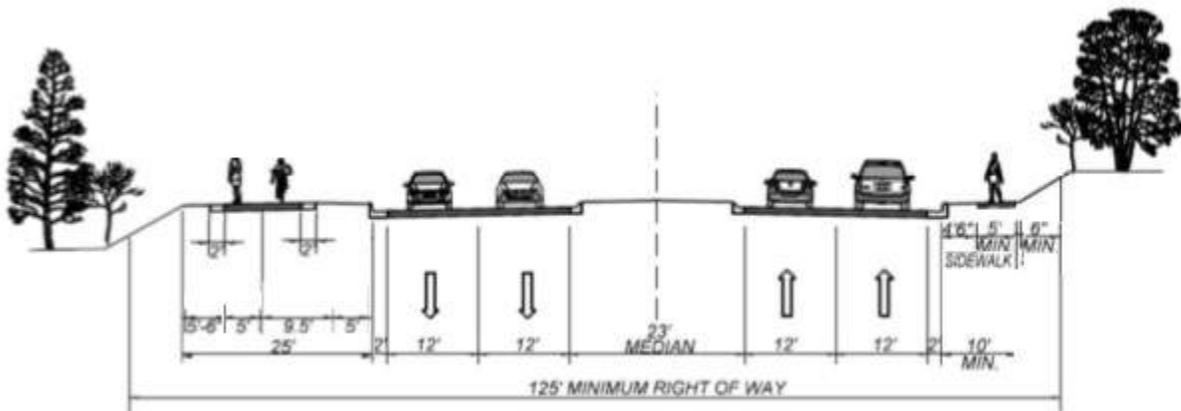


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|--|--|---------------|----------|
| <b>Project ID</b>                              | BENSON008 (STIP Project R-5761)  |               |          |
| <b>Route</b>                                   | NC 242   | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | South of SR 1168 (Tarheel Road)  |               |          |
| <b>To/Cross Street</b>                         | I-40   |               |          |
| <b>Description of Work</b>                     | <p>The CTP project proposal involves widening NC 242 to four lanes with a 23-foot median and curb and gutter. A multi-use path is proposed on the west side of NC 242.</p> <p>Proposed right of way for the project would be 125 feet wide. Partial control of access is proposed (one driveway per parcel).</p> |               |          |
| <b>Primary Need Category</b>                   | Mobility   |               |          |
| <b>Secondary Need Category</b>                 | Safety   |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A  |               |          |
| <b>Justification of Need</b>                   | Recent development and proposed new development in the near future means an increase in AADT thereby creating the need for a controlled access facility for safe mobility.   |               |          |
| <b>Benefits of Proposed Solution</b>           | The proposed widening of NC 242 will reduce congestion, improve travel time and improve safety for the subject section of NC 242.  |               |          |

**BENSON008-NC 242-SOUTH OF SR 1168 (TARHEEL RD.) TO I-40**



**PROPOSED TYPICAL SECTION**

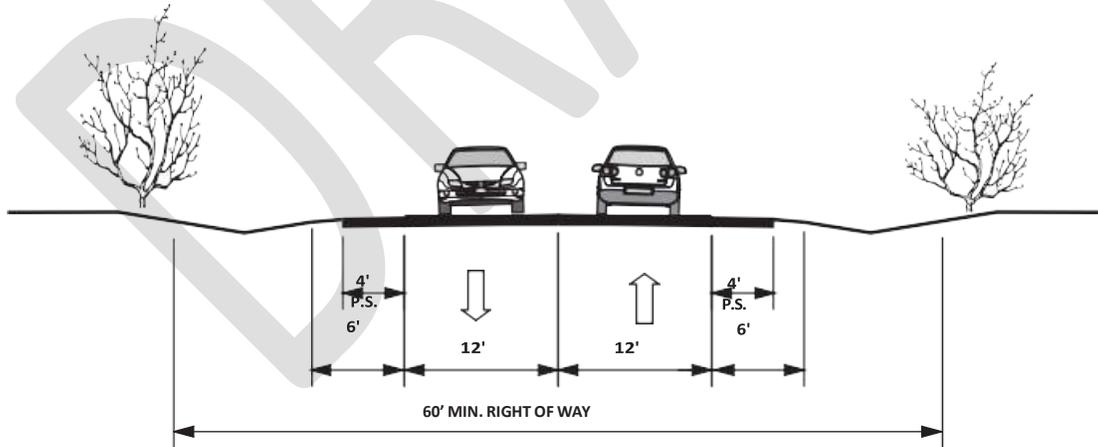


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|--|---|---------------|----------|
| <b>Project ID</b>                              | BENSON009   |               |          |
| <b>Route</b>                                   | SR 1168 (Tarheel Road)  | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | NC 50   |               |          |
| <b>To/Cross Street</b>                         | NC 242  |               |          |
| <b>Description of Work</b>                     | The CTP project proposal involves improving the portion of SR 1168 (Tarheel Road) between NC 50 and NC 242 by widening the roadway to 24 feet of pavement and adding four-foot paved shoulders. The project would also involve realigning portions of Tarheel Road in order to improve sharp curves along the road. |               |          |
| <b>Primary Need Category</b>                   | Safety  |               |          |
| <b>Secondary Need Category</b>                 | Mobility  |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A   |               |          |
| <b>Justification of Need</b>                   | Portions of Tarheel Road between NC 50 and NC 242 have a highway safety score above 66, indicating there may be safety concerns along the roadway. Members of the Benson CTP steering committee expressed concerns regarding safety on Tarheel Road, particularly at the Tarheel Road intersection with NC 242.     |               |          |
| <b>Benefits of Proposed Solution</b>           | The proposed project should improve safety and mobility along the subject section of Tarheel Road.  |               |          |

**BENSON009-SR 1168 (TARHEEL RD.)-NC 50 TO NC 242**



**PROPOSED TYPICAL SECTION**



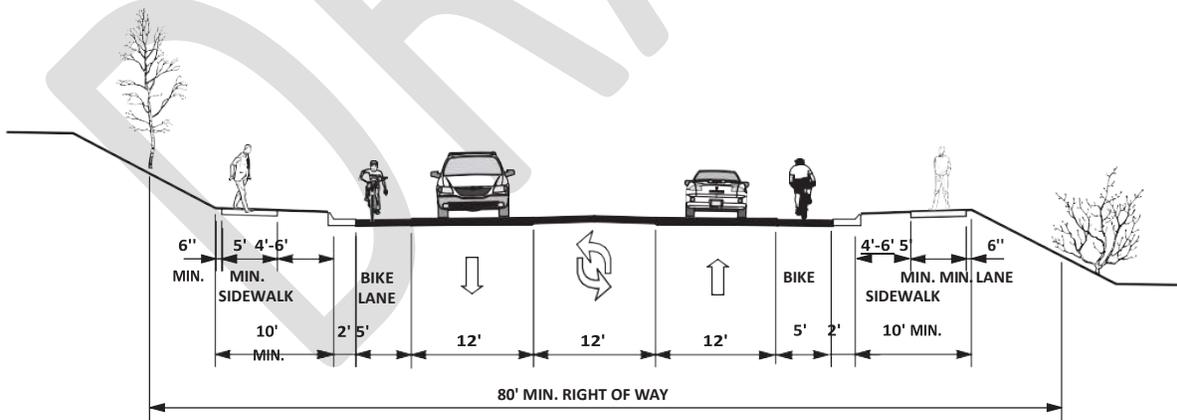
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| <b>Project ID</b>                              | BENSON010  |               |          |
| <b>Route</b>                                   | NC 27  | <b>County</b> | Johnston |
| <b>From/Cross Street</b>                       | SR 1302 (Mingo Road)   |               |          |
| <b>To/Cross Street</b>                         | NC 50  |               |          |
| <b>Description of Work</b>                     | The CTP project proposal involves widening NC 27 between SR 1302 (Mingo Road) and NC 50 northwest of Benson to a three-lane roadway with curb and gutter. The roadway will have 12-foot travel lanes, five-foot bike lanes, and five-foot sidewalks on both sides of the road. |               |          |
| <b>Primary Need Category</b>                   | Mobility   |               |          |
| <b>Secondary Need Category</b>                 | Safety   |               |          |
| <b>Additional Needs/Other Desired Outcomes</b> | N/A  |               |          |
| <b>Justification of Need</b>                   | Portions of NC 27 west of NC 50 will be approaching capacity by the year 2045. Several homes are being built along both sides of NC 27 between NC 50 and Mingo Road.   |               |          |
| <b>Benefits of Proposed Solution</b>           | The proposed project should improve mobility and safety for all users of the subject section of NC 27. The proposed center turn lane will allow turning traffic to move out of the through lanes, reducing congestion and improving safety.                                    |               |          |

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**BENSON010-NC 27-SR 1302 (MINGO RD.) TO NC 50**



**PROPOSED TYPICAL SECTION**



## **2. Public Transportation and Rail**

The following recommendations for public transportation improvements were included in the 2011 Johnston County CTP.

**Bus Route (Benson to Selma), Local ID JOHN0001-T:** The 2011 Johnston County CTP included a recommendation for a bus route from Benson to Selma. The CTP project proposal is to provide bus service along I-95 from the Benson park-and-ride lot (JOHN0003-T) to the Selma existing rail station and proposed park-and-ride lot (JOHN0003-T). This will connect users of the bus route to a commuter rail line (JOHN0001-R) also proposed in the County CTP.

**Park and Ride Lot Local ID JOHN0003-T:** The CTP project proposal is to provide a park and ride lot in Benson at the intersection of US 301 (Wall Street) and West Hale Street (American Legion). The Town of Benson identified this potential location. This project would provide access to the bus route from Benson to Selma (JOHN0001-T).

Western Johnston County has experienced high growth in recent years. This growth is primarily residential, as many residents commute to Wake County on a daily basis. As the growth continues, it is expected to expand further south in the county towards the Town of Benson. Existing I-40 already experiences congestion from the Wake County line to I-95, and it is projected to exceed Level of Service (LOS) D by 2035. These CTP recommendations would provide transportation alternatives for commuters from Benson.

## **3. Bicycle**

The following facilities were identified as recommended bicycle routes and will need improvement. In accordance with American Association of State Highway and Transportation Officials (AASHTO) standards, roadways identified as bicycle routes should incorporate the following as roadway improvements are made and funding is available: Curb and gutter sections require a minimum 5-foot bike lanes or 14-foot wide shoulder lanes. Shoulder sections require a minimum of 4-foot paved shoulder. All bridges along the roadways where bike facilities are recommended shall be equipped with 54-inch railings.

## **ON-ROAD NEEDS IMPROVEMENT**

- **Local ID JOHN0001-B:** US 301 (Wall Street) from SR 1100 (Chicopee Road) (proposed US 301 South and Chicopee Road Multi-Use Paths\*) to SR 1175 (North Johnson Street) (proposed US 301 North and Central Benson Multi-Use Paths\*).
- NC 50 (Main Street) from NC 27 (West Main Street) to SR 1104 (Surles Road) (Western Benson Multi-Use Path\*) (Overlaps Johnston County CTP Local ID JOHN0002-B).
- NC 50 from SR 1303 (Benson-Hardee Road) to Benson Elementary School access road.
- NC 27 (West Main Street) from SR 1302 (Mingo Road) to NC 50.
- **Local ID JOHN0005-B:** SR 1360 (Lincoln Street) from NC 50 (West Main Street) to NC 50 north of SR 1303 (Benson-Hardee Road).
- SR 1302 (Mingo Road) from NC 27 to SR 1303 (Benson-Hardee Road).
- SR 1303 (Benson-Hardee Road) from SR 1302 (Mingo Road) to NC 50.
- SR 1301 (McLamb-Tart Road) from proposed Western Benson Multi-Use Path\* to US 301.
- NC 242 (South Walton Drive) from proposed Western Benson Multi-Use Path\* to NC 50 (East Main Street).
- Benson Elementary School access road near NC 50.
- SR 1359 (Dogeye Road) from SR 1303 (Park Place) to NC 242.

## **ON-ROAD RECOMMENDED**

- East Mann Street from South Market Street to South Lee Street.
- Brocklyn Street from South Ryals Street to South Market Street (Central Benson Multi-Use Path\*).
- East Brocklyn Street from South Lee Street to Chicopee Road.
- South Elm Street from East Mann Street to NC 50 (East Main Street).
- South Lee Street from East Mann Street (connect to apartments on South Whittington Street) to NC 50 (East Main Street).
- East Harnett Street from South Lee Street to Chicopee Road.
- South McLamb Street from South Lincoln Street to West Brocklyn Street.
- West Brocklyn Street from South Lincoln Street to South McLamb Street.
- South Lincoln Street from West Brocklyn Street to NC 50 (West Main Street) (includes Johnston County CTP Local ID JOHN0005-B).
- Church Street from proposed Western Benson Multi-Use Path\* to Fayetteville Street (includes Johnston County CTP Local ID JOHN0003-B).
- SR 1303 (Park Place) from North Lincoln Street to SR 1359 (Dogeye Road).

\*See "Recommended Multi-Use Paths"

#### **4. Pedestrian**

The following facilities have been identified for pedestrian improvements in the Benson CTP. The intent is to provide sidewalks on both sides of the street within downtown Benson and on at least one side in areas outside of downtown.

The primary purpose of these improvements is to provide safer pedestrian facilities for local users as an alternative mode of transportation. See CTP maps in Appendix A for information.

For recommendations suitable for use by both bicycles and pedestrians, refer to the “Multi-Use Paths” section for problem statements for these facilities.

##### **SIDEWALK NEEDS IMPROVEMENT**

- NC 50 (East Main Street) from North Dunn Street to Fayetteville Street.
- North Lee Street from NC 50 (East Main Street) to East Church Street.
- SR 1175 (North Johnson Street) from East Church Street to East Hill Street.
- East Hill Street from North Elm Street to SR 1175 (North Johnson Street).
- North Elm Street from East Church Street to East Hill Street.
- US 301 (South Wall Street) from south of West Riddick Street to West Brooklyn Street.
- US 301 (South Wall Street) from West Brooklyn Street to north of West Harnett Street.
- East Parrish Drive from east of Lee Street to end of existing sidewalk.

##### **RECOMMENDED SIDEWALK**

- NC 27 (West Main Street) from SR 1302 (Mingo Road) to NC 50.
- NC 50 (West Main Street) from NC 50 to Augusta Avenue.
- West Church Street from proposed Western Benson Multi-Use Path\* to North Farmer Drive (includes Johnston County CTP Local ID JOHN0005-P).
- West Hill Street from Augusta Avenue to existing sidewalk west of US 301 (North Wall Street).
- West Martin Street from North Lincoln Street to US 301 (North Wall Street).
- West Parrish Drive from South Pine Street to existing sidewalk east of South McLamb Street.
- West Harnett Street from South Pine Street to US 301 (South Wall Street).
- South Pine Street/West Woodall Street from NC 27 (West Main Street) to existing sidewalk west of US 301 (South Wall Street).
- West Brooklyn Street from west end of street to South McLamb Street.
- Brooklyn Street from South Ryals Street to South Market Street (Central Benson Multi-Use Path\*) (includes Johnston County CTP Local ID JOHN0003-P).
- South Blackmon/West Riddick Street from West Mann Street to US 301 (South Wall Street).
- West Mann Street from South Blackmon Street to US 301 (South Wall Street).

- McLamb Tart Road from proposed Western Benson Multi-Use Path\* to US 301 (South Wall Street).
- East Mann Street from South Market Street to South Lee Street.
- East Brocklyn Street from South Lee Street to Chicopee Road.
- East Woodall Street from South Market Street to South Elm Street.
- East Harnett Street from South Market Street to Chicopee Road (includes Johnston County CTP Local ID JOHN0006-P).
- East Parrish Drive from South Elm Street to South Lee Street.
- East Parrish Drive from existing sidewalk east of South Lee Street to Food Lion shopping center access road.
- NC 50 (East Main Street) from existing sidewalk east of North Dunn Street to South Eastwood Drive.
- East Church Street from North Fayetteville Street to North Honeycutt Street.
- East Hill Street from North Dunn Street to Catherine Street.
- North Honeycutt Street from East Church Street to East Morris Avenue.
- East Morris Avenue from North Lee Street to North Honeycutt Street.
- East Morgan Street from North Market Street to existing sidewalk west of North Lee Street.
- East Holmes Street from North Market Street to east end of street.
- East Branch Street from North Elm Street to east end of street.
- NC 242 (South Walton Drive) from Hampton Inn to NC 50 (East Main Street).
- Chicopee Road from South Market Street (Western Benson Multi-Use Path\*) to East Harnett Street (overlaps Johnston County CTP Local ID JOHN0004-P).
- South George Street from East Brocklyn Street to East Harnett Street.
- Food Lion shopping center access road from East Harnett Street to East Parrish Drive.
- South Dunn Street from existing sidewalk south of East Harnett Street to NC 50 (East Main Street).
- South Lee Street from East Mann Street (connect to apartments on South Whittington Street) to East Harnett Street.
- South Elm Street from East Mann Street to East Brocklyn Street (Central Benson Multi-Use Path\*).
- US 301 (South Wall Street) from SR 1301 (McLamb-Tart Road) to existing sidewalk south of West Riddick Street.
- US 301 (South Wall Street) from West Brocklyn Street to existing sidewalk south of West Woodall Street.
- US 301/NC 242 (Wall Street) from West Hill Street to Benson Middle School access road (includes Johnston County CTP Local ID JOHN0002-P).
- NC 242 from US 301 (North Wall Street) to Oak Park Drive.
- South Ryals Street from West Mann Street to West Woodall Street.
- McLamb Street from South Lincoln Street to West Hill Street.

- Lincoln Street from South McLamb Street to NC 50 north of SR 1303 (Benson-Hardee Road) (includes Johnston County CTP Local ID JOHN0009-P)
- NC 50 from SR 1303 (Benson Hardee Road) to Benson Elementary School access road.
- Benson Elementary School access road from NC 50 to pick-up/drop-off loop entrance.
- SR 1303 (Benson Hardee Road) from NC 50 to North Lincoln Street.
- McKinley Street from West Harnett Street to West Hill Street.
- Augusta Avenue from south end of street to West Hill Street.
- North Market Street from East Hill Street to East Branch Street.
- North Elm Street from East Hill Street to East Branch Street.
- North Johnson Street from East Hill Street to East Branch Street (sidewalk on one side of street, Central Benson Multi-Use Path\* on other side of street).
- North Lee Street from existing sidewalk north of East Morgan Street to East Branch Street.
- North Street from East Morris Avenue to East Branch Street.
- Catherine Street from North Honeycutt Street to East Morris Avenue.
- North Hall Street from East Morris Avenue to existing sidewalk north of East Branch Street.
- Fayetteville Street from NC 50 (East Main Street) to East Hill Street.
- North Dunn Street from existing sidewalk north of NC 50 (East Main Street) to East Hill Street.
- South Johnson Street from East Parrish Drive to existing sidewalk north of East Parrish Drive (sidewalk on one side of street, Central Benson Multi-Use Path\* on other side of street).

\*See "Recommended Multi-Use Paths"

## 5. *Multi-Use Paths*

Multi-use paths are off-road bicycle and pedestrian facilities intended to provide local users with an alternative mode of transportation and recreational opportunities. See the CTP maps in Appendix A.

