SECTION 1

PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

This section summarizes the proposed action and provides a summary of the need and purposes for improving the US 264 Business/NC 11 corridor in the vicinity of the city of Greenville.

This document has been prepared in accordance with the requirements of the North Carolina Environmental Policy Act (NCEPA).

1.2 DESCRIPTION OF PROPOSED ACTION

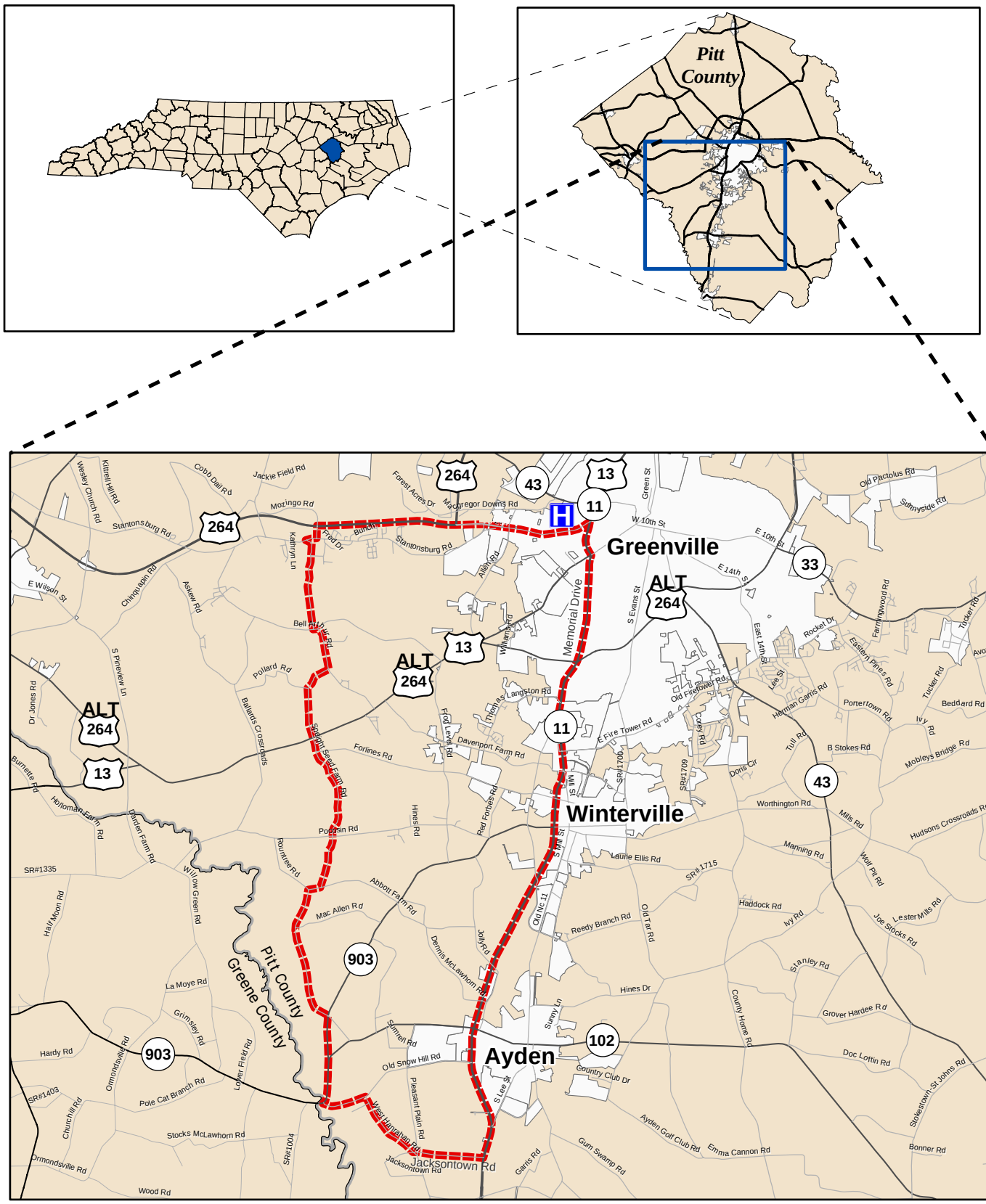
This study evaluates transportation improvements proposed for the Stantonsburg Road (US 264 Business)/ Memorial Drive (NC 11) corridor in Pitt County, North Carolina, southwest of the city of Greenville. The general location of this project is shown in Figure 1-1. This transportation improvement project is identified in the North Carolina Department of Transportation (NCDOT) Draft 2009-2015 Transportation Improvement Program (TIP) as Project R-2250.

1.3 SUMMARY OF NEED FOR PROPOSED ACTION

The need for improvements along the Stantonsburg Road (US 264 Business)/ Memorial Drive (NC 11) corridor is demonstrated by the following summary of existing and projected conditions. Detailed discussions of the existing and projected conditions and the needs for the proposed action are presented in Sections 1.6 through 1.10.

- ***Capacity deficiencies***
  Existing level of service[1] (LOS) on many segments of Memorial Drive (NC 11) and Stantonsburg Road (US 264 Business) are E or F. This includes Stantonsburg Road between Barbeque Road (SR 1204) and Memorial Drive, and Memorial Drive between Stantonsburg Road and Arlington Boulevard, between Greenville Boulevard (US 264ALT) and Reedy Branch Road (SR 1131), and between Fire Tower Road (SR 1708) and Forlines Road (SR 1129). In addition, seven of eleven signalized intersections along Memorial Drive and two of three intersections on Stantonsburg Road would have undesirable LOS (E or F) during either the morning or evening peak. This

[1] Level of service (LOS) is a qualitative measure describing operational conditions within a traffic stream and how motorists and/or passengers perceive these conditions. A LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Six levels of service, with letter designations from A (best) to F (worst), represent operations for each type of facility for which analysis procedures are available.



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Project Study Area

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0 0.5 1 2 Miles

North Carolina
Department of Transportation

Greenville Southwest Bypass Study
(Improvements to NC 11 & US 264 Bus)

State Project No. 8.1221401
T.I.P. No. R-2250

Figure 1-1 **Project Vicinity**

trend is expected to continue and worsen by 2030, when all intersections within the project area and most of the corridor network will operate at LOS E or F.

- ***Safety***
  Crash rates on the segment of Memorial Drive (NC 11) between Stantonsburg Road (US 264 Business) and Fire Tower Road (SR 1708) are nearly 20 percent greater than the statewide average for other NC urban routes. The most common crash types (rear-end collisions and angle type crashes) are indicative of the congested conditions and lack of access control along this portion of Memorial Drive.