### **RECOMMENDED MULTI-USE PATHS**

- **Benson Greenway #1, Local ID JOHN0002-M:** The CTP project proposal is a multi-use path from SR 1175 (North Johnson Street) to SR 1173 (North Honeycutt Street).
- **Benson Greenway #2, Local ID JOHN0003-M:** The CTP project proposal is a multi-use path from SR 1175 (North Johnson Street) to Benson Greenway #1 (JOHN0002-M).
- **South Lincoln Street and West Brooklyn Street Connector:** The CTP project proposal is a multi-use path from South Lincoln Street near South McLamb Street to West Brooklyn Street.
- **Western Benson Multi-Use Path:** The CTP project proposal is a multi-use path from NC 50 at SR 1303 (Benson-Hardee Road) north of Benson to NC 50 at SR 1104 (Surles Road) south of Benson. The proposed multi-use path would run parallel to the proposed NC 50 North/South Market Street Connector (BENSON003) and the proposed Cub Road/NC 50 South Connector (BENSON004). Changes might be required to the design of the proposed bridge over I-95 connecting South Market Street with Cub Road to be constructed as a part of STIP Project I-5986 in order to accommodate this recommended multi-use path.
- **Central Benson Multi-Use Path:** The CTP project proposal is a multi-use path from the proposed Western Benson Multi-Use Path to US 301 at SR 1175 (North Johnson Street). The proposed path would parallel the following roadways: South Market Street (from the Western Benson Multi-use Path to Brooklyn Street), Brooklyn Street (from South Market Street to Elm Street), Elm Street (from Brooklyn Street to East Parrish Drive), East Parrish Drive (from Elm Street to South Johnson Street), South Johnson Street (from East Parrish Drive to East Main Street), North Johnson Street (from East Main Street to US 301). This proposed path could serve as a portion of the East Coast Greenway in the Benson area.
- **Chicopee Road Multi-Use Path:** The CTP project proposal is a multi-use path running parallel to SR 1100 (Chicopee Road) from US 301 to the proposed Western Benson Multi-Use Path. This proposed path could serve as a portion of the East Coast Greenway in the Benson area.

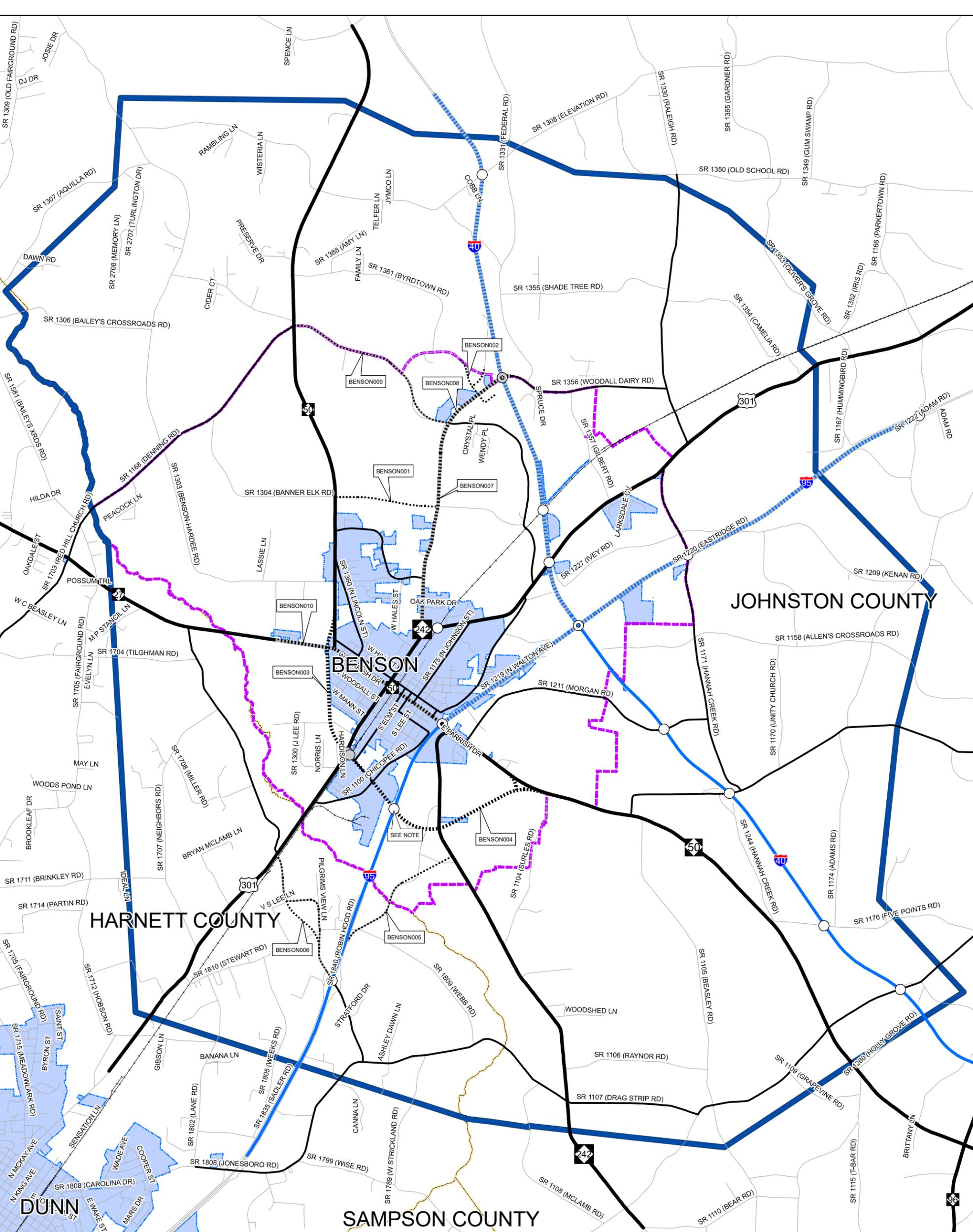
- **US 301 South Multi-Use Path:** The CTP project proposal is a multi-use path on the western side of US 301 from the southern Benson CTP study boundary to the proposed Chicopee Road Multi-Use Path. This proposed path could serve as a portion of the East Coast Greenway in the Benson area.
- **US 301 North Multi-Use Path:** The CTP project proposal is a multi-use path running parallel to US 301 from the proposed Central Benson Multi-Use Path at the US 301/North Johnson Street intersection to the northern Benson CTP study boundary. This proposed path could serve as a portion of the East Coast Greenway in the Benson area.
- **NC 242 North Multi-Use Path:** The CTP project proposal is a multi-use path on the western side of NC 242 from US 301 to the proposed realigned SR 1381 (Woodall Dairy Road) intersection with NC 242 (BENSON002).

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APPENDIX A

CTP MAPS

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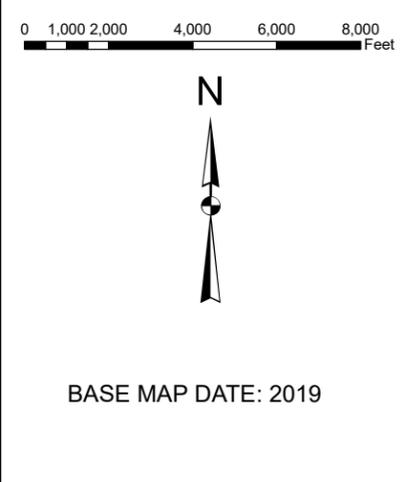


**DRAFT**

NOTE: S MARKET ST. GRADE SEPARATION TO BE CONSTRUCTED AS PART OF STIP PROJECT I-5986

BASE MAP: NCDOT

- HIGHWAY RECOMMENDATIONS:**
- FREEWAY EXISTING
  - FREEWAY NEEDS IMPROVEMENT
  - MINOR THOROUGHFARE
  - MINOR THOROUGHFARE NEEDS
  - MINOR THOROUGHFARE
  - OTHER MAJOR THOROUGHFARE
  - OTHER MAJOR THOROUGHFARE NEEDS
  - OTHER MAJOR THOROUGHFARE
  - EXISTING GRADE SEPARATION
  - PROPOSED GRADE SEPARATION
  - EXISTING INTERCHANGE

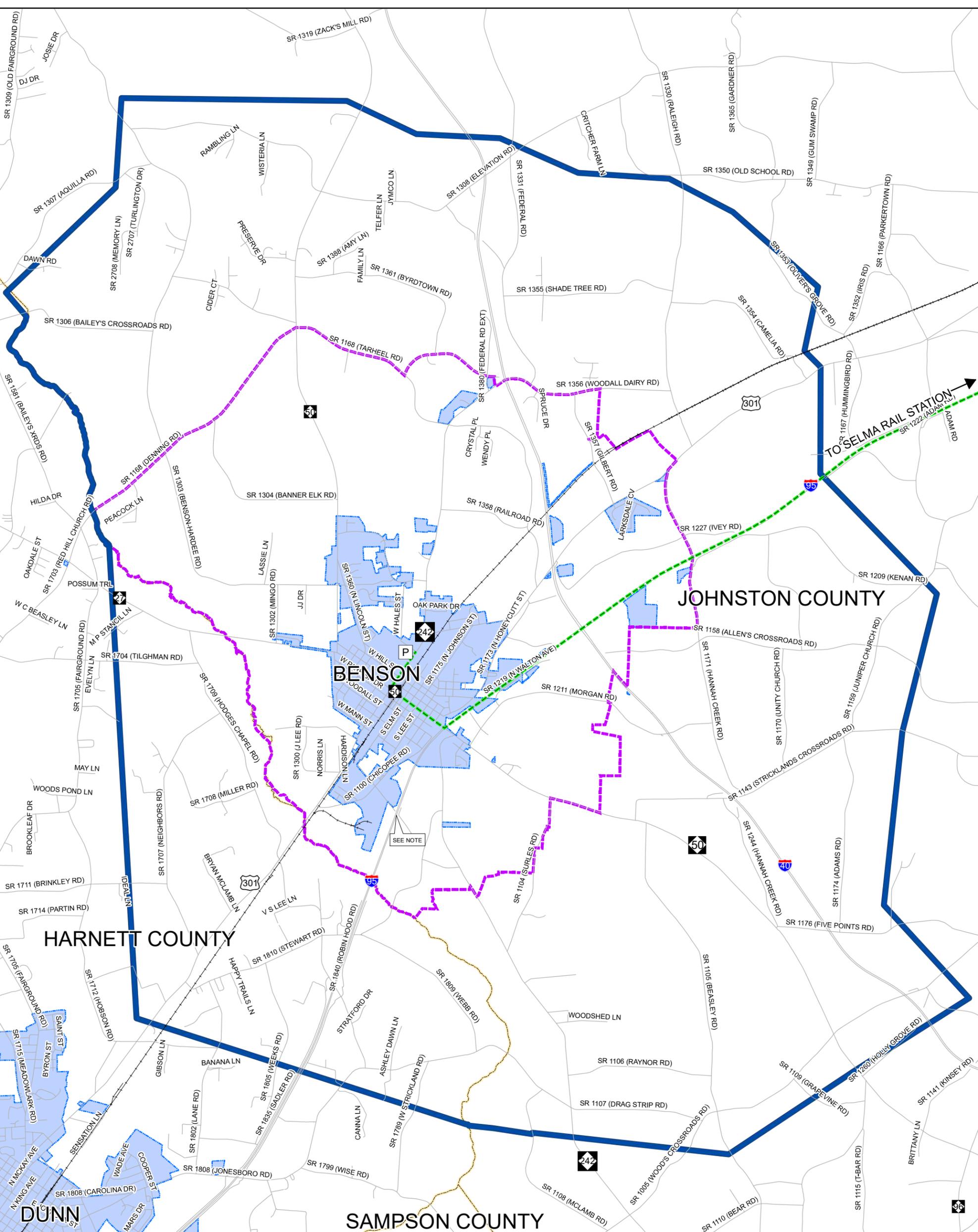


**HIGHWAY MAP**

**TOWN OF BENSON**  
COMMUNITY  
TRANSPORTATION PLAN (CTP)

Plan date: xxxx x, 2019

**FIGURE A1**



HARNETT COUNTY

JOHNSTON COUNTY

SAMPSON COUNTY

DUNN

- BENSON CTP STUDY AREA
- BENSON EXTRATERRITORIAL JURISDICTION
- MUNICIPAL LIMITS
- COUNTY LINE
- BUS ROUTES**
- RECOMMENDED
- PARK AND RIDE LOTS**
- RECOMMENDED

**DRAFT**

0 1,000 2,000 4,000 6,000 8,000 Feet



BASE MAP DATE: 2019

**PUBLIC TRANSPORTATION AND RAIL MAP**



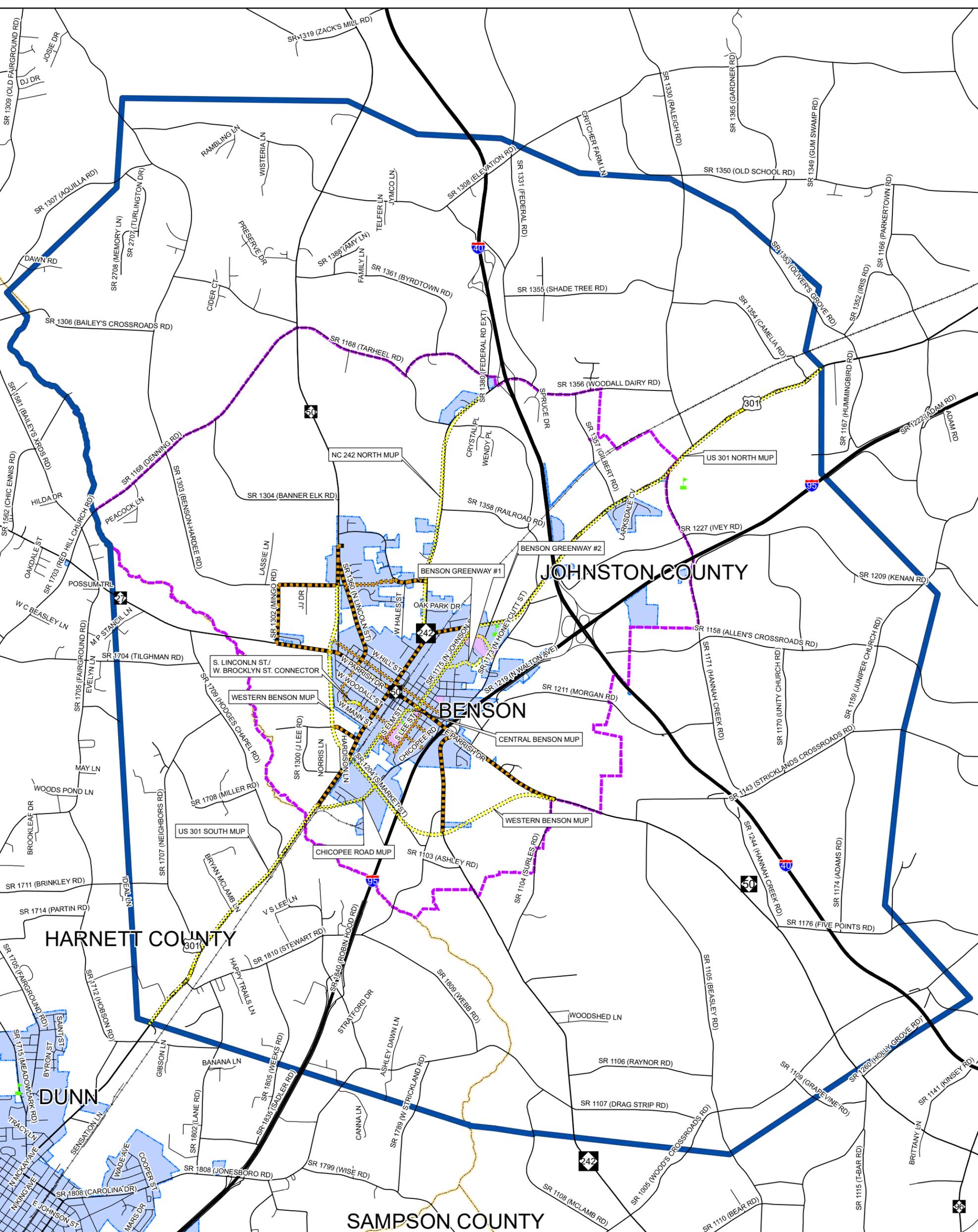
**TOWN OF BENSON COMMUNITY TRANSPORTATION PLAN (CTP)**

Plan date: xxxx x, 2019

**FIGURE A2**

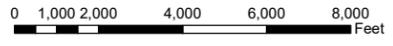
NOTE: RECOMMENDATIONS SHOWN ARE FROM THE 2011 JOHNSTON COUNTY COMPREHENSIVE TRANSPORTATION PLAN

BASE MAP: NCDOT



- BENSON CTP STUDY AREA
- MUNICIPAL LIMITS
- BENSON EXTRATERRITORIAL JURISDICTION
- COUNTY LINE
- LIBRARY
- SCHOOL
- PARKS
- BICYCLE RECOMMENDATIONS**
- ON-ROAD NEEDS IMPROVEMENT
- ON-ROAD RECOMMENDED
- RECOMMENDED MULTI-USE PATH

**DRAFT**



BASE MAP DATE: APRIL 30, 2019

**BICYCLE MAP**

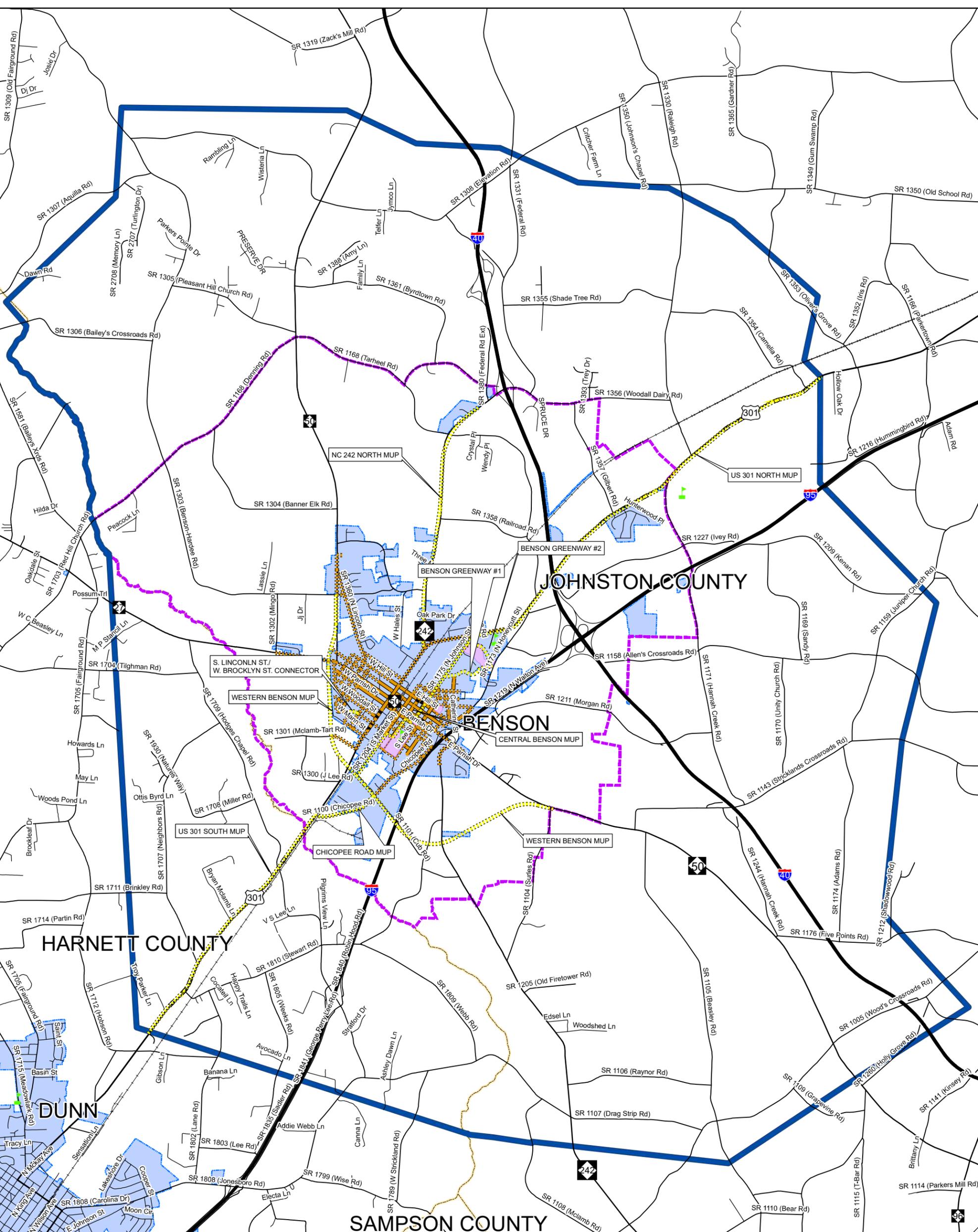


**TOWN OF BENSON**  
COMMUNITY  
TRANSPORTATION PLAN (CTP)

Plan date: xxxx x, 2019

**FIGURE A3**

**DATA SOURCE: NCDOT**



- BENSON CTP STUDY AREA
- MUNICIPAL LIMITS
- BENSON EXTRATERRITORIAL JURISDICTION
- COUNTY LINE
- LIBRARY
- SCHOOL
- PARKS
- PEDESTRIAN FACILITIES**
- EXISTING SIDEWALK
- RECOMMENDED SIDEWALK
- SIDEWALK NEEDS IMPROVEMENT
- RECOMMENDED MULTI-USE PATH