- ***Commuting***
  Travel time for commuters traveling from areas in southwest Pitt County, Winterville, and Ayden to job centers in the city of Greenville, including Pitt County Memorial Hospital and East Carolina University, along Memorial Drive is currently approximately 45 minutes. This represents an average speed of 18 mph over the 13 miles between Ayden and Winterville, though much of the route has a posted speed limit of more than 35 mph. This speed indicates a LOS D, the lowest desirable operating condition, which will continue to decline as additional traffic is added to the road.

- ***North Carolina Strategic Highway Corridors (SHC)***
  The NC 11 corridor is designated by NCDOT as a North Carolina Strategic Highway Corridor (SHC). The Strategic Highway Corridors initiative identifies highway corridors that play a critical role in regional or statewide mobility and seeks to protect and improve these routes in an effort to enhance transportation, economic development, and environmental stewardship. The corridors are chosen based on traffic volumes and relative importance to the state and/or region, whether they provide a connection between major activity centers or between existing and/or planned interstates, and if they serve as reliever routes to an existing interstate facility.

  NC 11 is included as part of Strategic Highway Corridor #52, which connects the cities of Wilmington, Kinston, and Greenville with Hampton Roads, Virginia using I-40, NC 24, NC 11, and US 13. This corridor connects I-40 to I-64, I-264, and I-664 in Chesapeake, Virginia. Sections of the corridor have been identified as a major hurricane evacuation route by the North Carolina Division of Emergency Management, including NC 11 between Kinston and Aulander. The NC 11 corridor is ultimately envisioned as a controlled access, median-divided freeway based on the SHC Vision Plan.

1.4 PURPOSE OF PROPOSED ACTION

The primary purpose of the proposed action is to ease congestion on Memorial Drive (NC 11) and Stantonsburg Drive (US 264 Business) in Greenville. Fulfilling this purpose would meet the stated needs of the project by improving traffic flow, improving safety and reducing crashes, and improving regional travel.

- ***Improve traffic flow and congestion on Memorial Drive (NC 11) and Stantonsburg Road (US 264 Business) within the project area.***

  Needs addressed: Existing and projected deficiencies in levels of service and along existing NC 11 and US 264 Business cause significant travel delay, increase the potential for accidents, and contribute to the inefficient operation of motor vehicles.

- ***Relieve congestion on NC 11 in Greenville, thereby improving safety and reducing the number of crashes.***

  Needs addressed: Crash rates along existing segments of NC 11 between Fire Tower Road (SR 1708) and Stantonsburg Road (US 264 Business) are currently above the statewide average crash rates for similar facilities.

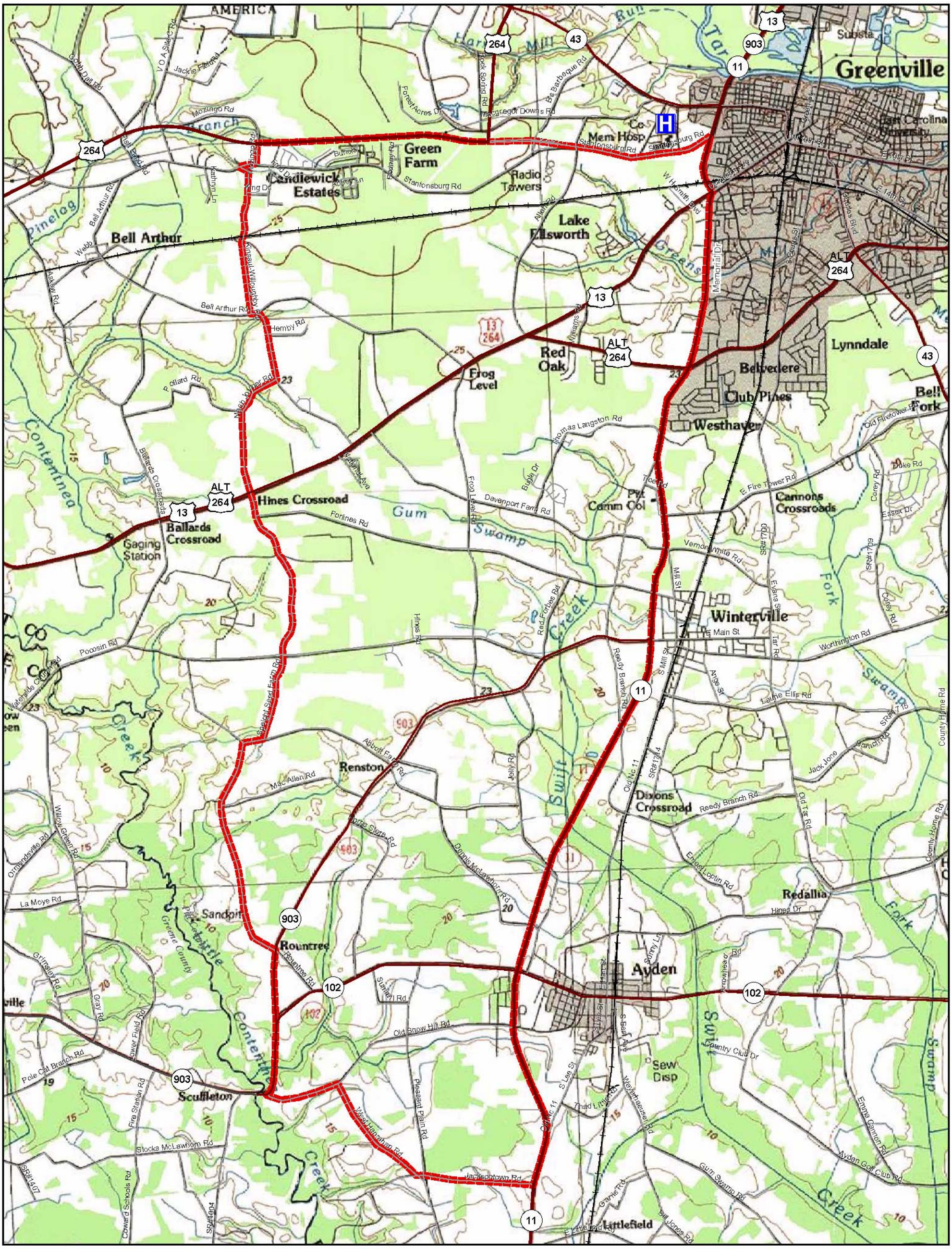
- ***Improve regional travel along the US 264/NC 11 corridor in compliance with regional transportation objectives.***

  Needs addressed: The existing and projected traffic and land use conditions along existing NC 11 diminish this segment's ability to function as a regional connector route and a North Carolina Strategic Highway Corridor. The roadway currently has no control of access, numerous at-grade signalized intersections, and varying numbers of lanes. The SHC Vision Plan calls for NC 11 to be a median divided freeway with full control of access.