# DRAFT

0 1,000 2,000 4,000 6,000 8,000 Feet



SHEET 1 OF 2

BASE MAP DATE: 2019

## PEDESTRIAN MAP



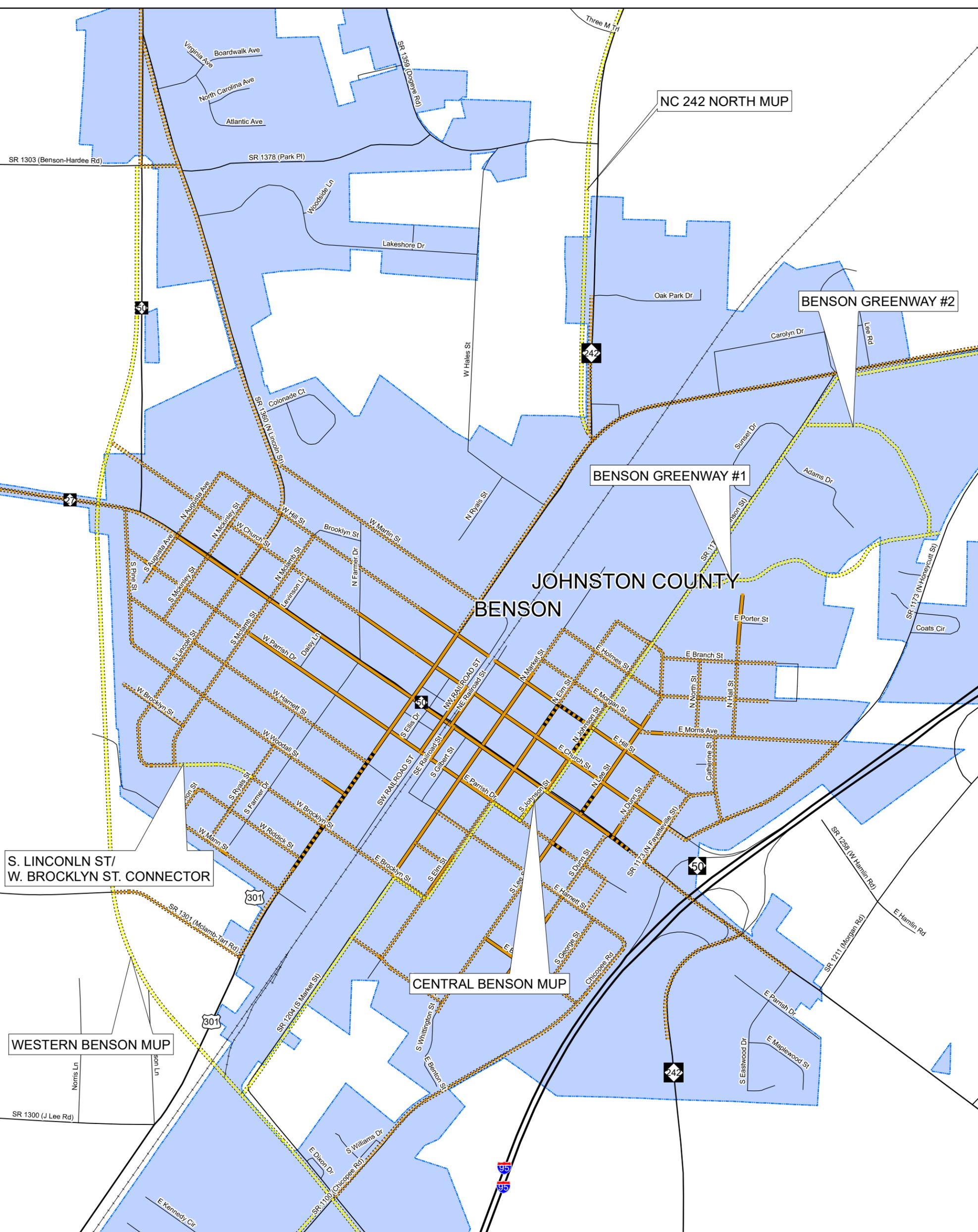
# TOWN OF BENSON

## COMMUNITY TRANSPORTATION PLAN (CTP)

Plan date: xxxx x, 2019

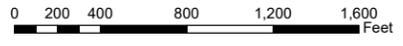
**FIGURE A4**

**BASE MAP: NCDOT**



**DRAFT**

- MUNICIPAL LIMITS
- PEDESTRIAN FACILITIES**
- EXISTING SIDEWALK
- RECOMMENDED SIDEWALK
- SIDEWALK NEEDS IMPROVEMENT
- RECOMMENDED MULTI-USE PATH



SHEET 2 OF 2

BASE MAP DATE: 2019

**PEDESTRIAN MAP  
(INSET)**



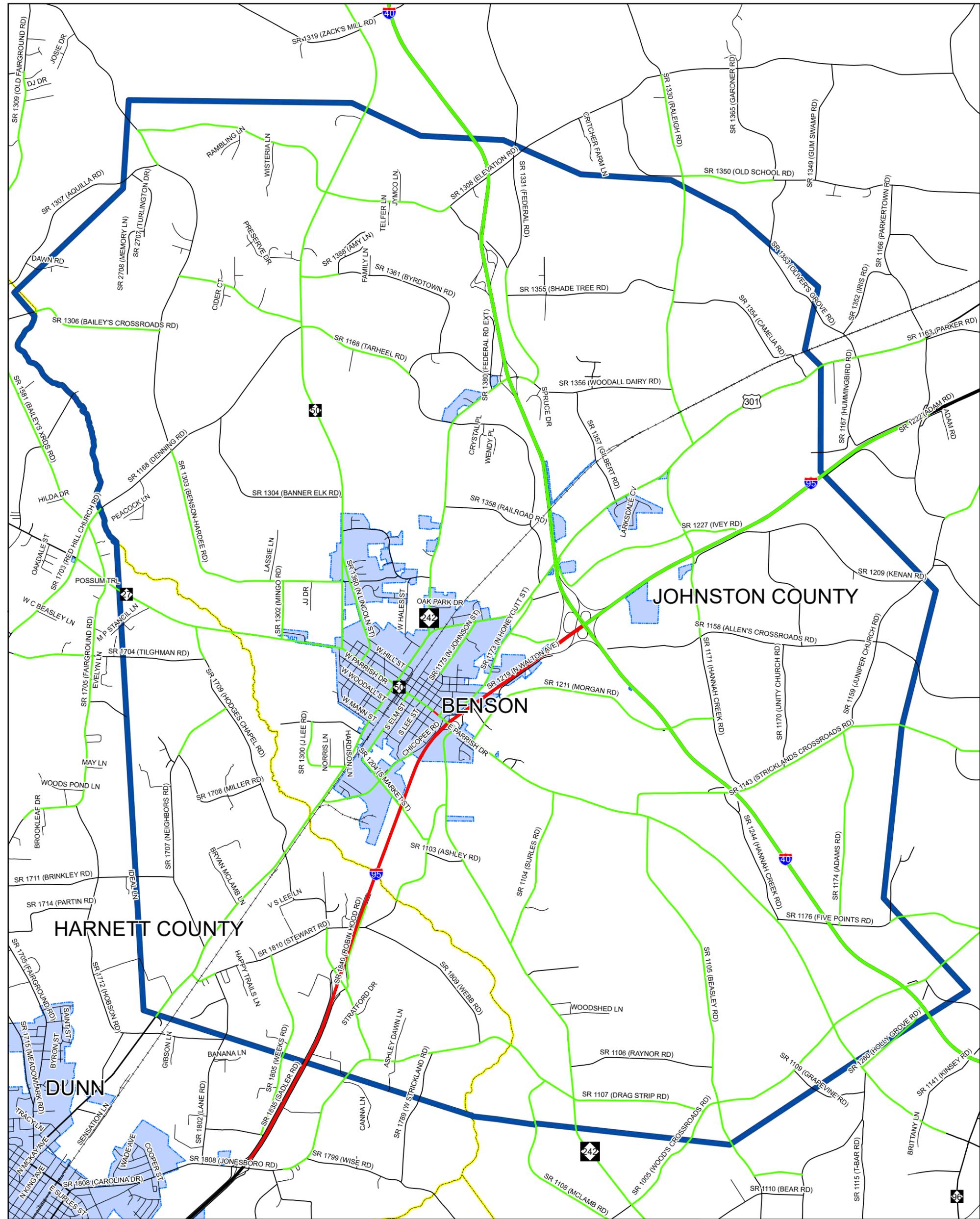
**TOWN OF BENSON**  
COMMUNITY  
TRANSPORTATION PLAN (CTP)

Plan date: xxxx x, 2019

**FIGURE A4**

BASE MAP: NCDOT





**DRAFT**

 **BENSON CTP STUDY AREA**

**2017 VOLUME TO CAPACITY RATIOS**

 **UNDER CAPACITY (0-0.79)**

 **OVER CAPACITY (1.00-1.49)**

**VOLUME TO CAPACITY RATIOS ARE BASED ON AVERAGE ANNUAL DAILY TRAFFIC, NOT PEAK HOUR VOLUMES. DATA SOURCE: NCDOT TRAFFIC SURVEY GROUP**

0 1,000 2,000 4,000 6,000 8,000 Feet



SHEET 1 OF 1

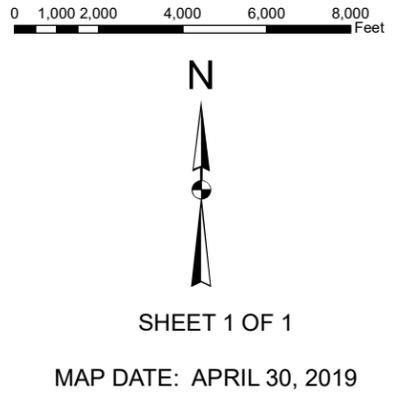
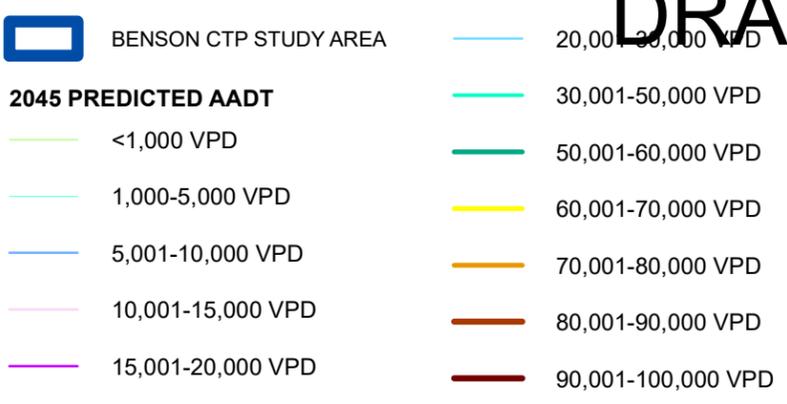
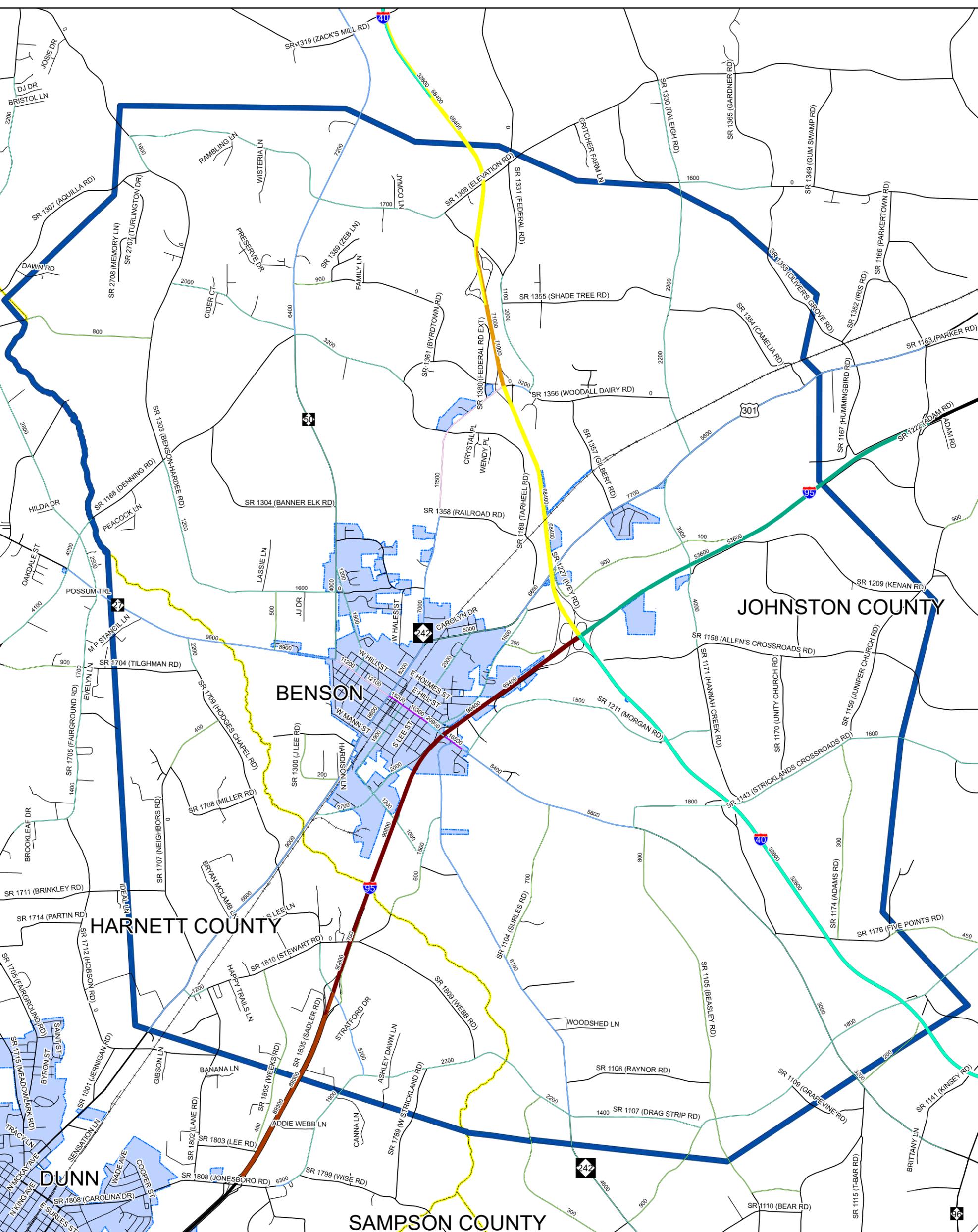
MAP DATE: APRIL 30, 2019

**EXISTING (2017) ROADWAY DEFICIENCY MAP**



**TOWN OF BENSON**  
COMMUNITY  
TRANSPORTATION PLAN

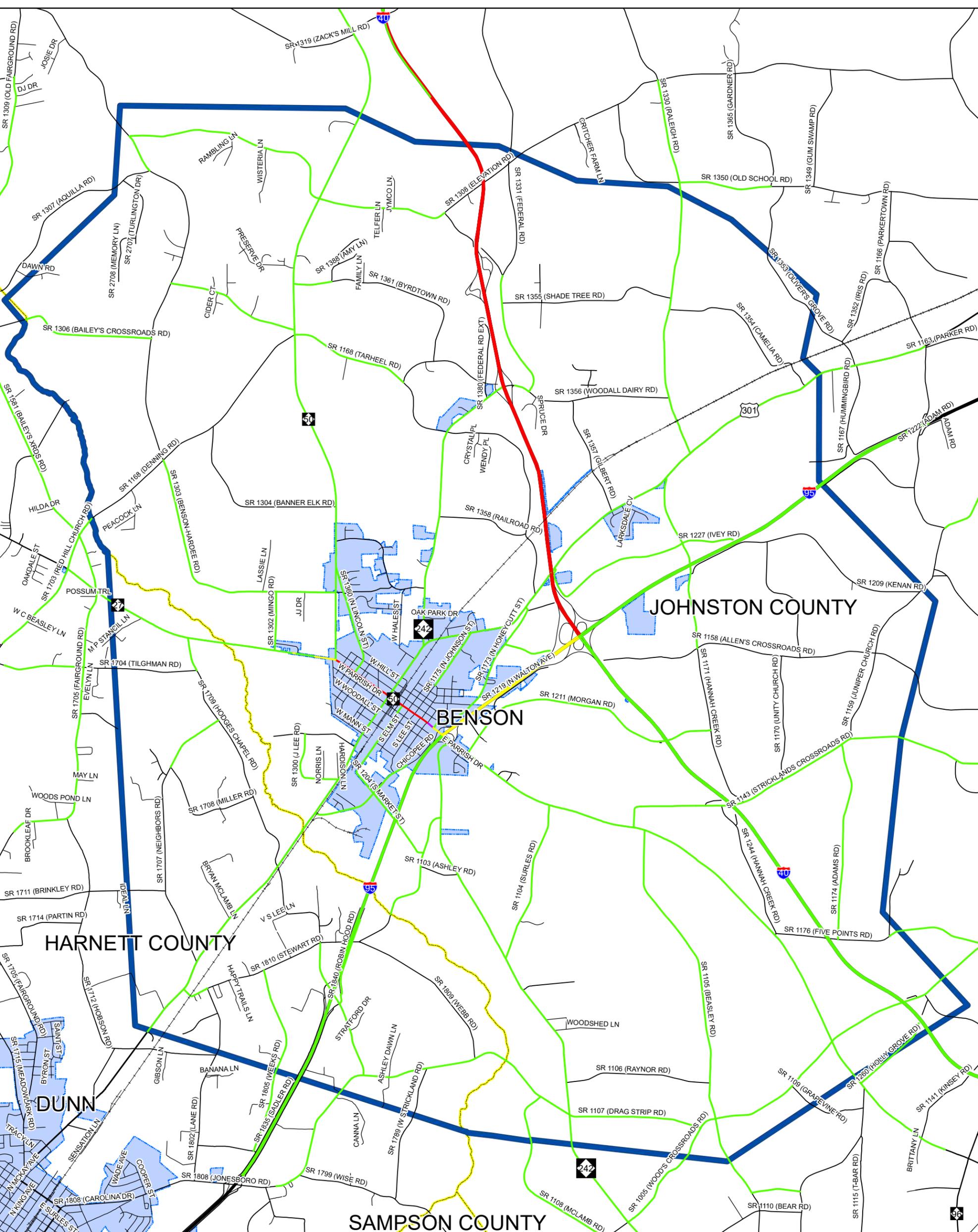
**FIGURE A6**



**FUTURE (2045) AVERAGE ANNUAL DAILY TRAFFIC VOLUMES**

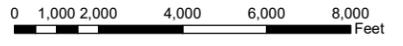
**TOWN OF BENSON**  
COMMUNITY TRANSPORTATION PLAN

FIGURE A7



- BENSON CTP STUDY AREA
- 2045 VOLUME TO CAPACITY RATIOS**
- UNDER CAPACITY (0-0.79)
- NEAR CAPACITY (0.80-0.99)
- OVER CAPACITY (1.00-1.49)
- SIGNIFICANTLY OVER CAPACITY (1.50-1.99)