1.5 PROJECT DESCRIPTION

1.5.1 Project Setting

The project study area is located within the Coastal Plain Region of North Carolina on the southwest side of the city of Greenville in Pitt County (Figure 1-1). The cities of Rocky Mount, Tarboro, Wilson, and Goldsboro are located to the west of Greenville, while the city of Washington and the Outer Banks are to the east. Kinston and New Bern are located to the south. As shown in Figure 1-2, the study corridor is defined by NC 11 (Memorial Drive) from Jacksontown Road (SR 1109) south of Ayden to US 264 Business (Stantonsburg Road), and Stantonsburg Road from its intersection with Memorial Drive to the completed portion of US 264. The project study area crosses the jurisdictions of the town of Ayden, the town of Winterville, Pitt County, and the city of Greenville and is comprised of a combination of urban and rural development. Dense commercial development is located along Memorial Drive and Stantonsburg Road. The Pitt County Memorial Hospital, a major health complex serving eastern North Carolina, is located on Stantonsburg Road, and East Carolina University is located in the city of Greenville east of the project study area. The western portion of the study area is



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Project Study Area

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W E
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0 0.5 1 2 Miles

North Carolina
Department of Transportation

Greenville Southwest Bypass Study
(Improvements to NC 11 & US 264 Bus)

NCDOT Project Definition No.: 34411
T.I.P. No. R-2250

Figure 1-2 **Project Study Area**

predominantly rural; however, several farms have plans for residential development or are currently being developed into residential neighborhoods.

1.5.2 Project History

A feasibility study for the project was completed by NCDOT in 1987 to determine what improvements may be needed in the area southwest of the City of Greenville. The proposed Greenville Southwest Bypass would tie to a proposed northwest loop of Greenville at US 264 to function as a bypass around the southwest part of Greenville. The study recommended a four-lane divided facility with full control of access extending approximately 5 miles from US 264 west of Greenville to NC 11/903 south of Greenville. The project area has since been expanded to account for additional development in the area.

The project was subsequently added to the NCDOT 1988-1996 Transportation Improvement Program. Planning studies, including environmental screening and corridor development, began in October 1992 and the initial agency scoping meeting was held in December 1992. Citizens Informational Workshops were held in August 1993 and March 1994, and two newsletters about the project were published in March 1995 and February 1996. Steering Committee meetings for the project were held in July 1993, January 1994, and August 1997.

Between 1997 and 2005, environmental screening, alternatives development, and detailed studies based on preliminary level designs were completed in accordance with NCDOT policies and procedures. NCDOT then published the Draft Environmental Impact Statement (DEIS) for the project, evaluating three Build Alternates, a No-Build Alternative, a Mass Transit Alternative, and a Transportation System Management (TSM) Alternative. The DEIS was approved in July 2006.

Following release of the 2007-2013 Transportation Improvement Program, adequate state funds were identified to construct the project. This Final Environmental Impact Statement (FEIS) and the subsequent Record of Decision (ROD) will follow existing guidelines as set forth in the NCEPA. This FEIS contains original elements of the DEIS as well as relevant revisions and additions resulting from more detailed roadway design efforts and environmental analyses. Table 1-1 contains a brief summary of the project's history.

TABLE 1-1: PROJECT HISTORY

Date	Event
1972	Southwest Bypass appears on Greenville Thoroughfare Plan
1986	Project proposed for NCDOT TIP
1987	NCDOT completes feasibility study for bypass southwest of Greenville
1988	Project appears in the NCDOT 1988-1996 Transportation Improvement Plan
1992	Planning studies begin and the first agency scoping meeting is held
1993	First Steering Committee meeting held
1993	First Citizens Informational Workshop held in Greenville
1994	Second Steering Committee meeting held
1994	Second Citizens Informational Workshop held in Greenville
1997	Third Steering Committee meeting held
1997	FHWA, USACE, and NCDOT determine this project will follow the mutually adopted NEPA/Section 404 Merger Process. NCDOT reinitiates planning and design work
2001	Merger Team achieves Concurrence Point 1: Purpose and Need
2001	Agency scoping letters
2001	Third Citizens Informational Workshop held in Greenville
2004	Southwest Bypass listed as highest priority project in Greenville Thoroughfare Plan
2005	Merger Team selects alternatives for detailed studies (Concurrence Point 2)
2005	Merger Team achieves Concurrence Point 2A: Bridging Locations
2006	Draft Environmental Impact Statement approved
2006	State funds identified for Bypass project
2006	Merger Team selects Least Environmentally Damaging Practicable Alternative (Concurrence Point 3)
2007	Merger Team achieves Concurrence Point 4A: Avoidance and Minimization

1.6 SYSTEM LINKAGE

1.6.1 Existing Road Network

Within the project area, Stantonsburg Road (US 264 Business) and Memorial Drive (NC 11) form axes along which development has concentrated. Memorial Drive, a north-south route on the eastern edge of the project area, links the towns of Ayden and Winterville with jobs and services in the City of Greenville. US 264 is the primary route into Greenville from the west, providing a four-lane, divided-median, controlled-access facility from Raleigh and Wilson. US 264 connects to I-40 and I-95, the major east-west and north-south routes, respectively, in eastern North Carolina. US 264 forms a loop around the north side of Greenville and continues east eventually joining with US 64 to access the Outer Banks.

Crossing east-west through the study area are three major routes: Old Stantonsburg Road (SR 1200) and US 13-264ALT in the northern part of the study area, and NC 903 in the southern part of the study area. Each of these roads has served as a primary transportation route since the mid-nineteenth century. Minor east-west roads in the area include Forlines Road (SR 1126), Pocosin Road (SR 1125), and Davenport Farm Road (SR 1128). Major north-south roads in the vicinity of the project area include Memorial Drive (NC 11) along the east, and Frog Level Road (SR 1127) and Jolly Road (SR 1120) located near the center of the study area.

1.6.2 Modal Interrelationships

Bus

The Greenville Area Transit (GREAT) system operates seven buses over four routes, Monday through Saturday, and transports over 220,000 passengers on fixed bus routes in an average year. One of these routes follows Memorial Drive (NC 11) from Greenville Boulevard/US 264A to Pitt Community College. GREAT also provides service along Stantonsburg Road (US 264 Business) westward to Barbeque Road (SR 1204).