**DRAFT**



SHEET 1 OF 1

MAP DATE: APRIL 30, 2019

**FUTURE (2045) ROADWAY DEFICIENCY MAP**



**TOWN OF BENSON**  
COMMUNITY  
TRANSPORTATION PLAN

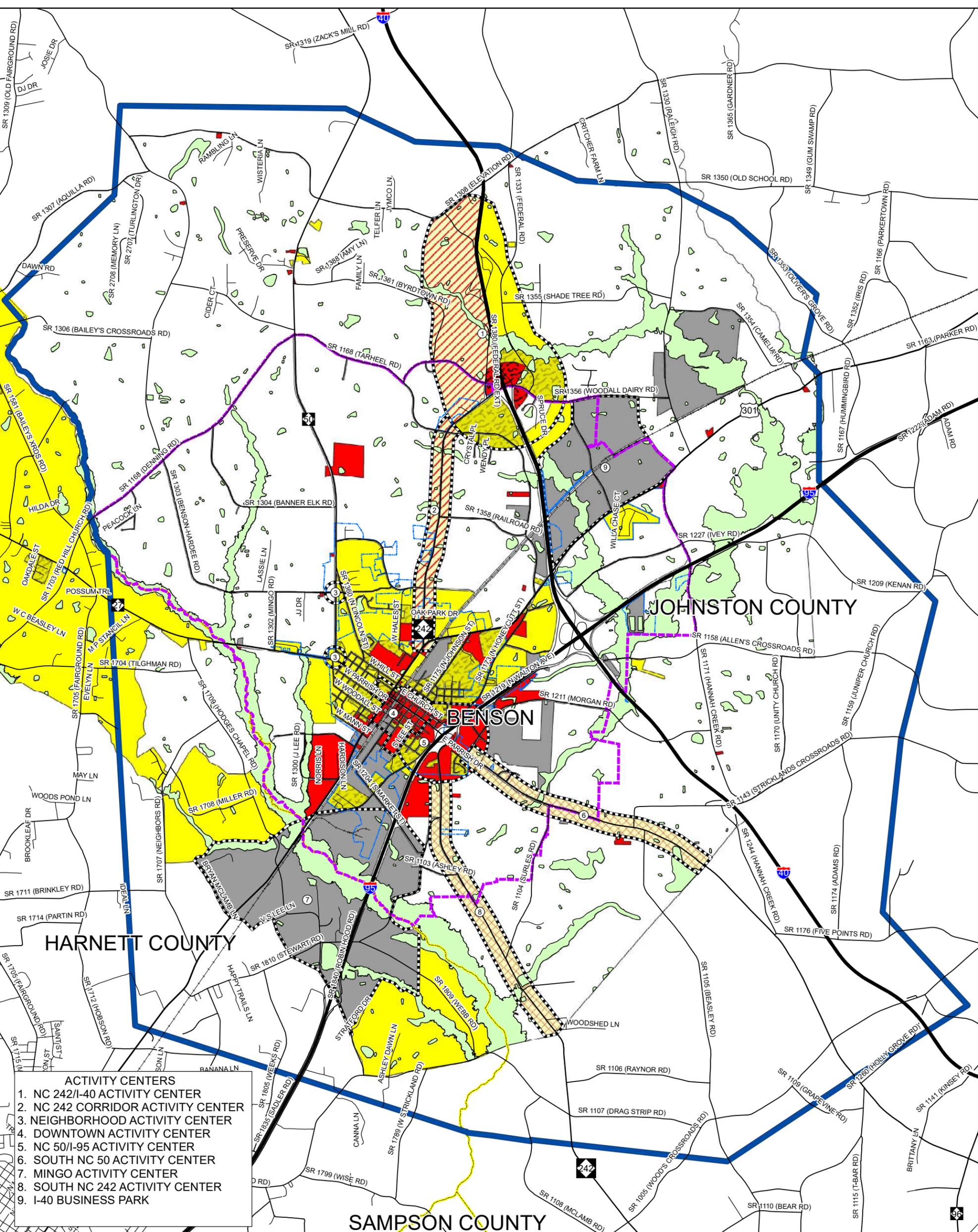
**VOLUME TO CAPACITY RATIOS ARE BASED ON AVERAGE ANNUAL DAILY TRAFFIC, NOT PEAK HOUR VOLUMES. DATA SOURCE: NCDOT TRAFFIC SURVEY GROUP**

**FIGURE A8**



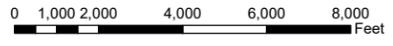






- ACTIVITY CENTERS**
1. NC 242/I-40 ACTIVITY CENTER
  2. NC 242 CORRIDOR ACTIVITY CENTER
  3. NEIGHBORHOOD ACTIVITY CENTER
  4. DOWNTOWN ACTIVITY CENTER
  5. NC 50/I-95 ACTIVITY CENTER
  6. SOUTH NC 50 ACTIVITY CENTER
  7. MINGO ACTIVITY CENTER
  8. SOUTH NC 242 ACTIVITY CENTER
  9. I-40 BUSINESS PARK

- |   |                                    |
|---|------------------------------------|
| BENSON CTP STUDY AREA   | HIGH DENSITY RESIDENTIAL           |
| BENSON TOWN LIMITS  | MIXED USE - RESIDENTIAL/COMMERCIAL |
| BENSON ETJ  | MIXED USE - COMMERCIAL/RESIDENTIAL |
| <b>PROPOSED FUTURE LAND USE</b>   | COMMERCIAL                         |
| LOW DENSITY RESIDENTIAL   | HIGHWAY COMMERCIAL                 |
| MEDIUM DENSITY RESIDENTIAL  | INDUSTRIAL                         |
| <b>DRAFT</b>  | CONSERVATION                       |
| <b>LAND USE INFORMATION PROVIDED BY THE TOWN OF BENSON AND THE WOOTEN COMPANY</b> | ACTIVITY CENTER                    |



SHEET 1 OF 1

MAP DATE: MAY 9, 2019



**FUTURE LAND USE MAP**



**TOWN OF BENSON**  
COMMUNITY  
TRANSPORTATION PLAN

## Appendix B

### Comprehensive Transportation Plan

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

#### **A. 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 right of way)
- 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 1,000 feet or for 350 feet plus 650 feet 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 right of way)
- Type of access control – limited or partial control of access;
- Access management – minimum interchange/intersection spacing 2,000 feet; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways limited in location and number; use of acceleration/deceleration or right turning lanes
- Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
- Driveways – right-in/right-out only; direct driveway access via service roads or

other alternate connections

### **Boulevards**

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

### **Other Major Thoroughfares**

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

### **Minor Thoroughfares**

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

- paved shoulder (rural), sidewalks (urban)
- Right of way – no control of access
- Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – intersections and driveways
- Driveways – full movement on two lane with center turn lane as permitted by the current NCDOT *Driveway Manual*

#### Other Highway Map Definitions

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

## ***B. Public Transportation and Rail Map***

- **Bus Routes** – The primary fixed route bus system for the area. Does not include demand response systems.
- **Park and Ride Lot** – A strategically located parking lot that provides commuters connections to transit or carpools.

## ***C. Bicycle Map***

- **On Road-Existing** – Conditions for bicycling on the highway facility are adequate to safely accommodate cyclists.
- **On Road-Needs Improvement** – At the systems level, it is desirable for an existing highway facility to accommodate bicycle transportation; however, highway improvements are necessary to create safe travel conditions for the cyclists.
- **On Road-Recommended** – At the systems level, it is desirable for a recommended highway facility to accommodate bicycle transportation. The highway should be designed and built to safely accommodate cyclists.
- **Off Road-Existing** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right of way or within an independent right of way.
- **Off Road-Needs Improvement** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right of way or within an independent right of way that will not adequately serve future bicycle needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment.
- **Off Road-Recommended** – A facility needed to accommodate only bicycle transportation and is physically separated from a highway facility either within the right of way or within an independent right of way.
- **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right of way or on an independent right of way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right of way or on an independent right of way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should

not be designated as a multi-use path.

- **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right of way or on an independent right of way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.
- **Existing Grade Separation** – Locations where existing “Off Road” facilities and “Multi-use Paths” are physically separated from existing highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.
- **Proposed Grade Separation** – Locations where “Off Road” facilities and “Multi-use Paths” are recommended to be physically separated from existing or recommended highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

#### ***D. 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:** The Local ID is either the Local ID assigned to the project in the 2011 Johnston County CTP or one assigned to it for the Benson CTP.
- **Jurisdiction:** Jurisdictions listed are based on municipal limits, county boundaries, and MPO Metropolitan Planning Area Boundaries (MAB), as applicable.
- **Existing Cross-Section:** Listed under 'Total Width (ft)' is the approximate width of the roadway from edge of pavement to edge of pavement and under 'Lane Width (ft)' is the approximate width of a single lane based on centerline/ edge line markings. Listed under 'Lanes' is the total number of lanes, with 'D' if the facility is divided, and 'OW' if it is a one-way facility.
- **Existing ROW:** The estimated existing right of way is based on the road 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 '2045 Volume E+C' is an estimate of the volume in 2045 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in either the 2018 - 2027 State Transportation Improvement Program (STIP) or the draft 2020-2029 STIP. The '2045 Volume with CTP' is an estimate of the volume in 2045 with all proposed CTP improvements assumed to be in place. The '2045 Volume with CTP' is shown in bold if it exceeds the proposed capacity, indicating an unmet need. For additional information about the assumptions and techniques used to develop the AADT volume estimates, refer to Chapter 1.
- **Proposed Cross-section:** The CTP recommended cross-sections are listed; for depiction of the cross-section, see the highway recommendations in Section III-C. 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).

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| HIGHWAY                |                      |                 |  |                                      |                        |                 |        |          |                   |                     |                 |                 |                 |                         |               |          |                    |      |             |     |   |
|------------------------|----------------------|-----------------|--|--------------------------------------|------------------------|-----------------|--------|----------|-------------------|---------------------|-----------------|-----------------|-----------------|-------------------------|---------------|----------|--------------------|------|-------------|-----|---|
| Local ID               | Local Name           | Route           | From (S/W)                             | To (N/E)                             | Distance (mi)          | Existing System |        |          |                   |                     | Proposed System |                 |                 |                         |               |          | CTP Classification | Tier | Other Modes |     |   |
|                        |                      |                 |  |                                      |                        | Cross-Section   |        | ROW (ft) | Speed Limit (mph) | 2017 Capacity (vpd) | 2017 AADT       | 2045 AADT (E+C) | 2045 AADT (CTP) | Proposed Capacity (vpd) | Cross-Section | ROW (ft) |                    |      |             |     |   |
|                        |                      |                 |  |                                      |                        | (ft)            | lanes  |          |                   |                     |                 |                 |                 |                         |               |          |                    |      |             |     |   |
| JOHN0001-H             | I-40                 | I-40            | Study Boundary                         | Exit 325 / NC 242 (Woodall Dairy Rd) | 1                      | 48              | 4, div | 250-300  | 70                | 60700               | 38500-40600     | 32600-71000     | 32600-71000     | 60700                   | 8A            | 270      | F                  | Sta  |             |     |   |
| JOHN0001-H             | I-40                 | I-40            | Exit 325 / NC 242 (Woodall Dairy Road) | Exit 328 / I-95                      | 2.4                    | 48              | 4, div | 250-300  | 70                | 60700               | 38500           | 68400           | 68400           | 60700                   | 8A            | 270      | F                  | Sta  |             |     |   |
| JOHN0002-H             | I-40                 | I-40            | Exit 328 / I-95                        | Study Boundary                       | 5.7                    | 48              | 4, div | 250-300  | 70                | 60700               | 22000           | 32600           | 32600           | 60700                   | 6A            | 300      | F                  | Sta  |             |     |   |
| I-4745                 | I-95                 | I-95            | Study Boundary                         | Exit 77 / SR 1709 (Hodges Chapel Rd) | 0.9                    | 48              | 4, div | 170-260  | 65                | 57200               | 59000           | 89300           | 89300           | 116400                  | 8A            | 270      | F                  | Sta  |             |     |   |
| JOHN0003-H / I-4745    | I-95                 | I-95            | Exit 77 / SR 1709 (Hodges Chapel Rd)   | Exit 79 / NC 50 / NC 242 (E Main St) | 2.6                    | 48              | 4, div | 170-260  | 65                | 57200               | 59000           | 90800           | 90800           | 116400                  | 8A            | 270      | F                  | Sta  |             |     |   |
| JOHN0003-H / I-4745    | I-95                 | I-95            | Exit 79 / NC 50 / NC 242 (E Main St)   | Exit 81 / I-40                       | 1.5                    | 48              | 4, div | 170-260  | 65                | 57200               | 64100           | 99400           | 99400           | 116400                  | 8A            | 270      | F                  | Sta  |             |     |   |
| JOHN0003-H             | I-95                 | I-95            | Exit 81 / I-40                         | Study Boundary                       | 2.6                    | 48              | 4, div | 170-260  | 65                | 57200               | 40000           | 53600           | 53600           | 116400                  | 8A            | 270      | F                  | Sta  |             |     |   |
|                        | US 301 Hwy S         | US 301          | N of Dunn                              | SR 1709 (Hodges Chapel Rd)           | 4.3                    | 20              | 2      | 60       | 55                | 13600               | 5000            | 6600            | 6600            | 13600                   | ADQ           | ADQ      |                    | Sta  | B           |     |   |
|                        | S Wall St            | US 301          | SR 1709 (Hodges Chapel Rd)             | NC 50 (Main St)                      | 1.5                    | 40              | 2      | 60       | 25                | 12700               | 6800-7800       | 8600-9000       | 8600-9000       | 12700                   | ADQ           | ADQ      |                    | Sta  | P, B        |     |   |
|                        | N Wall St            | US 301          | NC 50 (Main St)                        | US 301 Hwy N                         | 1.7                    | 44              | 4      | 60       | 35                | 24300               | 7300            | 8200            | 8200            | 24300                   | ADQ           | ADQ      |                    | Sta  | P, B        |     |   |
|                        | US 301 Hwy N         | US 301          | N Wall St                              | Outside Study Boundary               | 3.5                    | 20              | 2      | 60       | 45                | 14100               | 3900-4600       | 5000-8600       | 5000-8600       | 14100                   | ADQ           | ADQ      |                    | Sta  | B           |     |   |
|                        | NC 242 Hwy S         | NC 242          | Outside Study Boundary                 | S Walton Dr                          | 5.8                    | 22              | 2      | 60       | 55                | 14600               | 3200            | 4600            | 4600            | 14600                   | ADQ           | ADQ      |                    | Reg  | B           |     |   |
|                        | S Walton Dr          | NC 242          | NC 242 Hwy S                           | NC 50 (E Main St)                    | 0.4                    | 22              | 2      | 60       | 35                | 11200               | 4600            | 6100            | 6100            | 11200                   | ADQ           | ADQ      |                    | Reg  | P, B        |     |   |
|                        | E Main St            | NC 50 / 242     | S Walton Dr                            | NC 50 / NC 27 (W Main St)            | Concurrent with NC 50  |                 |        |          |                   |                     |                 |                 |                 |                         |               |          |                    |      |             |     |   |
|                        | N Wall St            | US 301 / NC 242 | NC 50 / NC 27 (W Main St)              | NC 242 Hwy N                         | Concurrent with US 301 |                 |        |          |                   |                     |                 |                 |                 |                         |               |          |                    |      |             |     |   |
| JOHN0023-H             | NC 242 Hwy N         | NC 242          | N Wall St                              | I-40 NB Exit Ramp                    | 2.7                    | 22-27           | 2      | 100      | 45-55             | 12300-15100         | 4900-6800       | 7000-11500      | 7000-11500      | 12300-15100             | 3A            | 80       | Min                | Reg  | B           |     |   |
| JOHN0023-H             | Woodall Dairy Rd     | NC 242          | I-40 NB Exit Ramp                      | I-40 SB Exit Ramp                    | <0.1                   | 24              | 2      | 100      | 55                | ?                   | ?               | ?               | ?               | ?                       | 3A            | 80       | Min                | Reg  |             |     |   |
|                        | NC 27                | NC 27           | Outside Study Boundary                 | W Pope St                            | 3.5                    | 20              | 2      | 100      | 45-55             | 10800-14100         | 6700-6800       | 8900-9600       | 8900-9600       | 10800-14100             | ADQ           | ADQ      |                    | Reg  |             |     |   |
|                        | W Main St            | NC 27           | W Pope St                              | N Wall St                            | 1                      | 35-45           | 2      | 100      | 35-45             | 10800-11900         | 6800-8700       | 8900-12100      | 8900-12100      | 10800-11900             | ADQ           | ADQ      |                    | Reg  | P, B        |     |   |
|                        | NC 50 Hwy S          | NC 50           | Outside Study Boundary                 | E Main St                            | 6.03                   | 24              | 2      | 100      | 55                | 15100               | 2600-4300       | 3000-5600       | 3000-5600       | 15100                   | ADQ           | ADQ      |                    | Reg  | B           |     |   |
|                        | E Main St            | NC 50           | NC 50 Hwy S                            | US 301 (Wall St)                     | 0.805                  | 33              | 4      | 100      | 35                | 24300               | 6200-13600      | 8400-20900      | 8400-20900      | 24300                   | ADQ           | ADQ      |                    | Reg  | P, B        |     |   |
|                        | W Main St            | NC 50           | US 301 (Wall St)                       | NC 50 Hwy N                          | 0.078                  | 46              | 2      | 60       | 20                | 12700               | 8200-8700       | 11200-12100     | 11200-12100     | 12700                   | ADQ           | ADQ      |                    | Reg  | P, B        |     |   |
|                        | NC 50 Hwy N          | NC 50           | W Main St                              | Outside Study Boundary               | 6.51                   | 24              | 2      | 100      | 55                | 15100               | 2600-4200       | 4000-7200       | 4000-7200       | 15100                   | ADQ           | ADQ      |                    | Reg  | P, B        |     |   |
| BENSON003<br>BENSON004 | NC 50 Bypass         | NC 50           | NC 50 realignment approaching NC 27    | NC 50 S of Downtown Benson           | 3.2                    | New Location    |        |          |                   |                     |                 |                 |                 |                         |               |          |                    |      | Maj         | Reg | M |
|                        | Wood's Crossroads Rd | SR 1005         | Green Path Rd                          | NC 96                                | 6                      | 18-22           | 2      | 150      | 55                | 10500               | 600-1400        | 900-1800        | 900-1800        | 10500                   | ADQ           | ADQ      |                    | Sub  |             |     |   |