Other public transit in the area includes the East Carolina University Student Transit Authority (ECUSTA) and the Pitt Area Transit System (PATS). ECUSTA provides transit service to, from, and around the East Carolina University campus to students, faculty, and staff. ECUSTA operates 22 vehicles during the academic year and carries 5,200 passengers per day. PATS operates 19 vehicles and provides human service and general public transportation throughout the county for over 300 passengers daily. Carolina Trailways and Greyhound Bus Lines provide scheduled intercity bus service to and from the Greenville terminal.

Rail

Freight-only rail service for Greenville is provided by CSX and Norfolk Southern Railway Company. The locations of the railroad tracks within the study area are shown on Figure 1-2. Both rail systems operate two trains, seven days a week. The trains on the Norfolk Southern tracks travel between Raleigh and Aurora. The trains cross Memorial Drive (NC 11) north of Dickinson Avenue (US 13). Norfolk Southern operates two locomotives called the "Wilson Switcher." They travel from Wilson to Chocowinity on Monday through Friday, passing through Greenville between 5 a.m. and 6 a.m.

Air

Air travel for the area is provided by the Pitt-Greenville Airport. It is a 1,000-acre facility that is jointly owned by the city of Greenville and Pitt County. It is located to the west of Memorial Drive (NC 11) north of the Tar River. Over 32,500 passengers passed through this facility in 2005 (FAA 2006). It is a non-hub regional (commuter) airport that is served by US Airways Express with daily round trips to Raleigh-Durham and Charlotte.

1.6.3 Commuting Patterns

Commuting patterns in the project area are a result of the county's dependence on medical, institutional, and retail services in the city of Greenville. Pitt County Memorial Hospital and East Carolina University are the two largest employers in Pitt County. Pitt County Memorial Hospital is located along Stantonsburg Road (US 264 Business) within the project area. Memorial Drive (NC 11) serves as the primary route for commuters traveling from southern Pitt County, Winterville, and Ayden into Greenville.

According to the 2000 Census, 54,411 Pitt County residents, or 86 percent of the total employed residents of Pitt County, worked in Pitt County. Of the 8,896 employed residents that worked outside of the county, the majority commuted to jobs in Lenoir County to the south and Beaufort

County to the east. Of the in-commuters to Pitt County, the majority came from the surrounding counties of Beaufort, Greene, Martin, and Lenoir. Net in-commuting is greater than out-commuting for Pitt County, supporting Pitt County and Greenville as a regional job center.

Commutes for Pitt County workers vary from less than five minutes to more than 90 minutes. It is noted in the *Pitt County Comprehensive Land Use Plan* that commuting patterns to and from work from outlying rural areas and suburbs have increased the pressure and stress on everyday commuters. According to the Pitt County Development Commission, it is common in eastern North Carolina for people to travel in excess of 45 miles to work.

1.7 SOCIAL AND ECONOMIC CONDITIONS

1.7.1 Demographics

Population growth in the project study area, Greenville, Winterville, and Pitt County has outpaced that of North Carolina. Growth in the project study area during the 1990 to 2000 time period was more than double that of Pitt County and North Carolina. Much of the growth can be traced to the presence of East Carolina University (ECU) and the health care industry, specifically Pitt County Memorial Hospital and ECU's Brody School of Medicine. Between 1990 and 2000, the population in the project study area grew by approximately 49 percent.

According to the *Greenville Horizons Comprehensive Plan*, much of the future growth in Pitt County will likely occur in the southwestern portion of the county within the extra territorial jurisdictional areas of Greenville and Winterville. Based on the assumption that the study area will capture the same percentage of Pitt County's growth between 2000 and 2010 as it did between 1990 and 2000, the area could add an additional 9,622 residents by 2010. It is projected that growth will occur here due to the presence of and plans for water/sewer infrastructure, access to transportation improvements, as well as the availability of developable lands. Many of these new residents will work at existing job centers at medical facilities and educational institutions in Greenville and will travel the Memorial Drive/Stantonsburg Road corridor to reach these facilities.

1.7.2 Economic Data

1.7.2.1. Employment

According to the Employment Security Commission, the health care, education, retail, manufacturing, and accommodation and food service sectors constituted the largest employment in Pitt County in 2006 (see Table 1-2). These five sectors comprise 45,824 employees and 66 percent of the employment in Pitt County. The largest employment sector in the county is health care with an employment of over 13,000 (19.2 percent of the total employment). Between 1996 and 2006, Pitt County employment grew by 10,140 for an increase of 17.2 percent. The sectors with the largest real change in employment were health care (increase of 4,359 jobs), administrative (increase of 1,976 jobs), education (increase of 1,879 jobs), and accommodation and food services (increase of 1,592 jobs).

According to the Pitt County Development Commission, Pitt County is the leader for retail sales in eastern North Carolina, consistently ranking in the top twelve of the state's 100 counties. This strong retail sector and pro-business environment have led to increased retail employment. In addition, retail sales in Pitt County have increased an average of 7 percent per year for the past ten years, surpassing $1.7 billion in Greenville and $2.2 billion in Pitt County during 2005.

Sectors that experienced declines between 1996 and 2006 include manufacturing, transportation and warehousing, agriculture, and mining. While employment in agriculture is decreasing this sector contributes over $100 million to the local economy each year. The manufacturing sector in Pitt County, much like other North Carolina areas, experienced a substantial decrease in employment losing 2,648 jobs over the ten-year period. During 2004, Rubbermaid and TRW, both located in Greenville, eliminated a total of 400 jobs.

TABLE 1-2: EMPLOYMENT BY SECTOR

Sector	1996 Pitt County Employment	2006 Pitt County Employment	Change in Employment 1996 to 2006	Percent Change In Employment 1996 to 2006
Public Administration	2,846	3,008	+162	+5.7%
Agriculture, Forestry, Fishing & Hunting	1,094	876	-218	-19.9%
Mining	40	0	-40	-100%
Utilities	428	491	+63	+14.7%
Construction	3,029	3,906	+877	+29.0%
Manufacturing	9,588	6,940	-2,648	-27.6%
Wholesale Trade	1,706	1,678	-28	-1.6%
Retail Trade	7,697	8,403	+706	+9.2%
Transportation & Warehousing	1,132	879	-253	-22.3%
Information	840	1,172	+332	+39.5%
Finance and Insurance	1,442	1,680	+238	+16.5%
Real Estate & Rental and Leasing	528	662	+134	+25.4%
Professional and Technical Services	1,141	1,634	+493	+43.2%
Management of Companies and Enterprises	389	752	+363	+93.3%
Administrative & Waste Services	2,238	4,214	+1,976	+88.3%
Educational Services	8,419	10,298	+1,879	+22.3%
Health Care & Social Assistance	8,869	13,228	+4,359	+49.1%
Arts, Entertainment & Recreation	482	639	+157	+32.6%
Accommodation & Food Services	5,363	6,955	+1,592	+29.7%
Other Services	1,524	1,277	-247	-16.2%
Unclassified	0	243	+243	+100%
Total	58,795	68,935	+10,140	+17.2%

Source: Employment Security Commission, Labor Market Information

1.7.2.2. Major Employers

The Pitt County economy, and thus employment base, is well-diversified with the presence of East Carolina University, Pitt Community College, a regional medical center, major manufacturing companies such as NACCO, and growing retail, professional, and leisure/hospitality-based industries. The top four major employers in Pitt County are Pitt County Memorial Hospital, East Carolina University, Pitt County Public Schools, and NACCO Materials Handling Group, each employing over 1,000 individuals. The Pitt County Memorial Hospital, Physicians East, PA, Pitt Community College, and Wal-Mart are located within the study area. These and other major employers in Pitt County are listed in Table 1-3.

TABLE 1-3: PITT COUNTY MAJOR EMPLOYERS

Employer	Industry	Employment Range
Pitt County Memorial Hospital	Education and Health Services	1,000+
East Carolina University	Education and Health Services	1,000+
Pitt County Public Schools	Education and Health Services	1,000+
NACCO Materials Handling Group	Manufacturing	1,000+
DSM Pharmaceuticals, Inc.	Manufacturing	500-999
Pitt County Government	Public Administration	500-999
Pitt Community College	Education and Health Services	500-999
City of Greenville	Public Administration	500-999
Dimon Inc.	Manufacturing	500-999
Wal-Mart Associates, Inc.	Trade, Transportation & Utilities	500-999
Royal Janitorial Services, Inc.	Professional and Business Services	500-999
Collins & Aikman Fabrics, Inc.	Manufacturing	500-999
Food Lion LLC	Trade, Transportation & Utilities	500-999
Physicians East, PA	Education and Health Services	500-999
State of North Carolina	Public Administration	500-999
Grady-White Boats	Manufacturing	250-499
Greenville Utilities Commission	Trade, Transportation & Utilities	250-499
Dixon Foods Group, Inc.	Leisure & Hospitality	250-499
Aramark Campus, Inc.	Leisure & Hospitality	250-499
ASMO Greenville of North Carolina	Manufacturing	250-499
Wachovia Bank	Financial Activities	250-499
Covergys Customer Mgmt. Group	Professional & Business Services	250-499
Executive Personnel Group, LLC	Professional & Business Services	250-499
NC Department of Transportation	Public Administration	250-499
Mestek, Inc.	Manufacturing	250-499

Source: Employment Security Commission, Labor Market Information

1.8 TRANSPORTATION PLANNING

1.8.1 North Carolina Transportation Improvement Program

The North Carolina TIP is a multi-year plan for all state transportation projects. The TIP contains funding information and schedules for proposed transportation projects throughout the state and is updated every two years to reflect changing priorities and funding availability. The proposed

Greenville Southwest Bypass project is included as Project No. R-2250 in the Draft 2009-2015 NCDOT TIP.

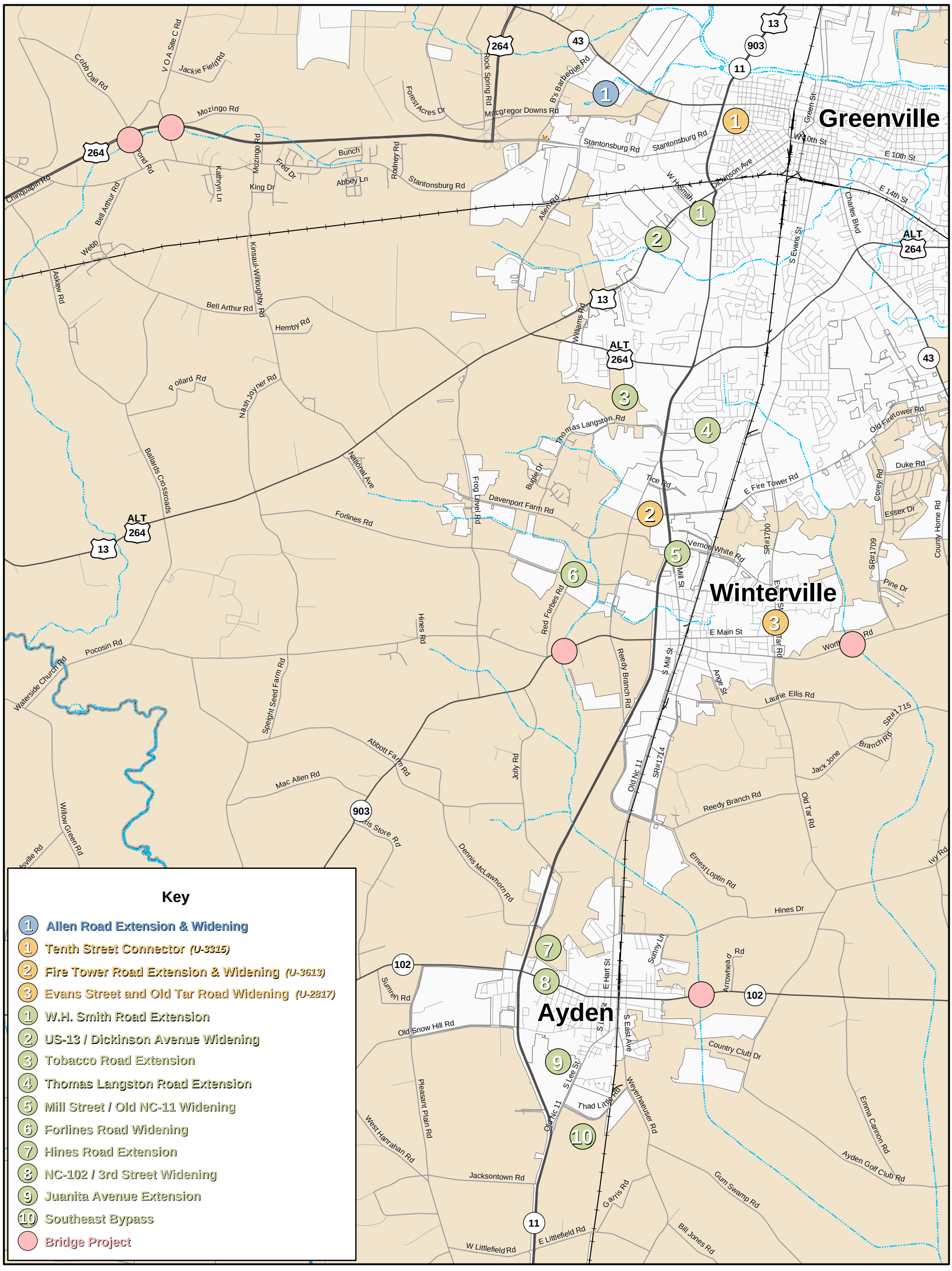
The following projects are currently listed in the Draft 2009-2015 TIP for the Pitt County/Greenville area (Figure 1-3):