|           |  |                 |                                     |                                     |      |                     |   |     |       |             |           |           |           |             |     |     |     |     |      |      |
|-----------|--|-----------------|-------------------------------------|-------------------------------------|------|---------------------|---|-----|-------|-------------|-----------|-----------|-----------|-------------|-----|-----|-----|-----|------|------|
|           | Chicopee Rd                                      | SR 1100         | US 301 (S Wall St)                  | E Harnett St                        | 1    | 18-20               | 2 | 60  | 35    | 9500        | 1600-1800 | 2000-2700 | 2000-2700 | 9200-9500   | ADQ | ADQ |     | Sub | P    |      |
|           | Cub Rd   | SR 1101         | SR 1102 (Massengill Farm Rd)        | Dead End                            | 0.5  | 22                  | 2 | ?   | 55    | 14600       | 100       | 1000      | 1000      | 14600       | ADQ | ADQ |     | Sub |      |      |
| BENSON005 | Massengill Farm Rd                               | SR 1102         | Webb Rd                             | NC 242                              | 1.1  | 20                  | 2 | 60  | 45    | 11400       | 300       | 1500      | 1500      | 11400       |     |     | Min | Sub |      |      |
| BENSON005 | Massengill Farm Rd Realignment                   | SR 1102         | SR 1840 (Robin Hood Rd)             | NC 242 N of SR 1103 (Ashley Rd)     | 1.3  | <i>New Location</i> |   |     |       |             |           |           |           |             |     |     |     | Min | Sub  |      |
|           | Surles Rd  | SR 1104         | NC 242                              | NC 50                               | 1.5  | 18                  | 2 | ?   | 55    | 13600       | 500       | 700       | 700       | 13600       | ADQ | ADQ |     | Sub |      |      |
|           | Beasley Rd                                       | SR 1105         | SR 1113 (Holly Grove Rd)            | NC 50                               | 4    | 20                  | 2 | 60  | 55    | 14100       | 500       | 800       | 800       | 14100       | ADQ | ADQ |     | Sub |      |      |
|           | Drag Strip Rd                                    | SR 1107         | Webb Rd                             | SR 1005 (Wood's Crossroads Rd)      | 2    | 20                  | 2 | ?   | 55    | 13600-14600 | 900-1500  | 1400-2200 | 1400-2200 | 13600-14600 | ADQ | ADQ |     | Sub |      |      |
|           | McLamb Rd  | SR 1108         | SR 1005 (Wood's Crossroads Rd)      | SR 1107                             | 1.8  | 20                  | 2 | 60  | 55    | 11800       | 200       | 300       | 300       | 11800       | ADQ | ADQ |     | Sub |      |      |
|           | Stricklands Crossroads Rd                        | SR 1143         | NC 50                               | SR 1009 (Devil's Racetrack Rd)      | 4    | 20-24               | 2 | 50  | 55    | 11800-12400 | 1200-1400 | 1600-1800 | 1600-1800 | 11800-12400 | ADQ | ADQ |     | Sub |      |      |
|           | Juniper Church Rd                                | SR 1159         | SR 1143 (Stricklands Crossroads Rd) | Miller Rd                           | 2.9  | 20                  | 2 | ?   | 55    | 11800       | 600       | 900       | 900       | 11800       | ADQ | ADQ |     | Sub |      |      |
|           | Denning Rd / Tarheel Rd                          | SR 1168         | Red Hill Church Rd                  | US 301                              | 6.4  | 20                  | 2 | 60  | 55    | 11800       | 1900      | 3200      | 3200      | 11800       | ADQ | ADQ |     | Sub |      |      |
|           | Hannah Creek Rd                                  | SR 1171         | SR 1143 (Stricklands Crossroads Rd) | US 301                              | 3.1  | 18-24               | 2 | 100 | 55    | 10500-12400 | 1300-1700 | 3900-4000 | 3900-4000 | 10500-12400 | ADQ | ADQ |     | Sub |      |      |
|           | N Fayetteville St / E Church St / N Honeycutt St | SR 1173         | NC 50 (E Main St)                   | US 301 (N Wall St)                  | 1.5  | 18-40               | 2 | 100 | 35-55 | 7500-10500  | 1000      | 1600      | 1600      | 7500-10500  | ADQ | ADQ |     | Sub | P    |      |
|           | Adams Rd   | SR 1174         | 5 Points Rd                         | SR 1143 (Stricklands Crossroads Rd) | 1.81 | 20                  | 2 | 60  | 55    | 11800       | 200       | 300       | 300       | 11800       | ADQ | ADQ |     | Sub |      |      |
|           | N Johnson St                                     | SR 1175         | NC 50 (E Main St)                   | End of Street                       | 0.6  | 34                  | 2 | ?   | 35    | 10200       | 1500      | 2000      | 2000      | 10200       | ADQ | ADQ |     | Sub | P, B |      |
|           | Five Points Rd                                   | SR 1176         | NC 50                               | SR 1005 (Wood's Crossroads Rd)      | 2    | 18-20               | 2 | 60  | 55    | 10500       | 300       | 450       | 450       | 10500       | ADQ | ADQ |     | Sub |      |      |
|           | S Market St                                      | SR 1204         | Dead End                            | NC 50 / NC 242 / E Main St          | 1.3  | 20-40               | 2 | 60  | 55    | 9500-14600  | 100-1400  | 1200-1900 | 1200-1900 | 9500-14600  | ADQ | ADQ |     | Sub | P    |      |
|           | Helms-Dogwood Rd                                 | SR 1210         | SR 1173 (N Honeycutt St)            | Dead End                            | 0.4  | 18                  | 2 | ?   | 55    | 10500       | 200       | 300       | 300       | 10500       | ADQ | ADQ |     | Sub |      |      |
|           | Morgan Rd  | SR 1211         | NC 50 (E Main St)                   | SR 1171 (Hannah Creek Rd)           | 2.6  | 18-24               | 2 | 60  | 35-55 | 10500-12400 | 1100      | 1500      | 1500      | 10500-12400 | ADQ | ADQ |     | Sub |      |      |
|           | Ivey Rd  | SR 1227         | US 301                              | Dead End                            | 2    | 20-26               | 2 | 50  | 55    | 11800-12400 | 100-400   | 100-900   | 100-900   | 11800-12400 | ADQ | ADQ |     | Sub |      |      |
|           | J Lee Rd   | SR 1300         | McLamb Tart Rd                      | US 301 (S Wall St)                  | 0.7  | 20                  | 2 | ?   | 55    | 11800       | 100       | 200       | 200       | 11800       | ADQ | ADQ |     | Sub |      |      |
|           | Mingo Road                                       | SR 1302         | NC 27                               | SR 1303 (Benson Hardee Road)        | 0.5  | 20                  | 2 | 60  | 35-55 | 9500-11800  | 300       | 500       | 500       | 9500-11800  | ADQ | ADQ |     | Sub |      |      |
|           | Benson-Hardee Rd                                 | SR 1303         | SR 1551 (Johnston County Rd)        | N Lincoln St                        | 7.5  | 20                  | 2 | ?   | 35-55 | 9500-11800  | 900-1200  | 1200-1600 | 1200-1600 | 9500-11800  | ADQ | ADQ |     | Sub | P    |      |
| BENSON001 | Banner Elk Rd-Railroad Rd Connector              | SR 1304-SR 1358 | NC 50                               | NC 242                              | 1    | <i>New Location</i> |   |     |       |             |           |           |           |             |     |     |     | Min | Sub  | P, B |
|           | Pleasant Hill Church Rd                          | SR 1305         | SR 1303 (Benson-Hardee Rd)          | NC 50                               | 1.2  | 18                  | 2 | ?   | 55    | 10500       | 1000      | 2000      | 2000      | 10500       | ADQ | ADQ |     | Sub |      |      |
|           | Elevation Rd                                     | SR 1308         | SR 1303 (Benson-Hardee Rd)          | Black Creek Rd                      | 6.3  | 18                  | 2 | ?   | 55    | 10500       | 1000-1100 | 1700      | 1700      | 10500       | ADQ | ADQ |     | Sub |      |      |

|           |                                 |         |                                |  |     |                     |   |    |    |       |           |           |      |       |     |     |  |     |     |     |  |
|-----------|---------------------------------|---------|--------------------------------|--|-----|---------------------|---|----|----|-------|-----------|-----------|------|-------|-----|-----|--|-----|-----|-----|--|
|           | Raleigh Rd                      | SR 1330 | McLemore Rd                    | US 301   | 3.6 | 22                  | 2 | 60 | 55 | 12400 | 1600      | 2200      | 2200 | 12400 | ADQ | ADQ |  | Sub |     |     |  |
|           | Federal Rd                      | SR 1331 | SR 1330 (Raleigh Rd)           | SR 1356 (Woodall Dairy Rd)                                 | 4.0 | 18                  | 2 | ?  | 55 | 10500 | 700-1300  | 1100-2000 | 2000 | 10500 | ADQ | ADQ |  | Sub |     |     |  |
|           | Woodall Dairy Rd                | SR 1356 | NC 242                         | SR 1330 (Raleigh Rd)                                       | 1.6 | 24                  | 2 | 60 | 55 | 12400 | 3400      | 5200      | 5200 | 12400 | ADQ | ADQ |  | Sub |     |     |  |
|           | N Lincoln St                    | SR 1360 | NC 50                          | NC 50 / NC 27 / W Main St                                  | 1.0 | 20                  | 2 | ?  | 35 | 9500  | 1100      | 1900      | 1900 | 9500  | ADQ | ADQ |  | Sub | B   |     |  |
|           | Byrdtown Rd                     | SR 1361 | NC 50                          | SR 1356 (Woodall Dairy Rd)                                 | 1.9 | 20                  | 2 | ?  | 55 | 11800 | 500       | 900       | 900  | 11800 | ADQ | ADQ |  | Sub |     |     |  |
| BENSON002 | Woodall Dairy Rd<br>Realignment | SR 1381 | Woodall Dairy Rd               | NC 242 - existing alignment is to SR 1380 (Federal Rd Exd) | 0.5 | <i>New Location</i> |   |    |    |       |           |           |      |       |     |     |  |     | Min | Sub |  |
|           | Red Hill Church Rd              | SR 1703 | SR 1168 (Denning Rd)           | US 421   | 1.5 | 18                  | 2 | ?  | 55 | 10500 | 2600-2700 | 4000-4100 | 4100 | 10500 | ADQ | ADQ |  | Sub |     |     |  |
|           | Tilghman Rd                     | SR 1704 | SR 1703 (Red Hill Church Rd)   | SR 1709 (Hodges Chapel Rd)                                 | 1.9 | 20                  | 2 | 60 | 55 | 11800 | 600       | 900       | 900  | 11800 | ADQ | ADQ |  | Sub |     |     |  |
|           | Neighbors Rd                    | SR 1707 | SR 1709 (Hodges Chapel Rd)     | US 301   | 2.5 | 20                  | 2 | ?  | 55 | 11800 | 300       | 400       | 400  | 11800 | ADQ | ADQ |  | Sub |     |     |  |
| BENSON006 | Hodges Chapel Rd                | SR 1709 | NC 27                          | SR 1808 (Jonesboro Rd)                                     | 3.7 | 18                  | 2 | ?  | 55 | 10500 | 1100      | 2200      | 2200 | 10500 |     |     |  | Min | Sub |     |  |
| BENSON006 | Hodges Chapel Rd<br>Realignment | SR 1709 | Hodges Chapel Rd at V S Lee Ln | Hodges Chapel Rd between Stewart Rd and I-95               | 0.5 | <i>New Location</i> |   |    |    |       |           |           |      |       |     |     |  |     | Min | Sub |  |
|           | Weeks Rd                        | SR 1805 | SR 1810 (Stewart Rd)           | Lee Rd   | 1.7 | 20                  | 2 | 60 | 55 | 11800 | 300       | 400       | 400  | 11800 | ADQ | ADQ |  | Sub |     |     |  |
|           | Jonesboro Rd                    | SR 1808 | E Johnson St                   | SR 1809 (Webb Rd)  | 2.7 | 20                  | 2 | ?  | 55 | 11800 | 1500-4200 | 1900-6300 | 6300 | 11800 | ADQ | ADQ |  | Sub |     |     |  |
|           | Stewart Rd                      | SR 1810 | US 301                         | SR 1843 (Foundations Rd)                                   | 1.5 | 18                  | 2 | 60 | 55 | 10500 | 800       | 1200      | 1200 | 10500 | ADQ | ADQ |  | Sub |     |     |  |
|           | Robin Hood Rd                   | SR 1840 | Dead End                       | SR 1709 (Hodges Chapel Rd)                                 | 0.8 | 18                  | 2 | ?  | 55 | 10500 | 600       | 700       | 700  | 10500 | ADQ | ADQ |  | Sub |     |     |  |

Red: segment endpoint is outside study area

*Italics*: segment endpoint is a name change along a straight path (rather than a cross street)

## Appendix D

### 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 D1.

- **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.

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Figure D1 - Level of Service Illustrations

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LOS A



LOS B



LOS C



LOS D



LOS E



LOS F

Source: 2010 Highway Capacity Manual, Exhibit 11-4

## **Appendix E**

### **Benson CTP Steering Committee**

At the start of a CTP study, a committee is formed 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.

This appendix includes a listing of steering committee members and the minutes from the steering committee meetings.

#### ***A. List of CTP Steering Committee Members***

The following people served on the Benson CTP steering committee:

- Amy Adams, Acera Wealth Management
- Varinder Bhardwaj, Exxon Gas Station
- Jimmy Eatmon, NCDOT Division Four
- Kenneth Edwards, Police Chief
- Chip Gretok, Berry Global
- Reggie Holley, resident
- Josh Holloman, Johnston County
- Leanne Honrine, Berry Global
- Kevin Hubbard, Johnston County EMS
- Dennis Jernigan, resident
- Alan Johnson, Fire Chief
- Jim Johnson, Benson Board of Commissioners
- Erin Joseph, Benson Planning Director
- Adam Leath, Hampton Inn
- Dale McLamb, South River Electric Membership Corporation
- Jerry Medlin, Mayor of Benson
- William Neighbors, Benson Board of Commissioners
- Braston Newton, Johnston County Planning
- Dale Parker, Parker General Contractors
- John Pitcher, Crossroads Fire Protection
- Kayla Price, resident
- Kim Price, Dynamite Trailers
- Tim Robbins, Benson Public Works Director
- James Salmons, Upper Coastal Plain RPO
- John Strickland, Galot Motorsports Park
- Dana Strickland, Galot Motorsports Park
- Scott Walston, NCDOT Transportation Planning Division
- Matt Zapp, Town Manager

#### ***B. Benson CTP Steering Committee Meeting Minutes***

Meetings of the Benson CTP steering committee were held monthly the second Monday of each month between February and May 2019. Minutes from each meeting are presented on the following pages.

**Minutes  
Town of Benson  
Community Transportation Plan Steering Committee  
Monday, February 11, 2019  
7:00 PM**

**Present:**

**Jay McInnis  
Mayor Jerry Medlin**

**Town Manager Matt Zapp  
Chief Kenneth Edwards  
Admin Assistant Lauren Shepard**

**Amy Adams  
Kayla Price  
Leanne Honrine  
Dana Strickland  
Scott Walston  
Dennis Jernigan**

**Commissioner Jim Johnson  
Jimmy Eatmon**

**Public Works Director Tim Robbins  
Planning Director Erin Joseph  
Reggie Holley**

**Kim Price  
Adam Leath  
John Strickland  
James Salmons  
Josh Holloman  
John Pitcher**

**I. Welcome and Introductions** (*Matt Zapp, Town of Benson*)

Matt Zapp introduced Jay McInnis. McInnis and his firm (Ramey, Kemp & Associates) have been contracted to lead the community transportation plan by the Town of Benson. Zapp stated that this plan could be used by Johnston County and NCDOT for future transportation planning.

**II. CTP Overview/Schedule** (*Jay McInnis, Ramey, Kemp & Associates*)

**A. Develop CTP Vision (December 2018 – February 2019)**

Develop vision and goal for comprehensive transportation plan

**B. Conduct Needs Assessment (February 2019 – April 2019)**

At the March meeting the committee should agree on visions and goals and discuss the needs assessment

**C. Analyze Alternatives (April 2019 – May 2019)**

Provide alternatives to address needs identified for Benson. These will be presented in the draft plan presented to the Town Board for approval.

D. **Develop Final Plan (May 2019 – June 2019)**

The steering committee will approve alternatives discussed at previous meetings.

E. **Adopt Plan (June 2019)**

After approval by the Town Board, the plan would be presented to the Johnston County Board of Commissioners to be incorporated in the countywide transportation plan. The Town of Benson and Johnston County can then seek funding for these projects from NCDOT via the State Transportation Improvement Program (STIP).

III. **Purpose of Steering Committee** *(Jay McInnis)*

McInnis stated that the steering committee should guide the community transportation plan process. The committee will need to agree on vision, goals, area of needs, alternatives, and recommendations for the final plan.

IV. **Goals for the February 11<sup>th</sup> Meeting** *(Jay McInnis)*

- A. **Confirm steering committee members and set expectations**
- B. **Agree on CTP study area**
- C. **Begin Discussion on Area Transportation Needs**

V. **CTP Study Area Discussion** *(Jay McInnis)*

The study area, as currently defined, runs west from Benson to the Johnston/Harnett County line, runs north to the Byrdtown Road area then following a line to the I-40 Rest Area, and encompassing Exit 325 (I-40/NC 242). The study area will also encompass South Johnston High School, run east of Adams Road, and then cross I-40 east of Benson and run south to Dragstrip Road.

There was discussion about including areas south of the Johnston/Harnett County Line in the study area, particularly Exit 77 (I-95/Hodges Chapel Road). Matt Zapp stated that the City of Dunn has already installed water infrastructure to that interchange to service Rooms to Go. However, Benson has an industrial certified site between Exits 77 and 79 (I-95/Main Street), and potentially another large site closer to Exit 77.

There was discussion about extending the study area south to Exit 77 and include Hodges Chapel Road and other areas in Harnett County that abut Neighbors Road, Fairground Road, and US 301. Matt Zapp also stated he would verify that the study area includes the future ETJ of the Town of Benson, which will likely expand beyond its current footprint.

**VI. Benson Transportation Needs Discussion**  
**a. Benson Transportation Survey Results**

**1. Worst Traffic Problem in Benson**

- Main Street
- US 301 (Wall Street)

**2. Three most congested routes**

- Main Street
- US 301
- NC 50

**3. What intersection is in the most need of improvement?**

- Main Street/US 301 intersection

**4. What safety problems exist in Benson area?**

- Pedestrian safety
- Parking

**5. What problems with truck traffic affect the Benson area?**

- Congestion
- Damage to roadways
- Trucks on secondary streets

**6. To accommodate higher traffic volumes, rank improvement options**

- Improve intersection designs by adding turn lanes and/or improving traffic signal timing
- Building additional traffic lanes

**7. How important are the general transportation objectives?**

- Reduce congestion
- Improve safety
- Economic growth

**8. Alternative transportation options**

- Sidewalks
- Greenways
- Public bus service

There was further discussion about demographics of who filled out the survey, and how it was distributed/advertised. 136 people filled out the survey, which was a high number for a town of Benson's size.

**b. Roadway Congestion**

McInnis presented on the areas with the highest volumes of congestion. Matt Zapp discussed the use of traffic cameras at various high volume intersections throughout town.

- I-95
- I-40
- Main Street

**c. Safety**

McInnis presented on roads in Benson with the highest numbers of crashes from 2013-2017.

- Main St
- US 301
- I-95
- I-40
- NC 50

**d. Bicycle/Pedestrian Needs**

McInnis had no data to share at this meeting on this topic.

**VII. CTP Vision/Goals Discussion**

Mayor Medlin discussed the importance of NC 242 north and south of Benson as the completion of NC 540 brings more residents and truck traffic to the Benson area. Medlin discussed the need to get truck traffic out of the Town core as much as possible.

James Salmons discussed his work with the Upper Coast Plain RPO and NCDOT to produce long-range transportation plans and prioritization lists. One of the projects listed by NCDOT was the NC 242/Tarheel Road intersection up to Exit 325 (I-40/NC 242).

There was further discussion about potential residential growth near Exit 325. Erin Joseph stated that this area is currently zoned as commercial, primarily. There is a high demand for residential growth in this area, but commercial growth is the plan for this area. Joseph and Matt Zapp discussed the amount of inquiries for properties in this area. Most want existing structures, and there is a very low vacancy rate.

Dennis Jernigan and James Salmons discussed the State Transportation Improvement Plan (STIP) and the Johnston County Transportation Plan. The County and the State have noted NC 242 improvements as a critical need, but it could be more than 5 years before any construction occurs.

There was additional discussion about the slated improvements the STIP has for the NC 210/ NC 50 area.

McInnis discussed how the Town of Benson would measure how far it has progressed in reaching the goals that will be set by this study. McInnis recommended that the Town set a 20-25 year benchmark. The STIP is done with a 10-year scope.

There was discussion about how much of the Transportation Plan should focus on immediate needs and how much should focus on long-term goals. James Salmons, Scott Walston, and Dennis Jernigan discussed how Johnston County and NCDOT would take the recommendations and findings from this plan into consideration as they develop projects that will affect the Benson area.