- U-3613. Widen Fire Tower Road (SR 1708) to a five-lane facility from Davenport Farm Road (SR 1128) to east of Corey Road (SR 1709). The portion of the project from NC 903 to Corey Road is currently under construction.
- U-3315. Construct Stantonsburg Road / Tenth Street Connector from Memorial Drive to Evans Street. The facility will be partly on new location with multiple lanes and a grade separation at the CSX rail crossing. Right of way acquisition is scheduled for 2010; and construction is scheduled to begin in 2012.
- U-2817. Widen Evans Street and Old Tar Road from Main Street in Winterville to US 264A. Planning is currently underway.
- B-4231. Replace Bridge No. 53 over Swift Creek on NC 102. Right of way acquisition is in progress and construction is scheduled to begin in 2008.
- B-4232. Replace Bridge No. 9 over Swift Creek on NC 903. Right of way acquisition is in progress and construction is scheduled to begin in 2008.
- B-4786. Replace Bridge No. 38 over the Tar River on US 13. Right of way acquisition is scheduled to begin in 2009 and construction in 2012.

1.8.2 City of Greenville Thoroughfare Planning

The first thoroughfare plan for the City of Greenville was developed in the late 1950s and adopted in 1959. Several revisions to the plan were adopted over the next decade, and in 1968 the first long range traffic forecasting model was developed for the area. The current *Greenville Area Thoroughfare Plan* was adopted by the Greenville Urban Area Metropolitan Planning Organization (MPO) in December 2004 and the North Carolina Board of Transportation in February 2005. The plan includes the city of Greenville, town of Winterville, town of Ayden, village of Simpson, and portions of Pitt County with a planning horizon of 2025.

The Southwest Bypass was originally included in the 1972 *Greenville Area Thoroughfare Plan* to ease projected future congestion on existing roads within the city, including NC 11, and form part of a circumferential bypass around Greenville. The current plan identifies the Southwest Bypass as the MPO's highest priority project. The bypass is described in the plan as "a new location freeway to provide easier through travel from the south to the north and to the Regional Medical Center and to relieve traffic on NC 11 and Stantonsburg Road (US 264 Business)." On the most recent thoroughfare plan, the northern end of the Southwest Bypass joins with the southern terminus of the Northwestern Loop (US 264), which has already been constructed. The Northwestern Loop, along with Greenville Boulevard North East (US 264/NC 33), serves as a bypass around the north side of Greenville. A Northeast Bypass and Southeast Bypass are also called for in the Thoroughfare Plan. This project, along with the Northwestern Loop and proposed Northeast and Southeast Bypasses, would complete a circumferential bypass around Greenville.



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- # *NC: Moving Ahead!* Project
- # NCDOT TIP Program Project
- # Greenville Urban Area MPO Project
- NCDOT Bridge Project

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North Carolina
Department of Transportation

Greenville Southwest Bypass Study
(Improvements to NC 11 & US 264 Bus)

NCDOT Project Definition No.: 34411
T.I.P. No. R-2250

Figure 1-3 **Transportation Improvement Projects Near Study Area**

The project is also included in thoroughfare plans prepared by the town of Ayden (1992), Winterville (1992), and Pitt County (1993 and 2005).

The following projects have been identified as priority projects by the Greenville Urban Area MPO (Figure 1-3). The schedule for completing these projects is dependent on available funding.

- W.H. Smith Road Extension. New two-lane roadway to provide alternate route to Arlington Boulevard from the regional medical center facilities.
- US 13/Dickinson Road Widening. This route connects Greenville with areas in Southwest Pitt County and Goldsboro. The recommended cross-section is a four-lane roadway.
- Evans Street/Old Tar Road (same as U-2817). This route connects the fast-growing residential areas to Greenville and Winterville. The recommended cross-section is a four-lane roadway with a raised median.
- Thomas Langston Road Extension. To relieve traffic on Greenville Boulevard and Fire Tower Road, Thomas Langston Road would be extended from Memorial Drive (NC 11) to Evans Street.
- Forlines Road Widening. Forlines Road is becoming a suburban thoroughfare and will serve as the main interchange from the proposed Southwest Bypass to Winterville. The road will be widened to four lanes.
- NC 102/Third Street Widening. The project will widen the road from two lanes to four lanes through a developing commercial area.
- Juanita Avenue Extension. To create a bypass of Ayden, a new two lane roadway would be constructed, terminating at the Ayden Southern Loop.
- Southeast Bypass. This new freeway would provide easier through travel from the east to the south and across the southern portion of the urban area, and would relieve traffic on Greenville Boulevard, Fire Tower Road, and Worthington Road.

1.9 TRANSPORTATION DEMAND

1.9.1 Existing Facility Characteristics

Existing Memorial Drive (NC 11) and Stantonsburg Road (US 264 Business) are arterial facilities with multiple driveways and signalized at-grade intersections. The number of lanes along existing Memorial Drive varies. In the southern portion of the project area, Memorial Drive is a four-lane roadway. At Davenport Farm Road (SR 1128/1149), Memorial Drive becomes a six-lane divided facility, and from Greenville Boulevard (US 264ALT) to Dickinson Avenue (US 13), Memorial Drive is a five-lane curb and gutter facility. From Dickinson to Stantonsburg Road, Memorial Drive is a six-lane divided-median facility.

Stantonsburg Road (US 264 Business) is a five-lane curb and gutter facility from Memorial Drive (NC 11) to Allen Road (SR 1203), and from Allen Road to the end of the project at US 264, Stantonsburg Road is a four-lane divided freeway. The posted speed limit along the corridor is

generally 45 mph. Two exceptions exist along Memorial Drive: from NC 102 to Thomas Langston Road (SR 1134), the posted speed limit is 50 mph; and in the vicinity of Dickinson Avenue (US 13), the speed limit is 35 mph.

There is extensive development along both Memorial Drive (NC 11) and Stantonsburg Road (US 264 Business). The types of development along both roads include commercial, medical, retail, and residential uses. Generally, the intensity of this development increases traveling north along Memorial Drive. Development along Memorial Drive between NC 102 and Thomas Langston Road (SR 1134) is primarily retail and commercial businesses. Pitt Community College is located just south of the Thomas Langston Road intersection with Memorial Drive. From Thomas Langston Road to Stantonsburg Road, there is more extensive commercial, retail, and residential development located adjacent to Memorial Drive, including multiple shopping centers, restaurants, banks, car dealers, gas stations, motels, and office complexes. The East Carolina Regional Mall, on Greenville Boulevard (US 264ALT), is also accessed from this stretch of Memorial Drive. This area of Greenville, between Thomas Langston Road and Stantonsburg Road along Memorial Drive, contains the bulk of the area's commercial and retail services.

Along Stantonsburg Road, there are several major medical facilities. These facilities include several medical office buildings as well as the Pitt County Memorial Hospital. Other development includes retail shopping centers, office complexes, and apartments. These facilities comprise one of the primary job centers in the Greenville urban area.

1.9.2 Existing Traffic Volumes and Operating Conditions

For this project, the 2000Highway Capacity Manual and its accompanying software were used to determine the current (2004) and future (2030) levels of service.

Traffic flow and LOS on urban arterials, such as the Stantonsburg Road (US 264 Business)/ Memorial Drive (NC 11) corridor, are influenced by the geometric characteristics of the facility (curvature, grade, lane width, shoulder width and sight distance), adjacent land use, traffic density, truck percentage, turning movements, and the effect of traffic signals. As shown on Table 1-4, Stantonsburg Road and Memorial Drive are often currently carrying volumes at or beyond their design capacities (LOS E or F). This is due to a lack of north-south linkages with sufficient capacity to service the existing travel demand between Ayden, Winterville, and Greenville. Memorial Drive and Stantonsburg Road currently carry up to 44,500 cars per day. During a typical morning commute, travel along the 12.2-mile route from NC 102 to Stantonsburg Road on Memorial Drive takes approximately 41 minutes. The average operating speed, which was determined by dividing the distance traveled by the travel time, was 18 mph. According to the Highway Capacity Manual, this rate of speed indicates an overall LOS D, the lowest level of desirable operating conditions, for the Stantonsburg/ Memorial corridor during the morning peak; however, segments between Barbeque Road (SR 1204) to NC 11 on Stantonsburg Road, Stantonsburg Road to Arlington Boulevard on NC 11, Greenville Boulevard (US 264ALT)

TABLE 1-4: YEAR 2004 TRAFFIC VOLUMES ON STANTONSBURG ROAD AND MEMORIAL DRIVE

Existing Road	Arterial Segment	Existing ADT	LOS (AM/PM Peak)	Delay (seconds)
US 264 Business Stantonsburg Road	US 264 to Barbeque Rd (SR 1204)	22,200	D/C	70.1
	Barbeque Rd (SR 1204) to Allen Rd (SR 1203)	29,000	F/E	198.1
	Allen Rd (SR 1203) to Arlington Blvd	26,000	F/D	176.7
	Arlington Blvd to NC 11 (Memorial Dr)	21,900	E/D	261.9
NC 11 Memorial Drive	Stantonsburg Rd/Farmville Blvd to US 13 (Dickinson Ave)	26,300	F/E	172.9
	US 13 (Dickinson Ave) to Arlington Blvd	25,100	C/F	186.9
	Arlington Blvd to US 264ALT (Greenville Blvd)	29,000	D/C	229.7
	US 264ALT (Greenville Blvd) to Thomas Langston Rd (SR 1134)	44,500	F/F	266.9
	Thomas Langston Rd (SR 1134) to Reedy Branch Rd (SR 1131)	43,800	F/F	145.8
	Reedy Branch Rd (SR 1131) to Fulford Dr (SR 1152)/ Fire Tower Rd (SR 1708)	36,400	D/C	80.5
	Fulford Dr (SR 1152)/Fire Tower Rd (SR 1708) to Davenport Farm Rd (SR 1128)/ Old NC 11 (SR 1149)	33,200	F/F	234.9
	Davenport Farm Rd (SR 1128)/ Old NC 11 (SR 1149) to Forlines Rd (SR 1129)/Boyd St	22,600	E/F	140.7
	Forlines Rd (SR 1129)/Boyd St to NC 903/ Main St (SR 1133)	20,400	A/C	84.6
	NC 903/ Main St (SR 1133) to Reedy Branch Rd (SR 1131)	20,200	B	*
	Reedy Branch Rd (SR 1131) to Jolly Rd (SR 1120)	20,400	B	*
	Jolly Rd (SR 1120) to McLawhorn Rd (SR 1119)	20,000	B	*
	McLawhorn Rd (SR 1119) to NC 102/ West 3rd St	19,600	B	*
	NC 102/ West 3rd St to Old Snow Hill Rd (SR 1113)/ Snow Hill St	17,000	B	*
	Old Snow Hill Rd (SR 1113) to Old NC 11 (SR 1149)	16,400	B	*
	Old NC 11 (SR 1149) to Jacksontown Rd (SR 1109)	18,200	B	*

*LOS reported from HCS 2000 Multilane Analysis due to rural location.

to Reedy Branch Road (SR 1131), and Fire Tower Road (SR 1708) to Forlines Road (SR 1129) operate at LOS E or F.

As suggested by the varied land uses along Memorial Drive (NC 11) and Stantonsburg Road (US 264 Business), travelers on these roads are a combination of commuters traveling from areas in southern Pitt County to jobs in Greenville and retail shoppers traveling to stores, restaurants, and other services concentrated along Memorial Drive and its crossroads. The conflict between these groups and their travel characteristics adds to driver frustration on already at- or over-capacity facilities. For instance, commuters wishing to travel directly and quickly between home and work are slowed by shoppers tending to make frequent stops and turns.

Along Memorial Drive, the number and spacing of signalized intersections with their associated delay dictates the capacity and level of service as much as the number of lanes or traffic demand. Table 1-5 summarizes level of service at signalized intersections along Memorial Drive and Stantonsburg Road. As shown, seven of eleven signalized intersections along Memorial Drive and two out of three signalized intersections on Stantonsburg Road have undesirable LOS E or F during either the morning or evening peak.