Commissioner Johnson and James Salmons discussed the importance of making sure the transportation plan and the future land use and zoning maps were compatible. Matt Zapp pointed out that this committee will help the Planning Department as the Unified Development Ordinance is updated. These steps will be critical to plan for the growth that is already upon us, plus what will be coming in future years.

There was further discussion on how this Transportation Plan can be updated incrementally as needs change (5-10 years), and how Johnston County will be able to incorporate it into their overall transportation plan for the entire county. This study is recommended by Johnston County and NCDOT to make sure the best, and most accurate, data/priorities for Benson are reflected on the county and state levels.

Commissioner Johnson and Mayor Medlin discussed the future potential growth on NC 242 south of Benson and the potential for the new bridge over I-95 at Market Street to service these industrial areas, and perhaps serve as a future truck route to keep traffic out of downtown.

There was discussion related to making some of the goals in this plan reflect measures in more immediate increments, and setting bench marks throughout the 25 year span projections of the study. Several members stressed prioritization of goals, as well as the ability to be flexible with any changes that occur that cannot be predicted at this time.

Matt Zapp reiterated how important it will be to consider future land use and ETJ expansion as the Town finalizes this plan. The impact on the Planning department and vice versa will be critical to how useful this study is. Zapp requested that the Planning Department prepare maps for the steering Committee to review at the next meeting: current/future land use, current zoning, 301 roundabout, and NC 540.

James Salmons also asked that the Town consider keeping the East Coast greenway map in mind through this process.

## **VIII. Wrap up/Action Items**

Matt Zapp stated that he would send out the comprehensive land use map to the group before the next meeting. Jay McInnis would also send handouts to the group to review before the March 11 meeting.

**Minutes  
Town of Benson  
Community Transportation Plan Steering Committee  
Monday, March 11, 2019  
7:00 PM**

**Present:**

**Jay McInnis, Ramey, Kemp & Assoc.  
Jerry Medlin, Mayor**

**Dennis Jernigan, Resident  
Jimmy Eatmon, NCDOT**

**Matt Zapp, Town Manager  
Kenneth Edwards, Police Chief  
Alan Johnson, Fire Chief  
Lauren Shepard, Admin Assistant**

**Tim Robbins, Public Works Director  
Erin Joseph, Planning Director  
Reggie Holley, Resident  
Kayla Price, Resident**

**Dale Parker, Parker General Contractors  
Dale McLamb, South River Electric  
Kevin Hubbard, Johnston County EMS  
Chip Gretok, Berry Global  
Amy Adams, Acera Wealth Management  
Leanne Honrine, Berry Global**

**Kim Price, Dynamite Trailers  
Adam Leath, Hampton Inn  
James Salmons, Upper Coastal RPO  
Varinder Bhardwaj, Exxon Gas Station  
Scott Walston, NCDOT**

**I. Welcome and Introductions** (*Matt Zapp, Town of Benson*)

Matt Zapp welcomed the committee, and led group introductions.

**II. Approval of February 11, 2019 Meeting Minutes**

**Action: Dennis Jernigan made a motion to approve the February 11, 2019 meeting minutes. Amy Adams made a second to the motion. Approved unanimously.**

**III. CTP Study Area and Vision/Goals Update** (*Matt Zapp/Jay McInnis, Ramey, Kemp, and Associates*)

**A. CTP Study Area**

Matt Zapp explained the study area originally discussed at the February meeting. The focus of the study will encompass the Benson Town limits and the areas outside of town that have an effect on Benson's transportation future.

Jay McInnis presented the following synopsis of the study area:

- Covers 100% of the Benson's ETJ

- The western line of the study area moved in to Harnett County to capture the Hodge's Chapel Road interchange (Exit 77)
- Captures Benson's future ETJ
- The study area is approximately two miles beyond the ETJ. North of the I-95/I-40 interchange (Exit 81) to a point about two miles south of the Four Oaks ETJ.
- The primary purpose of the study is what the needs are in the Benson area for now and the future.
- Discussion of having the CTP timeframe sunset in 2040.

Jay McInnis stated that Benson should consider 2045 as the horizon year for the study to keep it in line with the likely horizon year for the next update to the Johnston County Comprehensive Transportation Plan.

**B. Goals for the Committee are:**

- Establish timeline of the CTP
- Work to create deliverables that we can recommend to Johnston County
- Encompass the Benson CTP within the Johnston County Transportation Plan for consideration by NCDOT.
- Plan out what Benson will look like in 2030, 2040 and then 2045.

Matt Zapp stated that the committee's goal is to put together a community plan. He asked what else the committee could do to make sure the plan is successful?

Scott Walston stated that NCDOT needs a plan that addresses transportation efficiencies with data demonstrating a need and not a want. **Can the roads support the current traffic?**

Matt Zapp addressed immediate traffic needs:

- The "fly-over" bridge (Market St. extension) will service the area east of I-95, but there is no means to move traffic north and south on the east side of I-95.
- The "fly-over" bridge will terminate on the side of a farm field where the interconnectivity of a two-lane road is without proper shoulder width. Massengill Farm Rd. and Cub Rd. cannot currently accommodate large truck traffic of up to sixty per day.
- Currently, there is no connection direct to Robin Ln. which would take transfer truck traffic south to Exit 77.
- Hampton Inn and two out parcels are ready for potential quick serve and full service restaurants with an average of 800 vehicles using that intersection (NC 242).
- We have the traffic data for NC 242 South and the US 301/NC 50 intersection. The traffic cameras have now been moved to capture data at the Main St./Dunn St. intersection and the Main St./Fayetteville St. intersections.

#### IV. **Area Transportation Needs Exercise (Review Maps)** *(Group Activity)*

Matt Zapp explained a series of maps posted throughout the meeting room. He asked the committee to review each map, and note any concerns they had from a timeframe of 5-10 years, 10-20 years, and by 2045.

Matt Zapp posed ideas to think about when reviewing the maps including: development of residential and commercial areas and everyday traffic for daily living. He asked the representatives from Johnston County Emergency Management to consider connectivity for emergency vehicles, and where they would envision a 2<sup>nd</sup> EMS station to service Benson.

Suggestions made by the committee after map review:

- Fire Chief, Alan Johnson – Morgan Rd. is too narrow
- Dennis Jernigan – Would like to see Banner Elk Rd. and Railroad Rd. connected between NC 50 and NC 242. This would offer an East/West connection north of Benson
- Amy Adams – Suggested adding more street lighting on S.E. Railroad St. and S.W. Railroad St. for pedestrian traffic
- Dennis Jernigan – Suggested that any future commercial development on vacant lots be setback away so that the fronts of businesses are not so close to the roadway.
- Dennis Jernigan – Would like to see better pedestrian connectivity between schools, parks, and the Civic Center.
- Straighten the curve on W. Main St. west of the NC 50 split

#### V. **Continue Goals Discussion/Discuss Public Involvement Plan**

Jay McInnis emphasized the importance of public involvement in this plan's success. He reviewed the draft **Town of Benson 2045 Community Transportation Plan - Public Involvement Plan**.

The goal of the Public Involvement Plan is to make sure that everyone that resides in the study area is aware of the CTP and provided an opportunity for input. This would apply to every person, business, and community group in the CTP study area that has an interest in doing so.

#### VI. **Wrap up/Action Items** *(Matt Zapp)*

- Provide a map of study area outside the ETJ, identify where utilities are and overlay that with the industrial improvements that are currently underway or in the very near future. This would be a collective growth map where we can capture traffic counts for truck traffic, traffic patterns, and determine alternate truck routes.

- Traffic counts, algorithmic data, and maps will be provided at the April meeting showing the quadrants of that data.
- Additionally, provide a map with the volume to capacity ratio of the roads in the study area including the most recent NCDOT data.

Matt Zapp and Jimmy Eatmon discussed the weight limits for trucks on I-40. Eatmon stated that the weight restrictions for I-40 are strict and tightly enforced. Zapp stated that this weight limit is pushing traffic from I-40, and onto Benson streets. If this limit were made less stringent it would cause an immediate drop in Benson's thru traffic for trucks.

**VII. Next Meeting – Monday April 8, 2019 – 7:00 – 9:00pm**

**Minutes  
Town of Benson  
Community Transportation Plan Steering Committee  
Monday, April 8, 2019  
7:00 PM**

**Present:**

**Jay McInnis, Ramey, Kemp & Assoc.  
Jerry Medlin, Mayor**

**Matt Zapp, Town Manager  
Erin Joseph, Planning Director  
Tim Robbins, Public Works Director  
Jacob Parente, GIS Technician  
Braston Newton, Johnston County Planning  
Lauren Shepard, Admin Assistant**

**Dale Parker, Parker General Contractors  
Dale McLamb, South River Electric  
Varinder Bhardwaj, Exxon Gas Station**

**Dennis Jernigan, Resident  
Kim Price, Dynamite Trailers**

**Kayla Price, Resident  
Matt Clarke, NCDOT  
Scott Walston, NCDOT  
Amy Adams, Acera Wealth Management  
Leanne Honrine, Berry Global  
William Neighbors, Board of Commissioners**

**Jim Johnson, Board of Commissioners  
James Salmons, Upper Coastal RPO  
Mike Dart, Four Oaks-Benson News**

**I. Welcome and Introductions** (*Matt Zapp, Town of Benson*)

Matt Zapp welcomed the committee, and led group introductions. Matt reminded the committee that the two goals for tonight's meeting is to continue discussion on Benson's transportation needs, and review the public involvement plan.

Action items for this meeting are to provide:

- Map of study area outside of the ETJ identifying utilities with an overlay of industrial improvements
- Traffic counts and algorithmic data
- Developmental map showing where current structures of businesses are located

The goal is to have a rough draft of the CTP to present to the Town Board by the end of May.

**II. Approval of March 11, 2019 Meeting Minutes**

Scott Walston commented on a correction to the minutes. On page two the minute's state "Scott Walston stated that NCDOT needs a plan that addresses transportation efficiencies..." this should be changed to "deficiencies".

**Action: Dale Parker made a motion to approve the March 11, 2019 meeting minutes. Dennis Jernigan made a second to the motion. Approved unanimously.**

### III. Initial CTP Alternatives Summary *(Matt Zapp/Jay McInnis, Ramey, Kemp, and Associates)*

Jay McInnis identified that there are five new maps displayed

- Map 1 - industrial zoned areas around Benson
- Map 2 - a draft of potential new roads that could be a part of the CTP
- Map 3 - the 2017 volume to capacity ratio for Benson area
- Map 4 - 2017 average annual daily traffic
- Map 5 - environmental features in the area as well as Benson ETJ. Area wetlands, streams, floodplains, properties that might potentially have hazardous materials, and historic properties are also included on this map.

Jay McInnis reminded the committee that the Google Maps presentation are just concepts for a long-range plan. Additional studies and potentially different alternatives would be examined if any of these concepts were funded for construction in the future.

Jay McInnis presented a potential roadway alternative for new connectivity between Railroad Rd. and Banner Elk Rd. This would provide a North/East connection around the north side of Benson that would connect NC 50 and NC 242 N. The concept is for a two-lane road with a 45 to 55 MPH speed limit.

Dennis Jernigan stated that he had suggested this alternative. Mr. Jernigan mentioned that the elementary school is on NC 50 and NC 242 provides access to I-40 . By adding a roadway between Railroad Rd. and Banner Elk Rd, the Town would be planning for future development of this area and offer an east/west connection for the north side of Town.

Matt Zapp asked Braston Newton, Johnston County Planning Department, approximately how many buildable lots are in the queue for Johnston County. Braston Newton stated that there are over 11,800 current valid lots with 2,087 approved from 2018.

Matt Zapp stated that Mr. Jernigan has a valid point since we are seeing a lot of growth in the area around Banner Elk Rd and Railroad Rd. The goal is to avoid what happened at NC 210 and at the I-40/NC 42 interchange when looking at roads for future build out. The committee should look at future and immediate needs to help relieve some of the congestion in Town.

Scott Walston asked if the committee should be agreeing on the problems before discussing solutions. Mr. Walston stated that the committee is talking about solutions when not everyone is all together on the problems. Mr. Walston mentioned the committee should come up with the list of problems and then a solution to each problem.

Jay McInnis stated that the committee had talked about the problems.

Matt Zapp stated that the committee has identified hot spot zones with the exercises conducted at the last meeting. Mr. Zapp commented that he had yet to receive feedback contrary to those findings from a committee member. He feels comfortable with the feedback received thus far. Mr. Zapp asked the Commissioners and Mayor if they have received any feedback from the community.

Matt Zapp identified the data the committee collected between the first two CTP sessions as:

- NC 242 corridor
- I-40/NC 242 interchange
- the demand of truck traffic in center of town;

- the importance and need of improvements of I-95 expansion from 4 to 8 lanes
- the demand and push from north to west side of town
- the need for the fly-over bridge at S. Market St. and Cub Rd.

Scott Walston commented that besides some of the items the town wants, we need the data to support the solutions. For example, will there be more traffic in 2045 than we have now, what is the volume to capacity ratio. To get funding for a transportation project you need to have more than “I want,” you need data.

Jay McInnis stated that he understood Mr. Walston’s comment. Mr. McInnis stated that he has worked on dozens of projects where he has had to establish the needs for the projects. He feels comfortable with where the committee is.

Jim Johnson mentioned the cameras placed around Town have numbers that showed the high traffic areas. Mr. Johnson mentioned at the first meeting the Market St extension, Cub Rd, and Chicopee Rd as a concern primarily due to trucks coming into the downtown area. The data to support the concerns are there from the cameras that have been set out at the intersection of US 301 and NC 50.

Matt Zapp, stated that the two cameras have been moved to the Fayetteville and Dunn St. intersection and are pulling data in real time. There is at least 90 days of data and that data will be available to the team.

Matt Zapp also mentioned that additional data to look at is permit data. An overlay from most recent permits issued and where future build outs are. The Town of Benson is expanding out of our ETJ into the Johnston County jurisdiction. The committee also should consider where the water and sewer lines are running because that is where we’ll see future development.

William Neighbors stated there is no current availability for rental properties, commercial properties or residential homes. Mr. Neighbors commented that the growth is coming in-between Benson and the McGee’s Crossroads area at NC 210. Mr. Neighbors stressed that we need to look at what the current community wants and then plan ahead. He feels we have one shot before the development starts and we need to capitalize on it now.

Jay McInnis’ next display from the Google Maps presentation was at the I-40/NC 242 interchange. Mr. McInnis suggested realigning Woodall Dairy Rd. so that it is moved 1,000 feet away from the I-40 ramp. He then suggested taking Federal Rd. and connecting it back into the realigned Woodall Dairy Rd. This realignment would help to protect the interchange so it will operate more efficiently.

Dennis Jernigan stated that typically, the NCDOT’s desirable distance between an interchange ramp and the first driveway or other access point is 1,000 feet to function optimally.

Matt Zapp could see the benefits from a developmental standpoint. He asked for feedback from committee members that frequent this I-40/NC 242 area. Mr. Zapp stated that this is an opportunity when looking at serviceability for this interchange stressing the importance of changes and improvements to exit 325.

Dale Parker stated that eventually, Federal Rd Ext. could extend into future development adjacent to the I-40 rest area and continue to connect into Elevation Rd. Eventually, S. Walden Pond Rd. and N. Walden Pond Rd. could be joined and traffic would come out there instead of coming out NC 50. Mr. Parker stated that future development would be warehouse and small industry. The tract of land that surrounds the I-40 rest area already has a 20,000-

gallon capacity sewer line from the Town of Benson going back down NC 242. Mr. Parker said he believes there is already 18,000 to 20,000 gallons of sewer capacity for that area for mixed-use business. Mr. Parker mentioned that when the original I-40 study was completed approximately 18 to 20 years ago, it showed how NC 42 would develop and would grow until it outgrew its stability. NC 210 was next for development. This area didn't show as much demand as NC 42 but did show it would also grow to plateau. What the study showed for NC 242 in the Benson area was similar to growth in Wilmington. The study showed that there was a lot of retail business to support the residential growth at NC 42 and NC 210, but no municipal government to support that growth. Benson has potential residential growth but also has the Town structure and all the utilities so that long-term growth could outpace NC 42 and NC 210. Benson is a city that can raise taxes and govern itself. Benson is not dependent on the County like areas near the NC 42 and NC 210 interchanges. The old I-40 study also showed the areas that had the greatest 45-minute population. Raleigh/Garner ranked number 1 and Benson was #2. This was three times the 45-minute population that Wilmington had. Mr. Parker pointed out that this town has done some great things in the past and has been very forward thinking.

Matt Zapp commented that the town had looked at more up to date information for a 45, 30, and 15-minute radius. The town then went with a 5, 10, and 15-minute radius. All the studies show a demand of a customer base. Daytime population numbers are higher than nighttime population numbers. When marketing Benson to outside firms with warehousing, logistics and transportation, keep in mind that the Town also needs convenience and ease of access, a place to fuel, a place to feed those people, and access to workforce. When folks can work here, they will shop in Benson. The daily population numbers have increased with Dynamite Trailers, Berry Global and the new Hampton Inn, which is the second highest grossing hotel in Johnston County and it has been open since June 15, 2018. Mr. Zapp stressed that this is where the data is coming from and it can be supplied on a spreadsheet or reports if needed.

The next alternate route Jay McInnis discussed was in the I-95 and NC 50 area running on a new location west of Benson. This concept would use the Market St/Cub Rd. proposed grade separation to be built by the I-95 expansion project. The new road would connect to NC 242 and potentially NC 50 south of Benson.

Matt Zapp explained that exit 77 on I-95 has 200 developable acres at that quadrant and DOT is working on an improvement on Robin Hood Ln., which runs parallel to I-95. DOT will be moving Robin Hood Ln. east to accommodate the I-95 expansion. The question is how do you move the people and goods from the east side of I-95 down exit 77 to go southbound and how do you get them up to NC 50 so they can access I-95 and go northbound to I-40 for Wilmington or Raleigh? Something needs to be designed on the east side of I-95 because there is an 88-acre industrial developable tract of land and a 200 acre quadrant, a brand new rehab to the truck stop that's in the works, and just south is Rooms to Go. The east side of I-95 becomes the industrial buildout. Plus, you also have logistics from Barry Global and now instead of staying on the westerly side of I-95 and come through the downtown corridor by McDonalds trucks could take the fly-over, come up to NC 50 and make their way to I-95 or southbound to the truck stop. We understand that wetlands exist in that area and bridges will be costly but there needs to be a plan.

Jay McInnis mentioned that the alternate proposed road is curving and not straight due to the wetlands.

Matt Zapp stated that he will be meeting with NCDOT within the next 7 to 10 days regarding the design phase of the US 301/NC 50 roundabout.

Matt Clarke mentioned that the challenge with the Town of Benson is that there are very few State maintained roads. NCDOT wants to work with Benson to make sure the traffic is temporarily detoured properly while construction of the roundabout is ongoing.

**IV. CTP Alternatives Exercise (Review Maps) (Group Activity)**

**V. Continue Initial Alternatives Discussion (Matt Zapp/Jay McInnis of Ramey Kemp)**

Jay McInnis reminded the committee that the newly displayed maps are just drafts for roadway alternatives. Next month Mr. McInnis will have additional alternative maps to share based on comments shared at tonight's meeting. A map showing potential bike and pedestrian improvements will be included at the next meeting. The goal is to have a draft plan by the end of May.

Dennis Jernigan mentioned that a discussion at a previous meeting held last year targeted the NC 242 area as a safety concern. He stated that a number of accidents occur in the Tarheel Rd. and NC 242 area. Mr. Jernigan also asked if straightening out the curve at NC 27-50 near Pine St. could be considered for improvement.

Mike Dart asked about posting minutes on the Town of Benson webpage. Matt Zapp will be sure the January, February and March minutes are uploaded to the Town website and he will share the link with the committee.

Dennis Jernigan asked if someone should be looking at the volumes for the items that have been identified to ensure that the plan is in a position to qualify. Mr. Jernigan stated that he would hate for the committee to have held numerous meetings for a CTP together only to find out that it doesn't qualify.

Jay McInnis stated that he is looking at future volumes right now and that data should be available by the next meeting.

Matt Zapp proposed to send a link out to the committee when this information is available.

Scott Walston asked if Jay McInnis could create a capacity to deficiency map with volumes to compare year 2017 and year 2045.

William Neighbors asked Matt Clarke when the committee could receive updated maps on the NC 27-50 interchange.

Matt Clarke stated that they should be available within the next few weeks once the 25% plans are approved.

Matt Zapp mentioned that the Board of Commissioners has approved engineering services to do the utility betterment designs. This is the first process in water and sewer lines and any other improvements running under I-95. The betterment design will help to determine if water lines will be run down past Berry Global where the Town put in a new metering system and push a new water line to the east side of I-95.

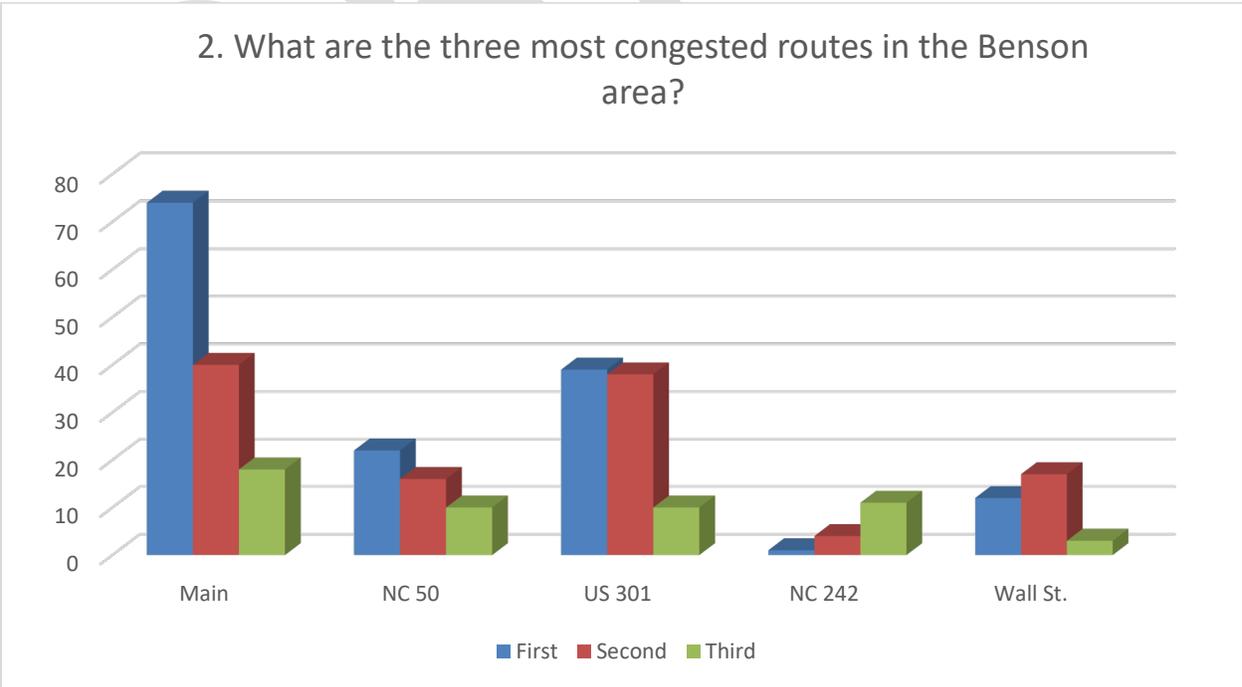
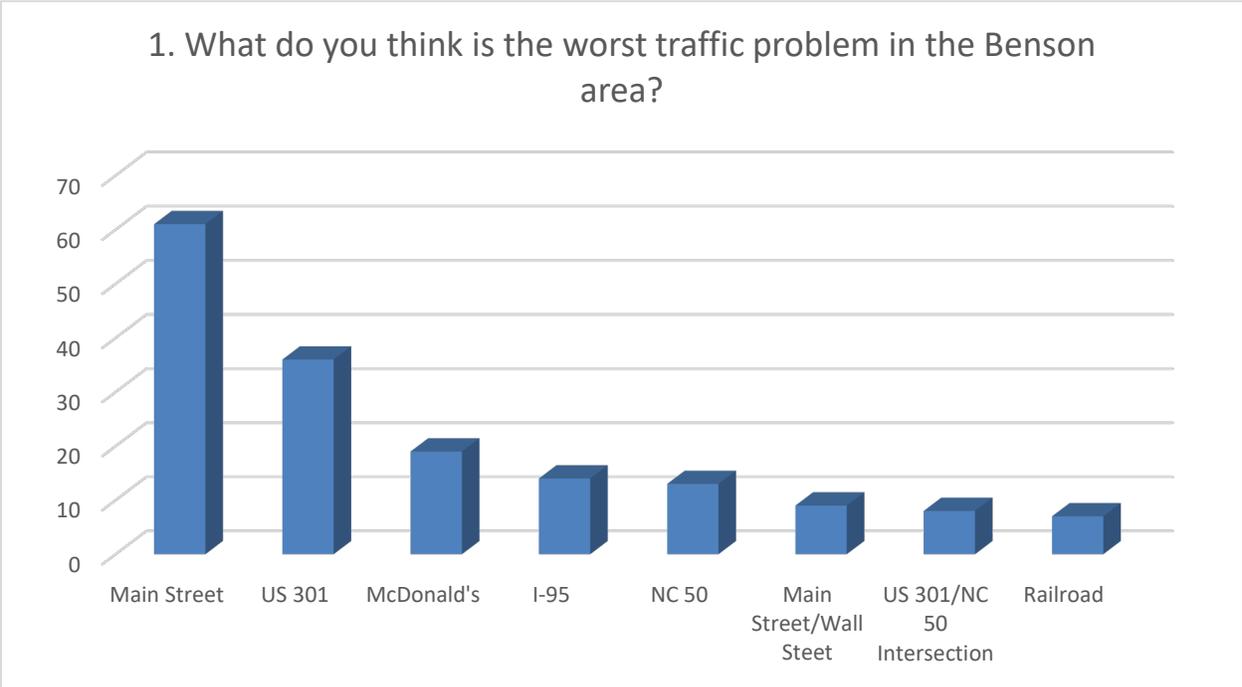
**VI. Wrap up/Action Items** (*Matt Zapp, Town of Benson*)

1. Create an itemized list identifying areas of concern with a corresponding legend to a map
2. Proposed solutions that the committee has identified and a connectivity map
3. Identified development map with overlay of utilities and send a link with this information to the committee members
4. A map showing future traffic patterns
5. An I-95 and NC 50/US 301 25% completion map if available for the next meeting
6. Post minutes from January, February, and March meetings on the Town website

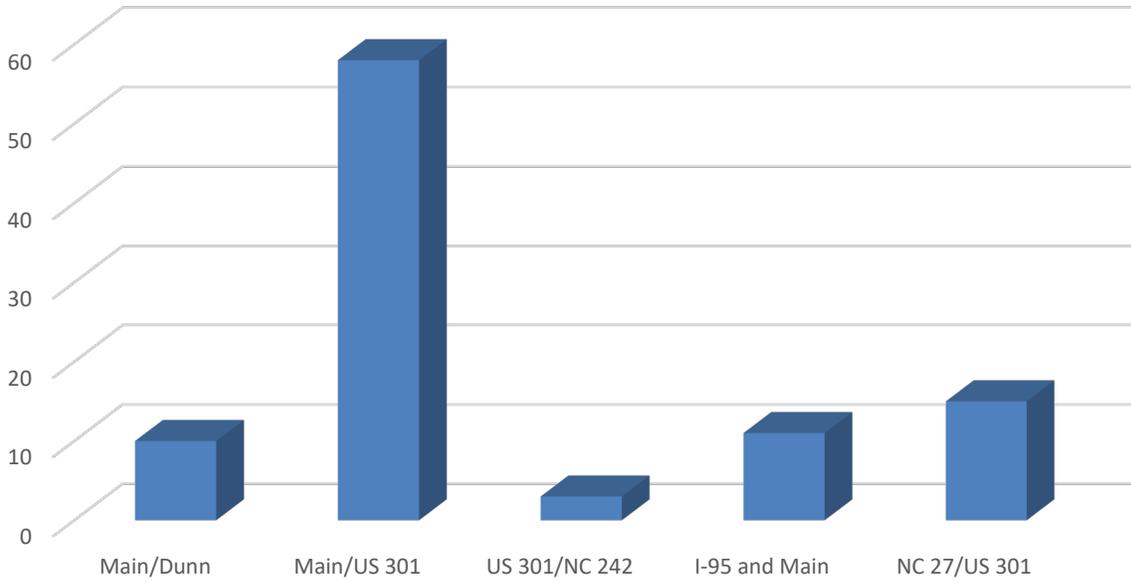
**VII. Next Meeting – Monday May 13, 2019 – 7:00 – 9:00pm**

## Appendix F Benson CTP Transportation Survey Results

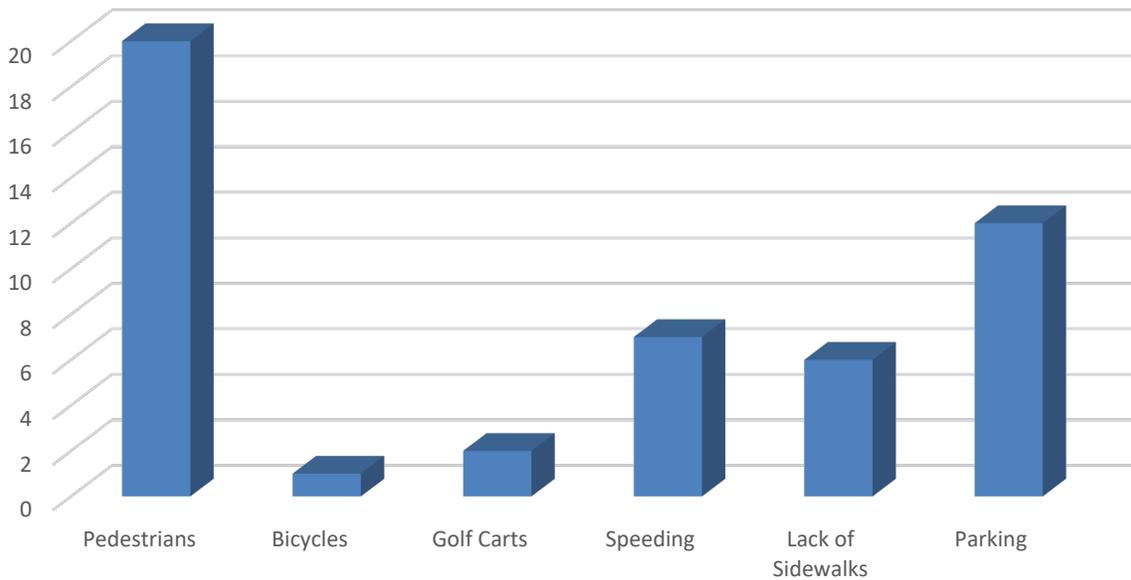
In order to gain the public's perspective on area transportation needs, a survey was conducted from December 2018 to February 2019. One hundred thirty-seven surveys were returned. The survey results are presented below.



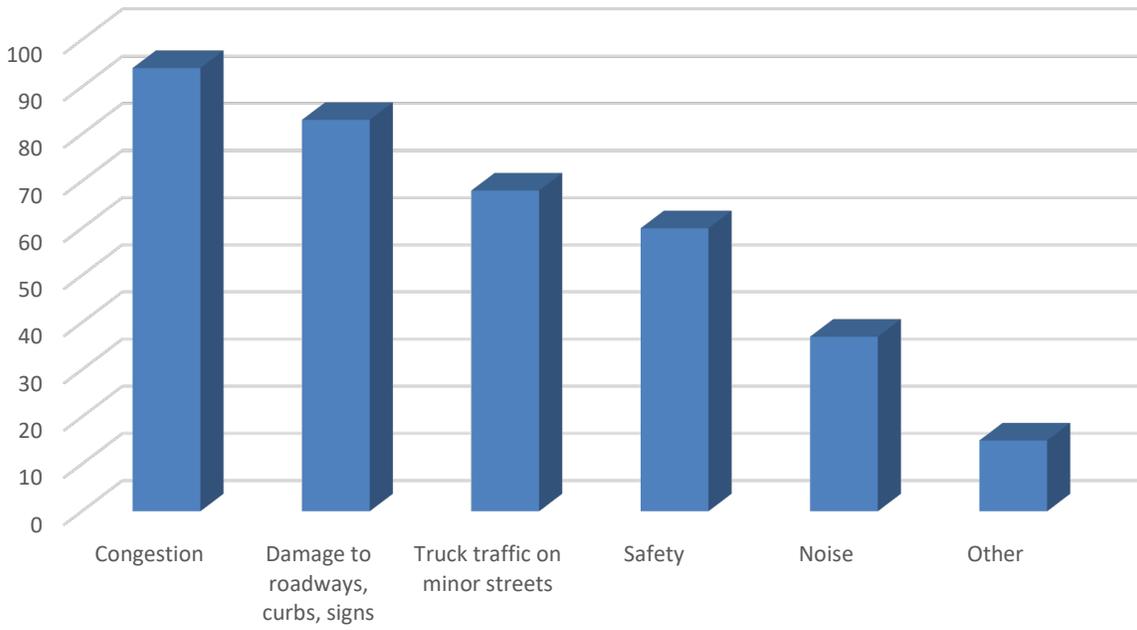
### 3. What intersection in the Benson area is in the most need of improvement?



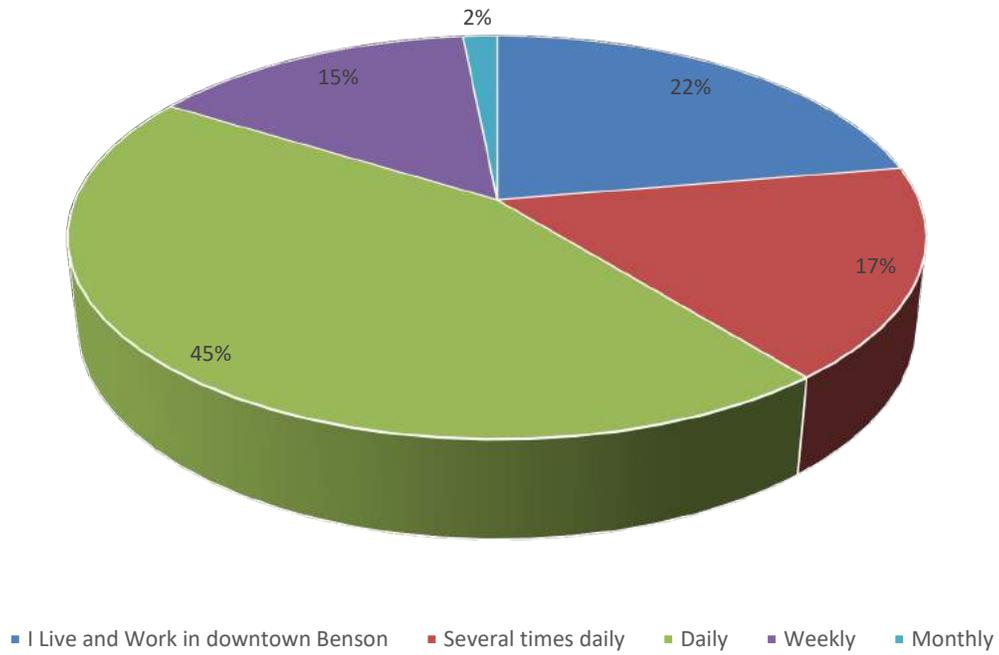
### 4. What safety problems (motor vehicle, bicycle or pedestrian) exist in the Benson area?



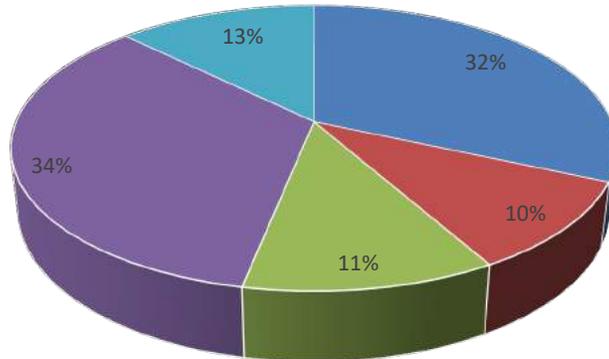
### 5. What problems with truck traffic affect the Benson area?



### 6. How often do you visit downtown Benson?

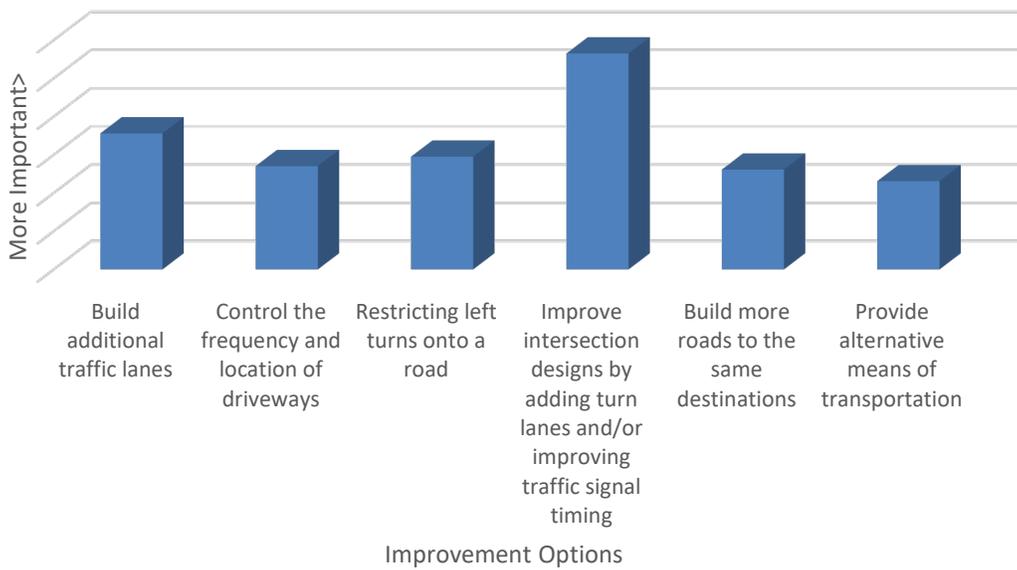


7. If You Work Outside the Home, Please Check the Statement Below That Best Applies to You.

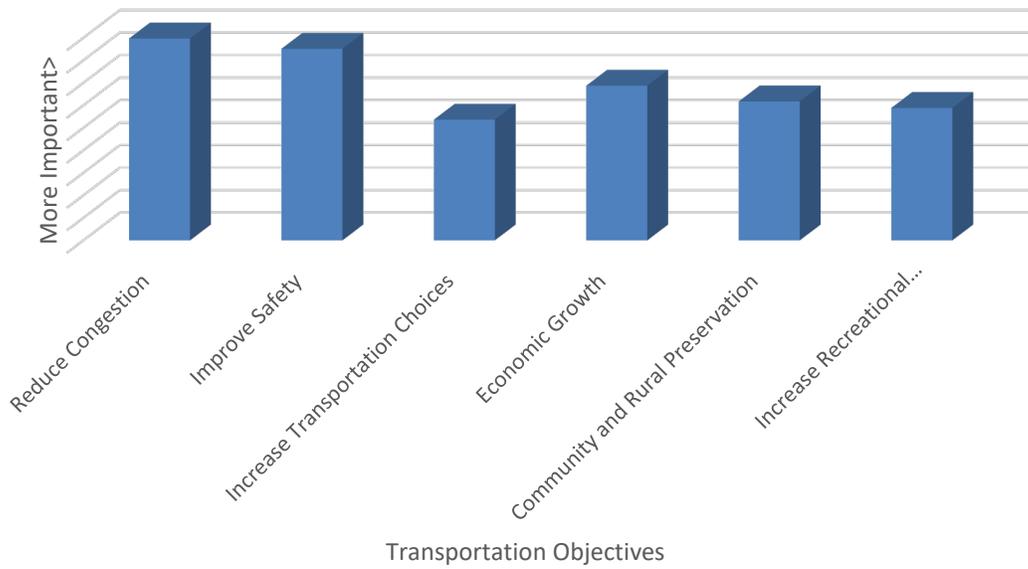


- I Live and Work in Benson.
  - I Live in Benson and Work Outside Johnston County
  - I Live Outside Johnston County and Work in Benson.
- I Live in Benson and Work in Johnston County
  - I Live in Johnston County and Work in Benson.

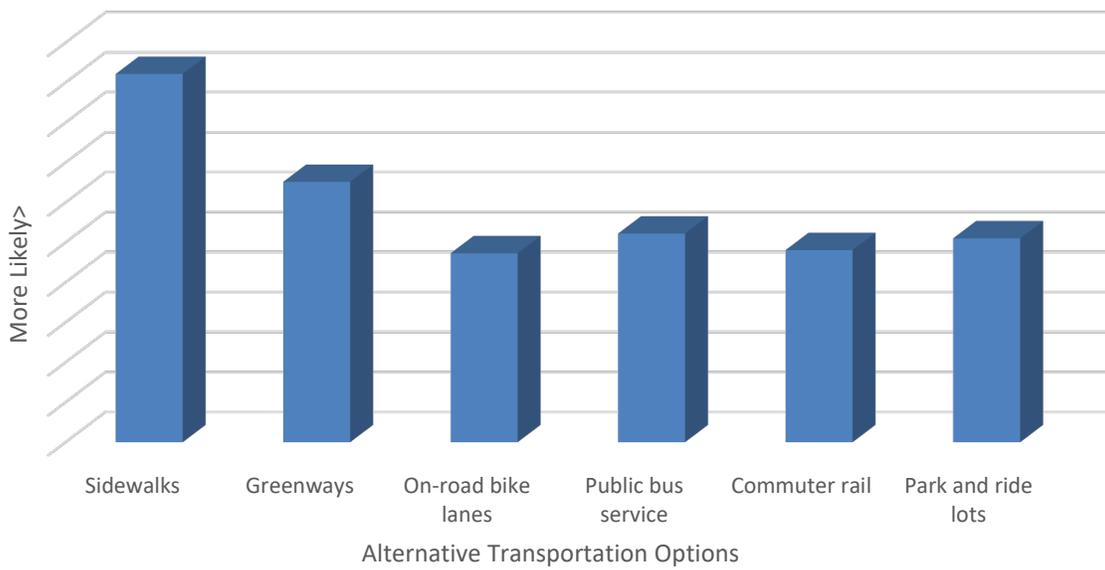
8. In order to accommodate higher traffic volumes, please rank the following improvement options in order of importance.



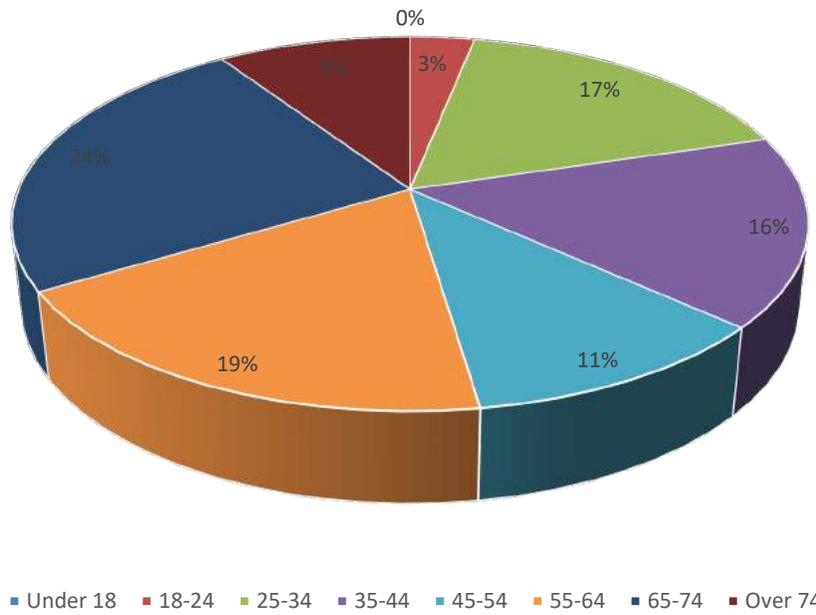
9. How important are the following general transportation objectives to you?



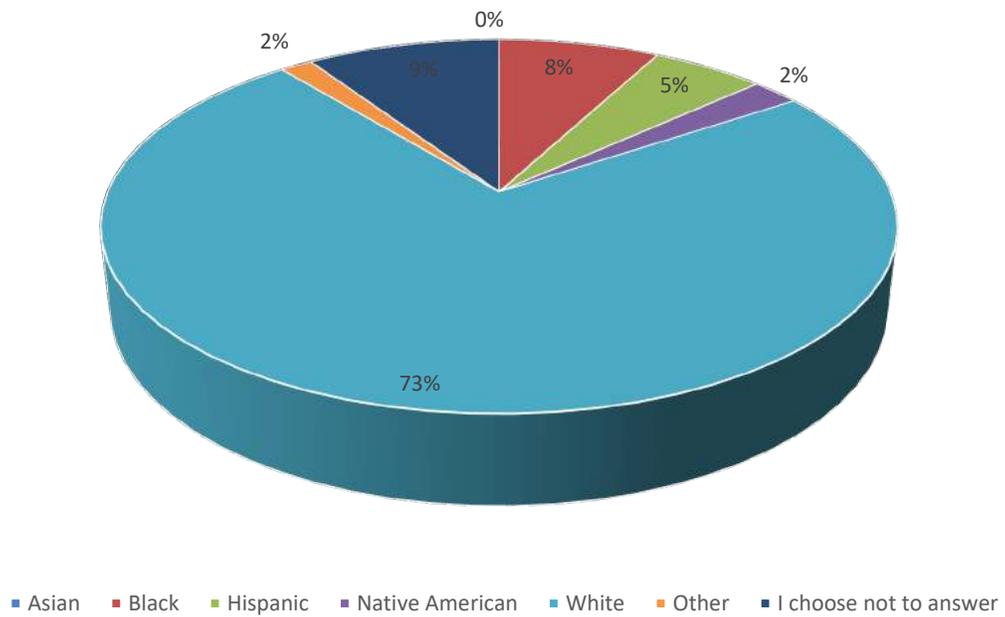
10. If the following alternative transportation options were available, would you use them?



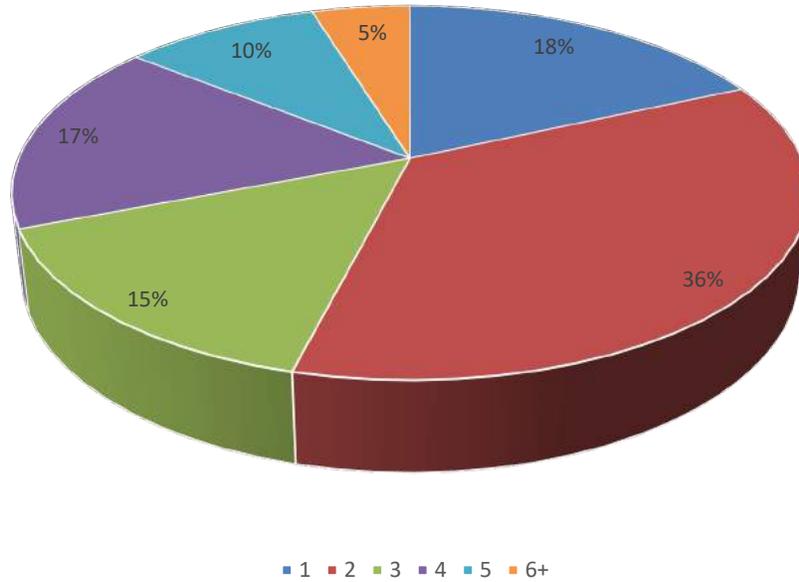
### 11. What is your age?



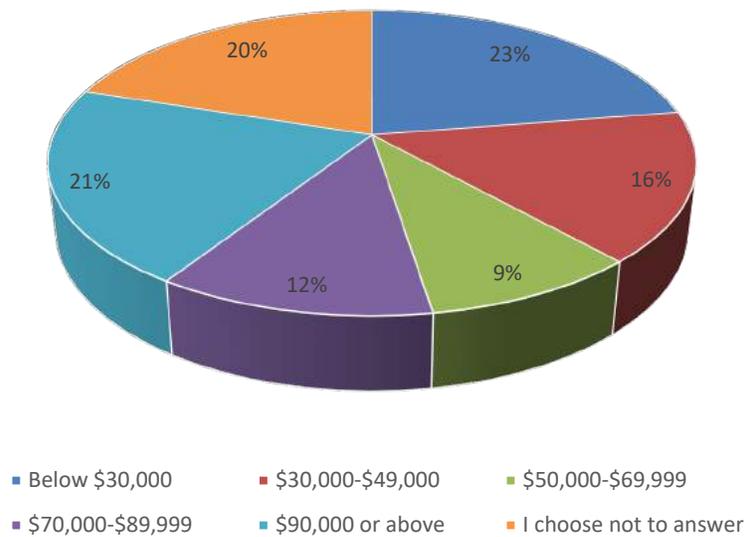
### 12. How would you classify your race?

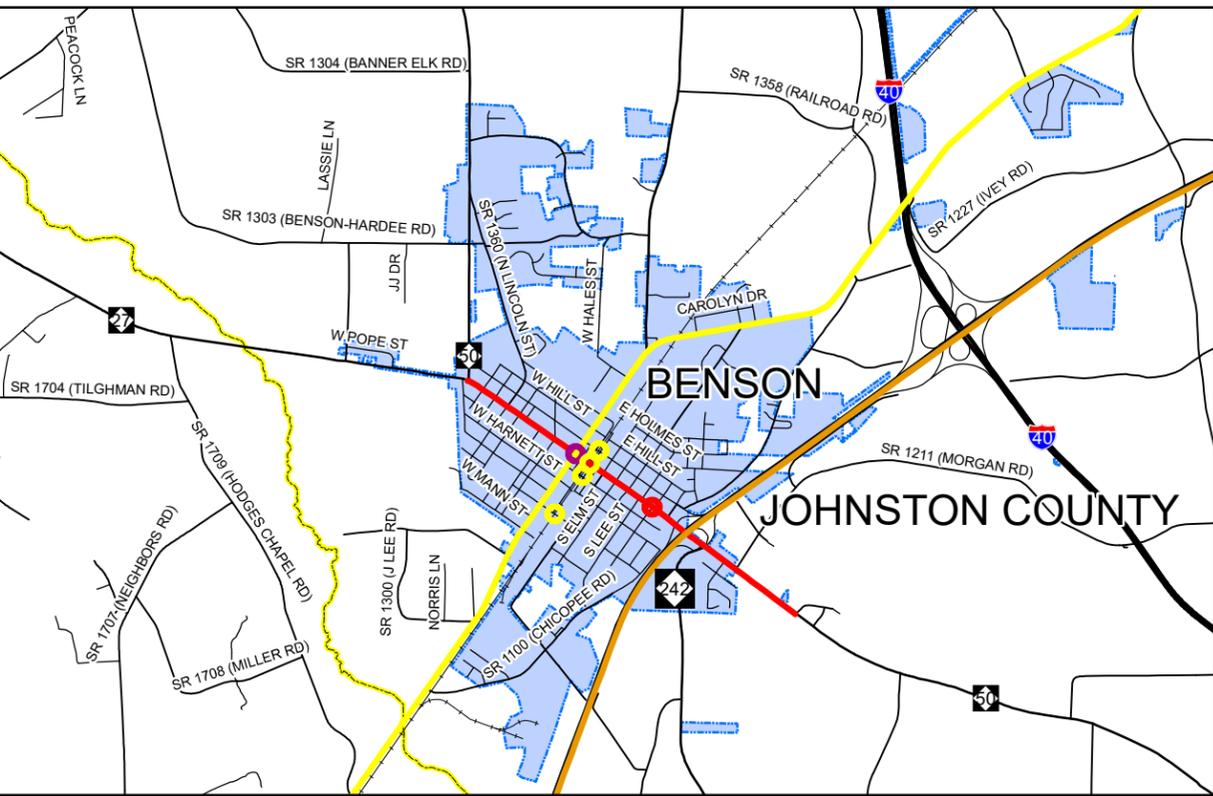


13. How many people live in your household, including yourself?



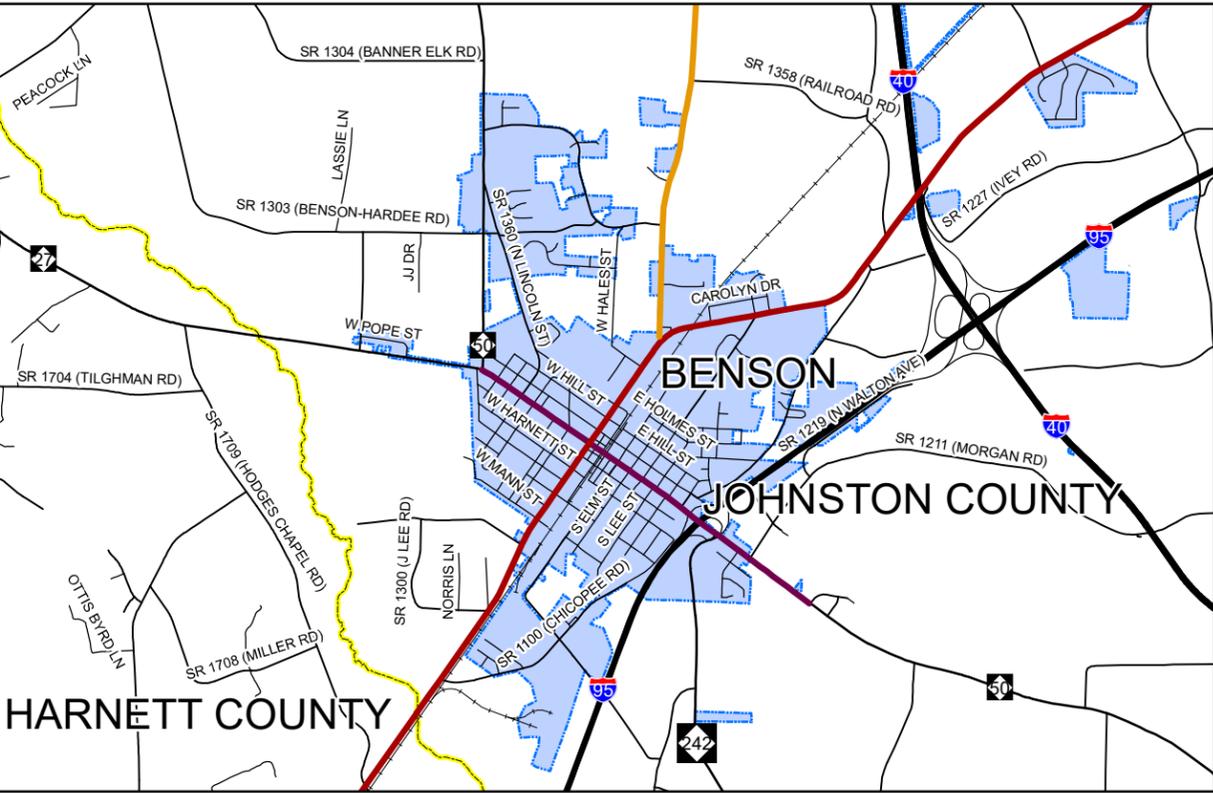
14. What was your household income last year?





**WORST TRAFFIC PROBLEM IN BENSON  
NUMBER OF RESPONSES**

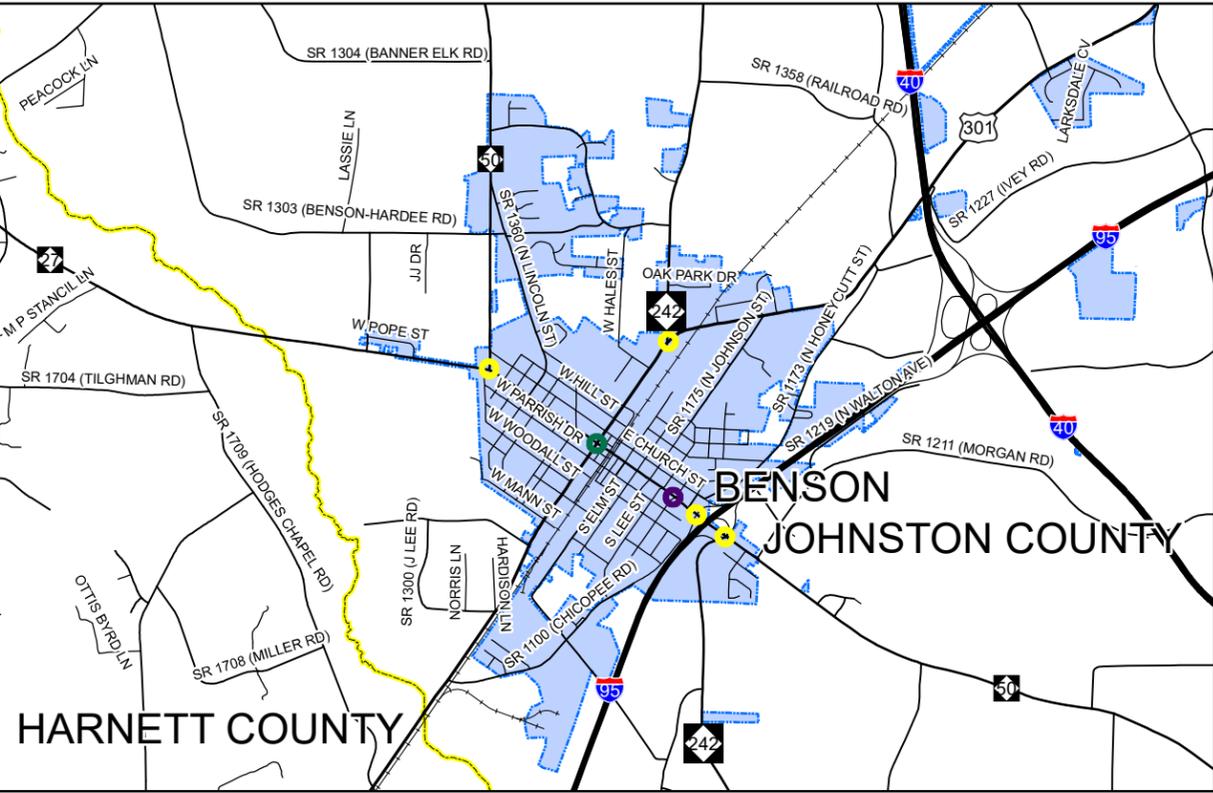
- 1-10
- 11-20
- 21-30
- 41-50



**THREE MOST CONGESTED ROUTES IN  
BENSON**

**NUMBER OF RESPONSES**

- 11-20
- 100-150
- 151-200



**INTERSECTION IN THE BENSON AREA IN  
MOST NEED OF IMPROVEMENT**

**NUMBER OF RESPONSES**

- 1-10
- 31-40
- 61-70

**THIS MAP PRESENTS TRANSPORTATION NEEDS IDENTIFIED  
BY RESPONDENTS TO THE DECEMBER 2018 BENSON CTP  
PUBLIC SURVEY.**

**DRAFT**

0 1,000 2,000 4,000 6,000 8,000 Feet



SHEET 1 OF 1

MAP DATE: MAY 8, 2019



**IDENTIFIED NEEDS MAP**



**TOWN OF BENSON  
COMMUNITY  
TRANSPORTATION PLAN**

Plan date: xxxx x, 2019

**FIGURE F1**