TABLE 1-5: LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS ALONG MEMORIAL DRIVE AND STANTONSBURG ROAD (YEAR 2004)

Signalized Intersections	LOS (AM/PM)
Memorial Drive (NC 11) Intersections	
NC 102/West 3rd Street	D/C
NC 903/Main Street (SR 1133)	D/D
Forlines Road (SR 1129)/Boyd Street	B/C
Davenport Farm Road (SR 1128)/Old NC 11 (SR 1149)	D/E
Fulford Drive (SR 1152)/Fire Tower Road (SR 1708)	F/F
Reedy Branch Road (SR 1131)	F/F
Thomas Langston Road (SR 1134)	C/C
US 264ALT (Greenville Boulevard)	F/F
Arlington Boulevard	F/F
US 13/Dickinson Avenue	D/E
Stantonsburg Road (US 264 Business)/Farmville Road	F/F
Stantonsburg Road (US 264 Business) Intersections	
Arlington Boulevard	F/E
Allen Road (SR 1203)	F/E
B's BBQ Road (SR 1204)	B/C

1.9.3 Year 2030 Projected Traffic Volumes and Level of Service (No-Build Alternative)

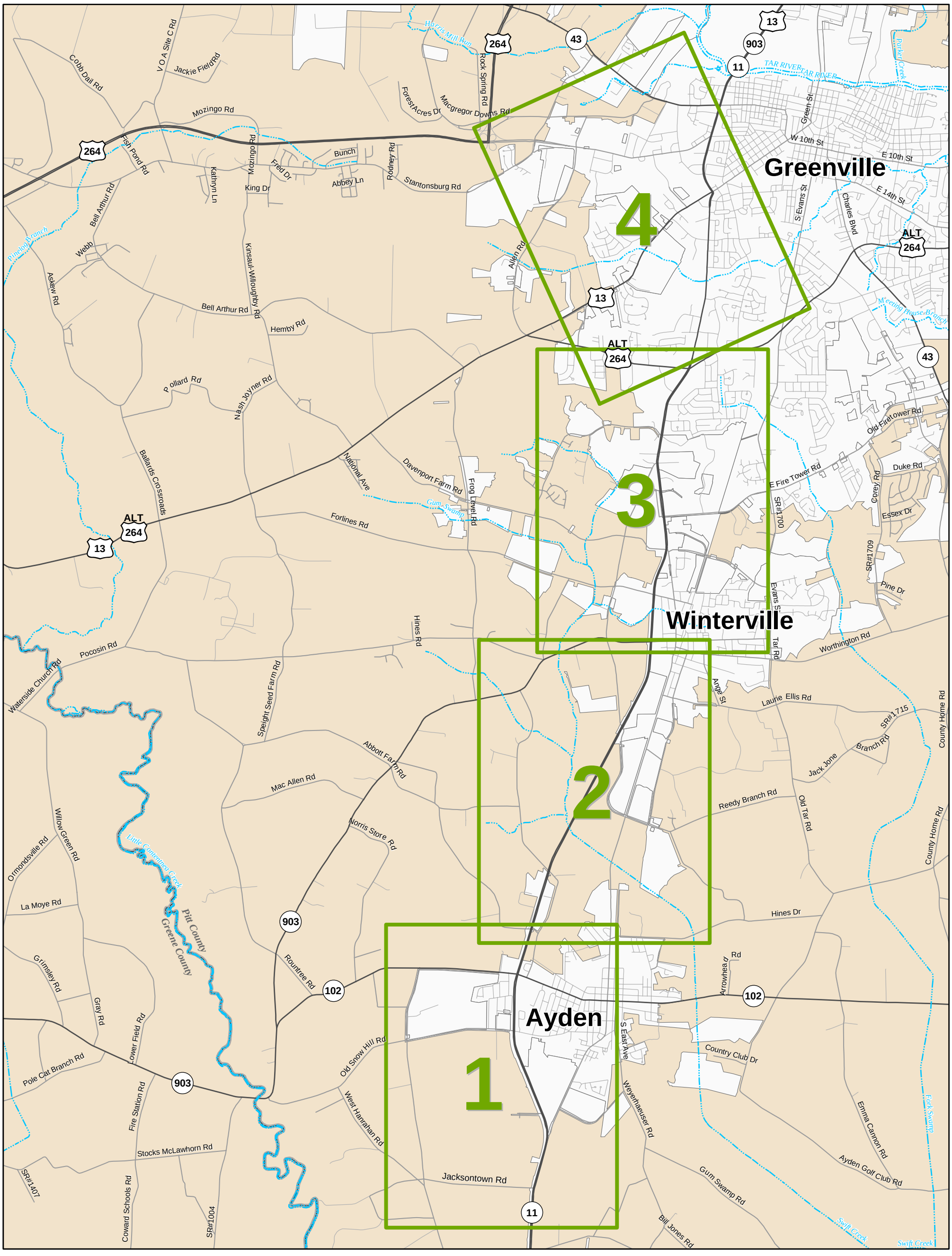
To estimate the impact of future growth on the existing transportation network, NCDOT prepared a travel demand model to project 2030 traffic volumes for the "no build" condition (i.e., no

improvements are made to Memorial Drive or Stantonsburg Road and no bypass is constructed)[2]. Design year traffic (2030) indicates that Memorial Drive (NC 11) will carry between 41,400 and 82,300 vehicles per day between Ayden and Greenville (Figures 1-4, 4A to 4B). Travel demand in the Memorial Drive corridor is projected to nearly double between 2004 and 2030 as a result of continued growth in the area's population and employment. As noted, Pitt County's population is expected to grow by 42.5 percent by 2030, and according to the *Greenville Horizons Comprehensive Plan*, much of this growth will be in the southern portion of the county. As a result, Memorial Drive between Fire Tower Road (SR 1708) and Greenville Boulevard (US 264ALT), which currently carries 44,500 vehicles, is forecasted to have a demand of approximately 82,300 vehicles per day in 2030. As a result, the average delay experienced by commuters between Ayden/Winterville and Greenville will increase by more than ten minutes.

Building all other planned TIP projects would not be sufficient to meet regional capacity needs. As shown in Table 1-6, traffic along most segments of Memorial Drive and Stantonsburg Road would nearly double from current levels. The corresponding delays for these segments in 2030 indicate failing levels of service for most of the corridor network. Another measure of congestion, the average network speed[3], also shows declining driving conditions under the 2030 no build scenario. Average network speed, currently estimated to be 18 mph, would decrease approximately 25 percent by 2030. Without improvements beyond those listed in the Draft 2009-2015 TIP and *Greenville Area Thoroughfare Plan*, service levels will remain at LOS F with congestion increasing in severity and length and average vehicle speeds continuing to decrease.

[2] Other transportation improvements identified in the Draft 2009-2015 Transportation Improvement Program and the Greenville Thoroughfare Plan (2004) would still be implemented (see Section 1.8 for a complete description of these projects).

[3] Average Network Speed is measured in miles per hour and shows directly the ability of the street and arterial network to move vehicles throughout the system. It represents the average speed along the major arterials in the study area on an average day.



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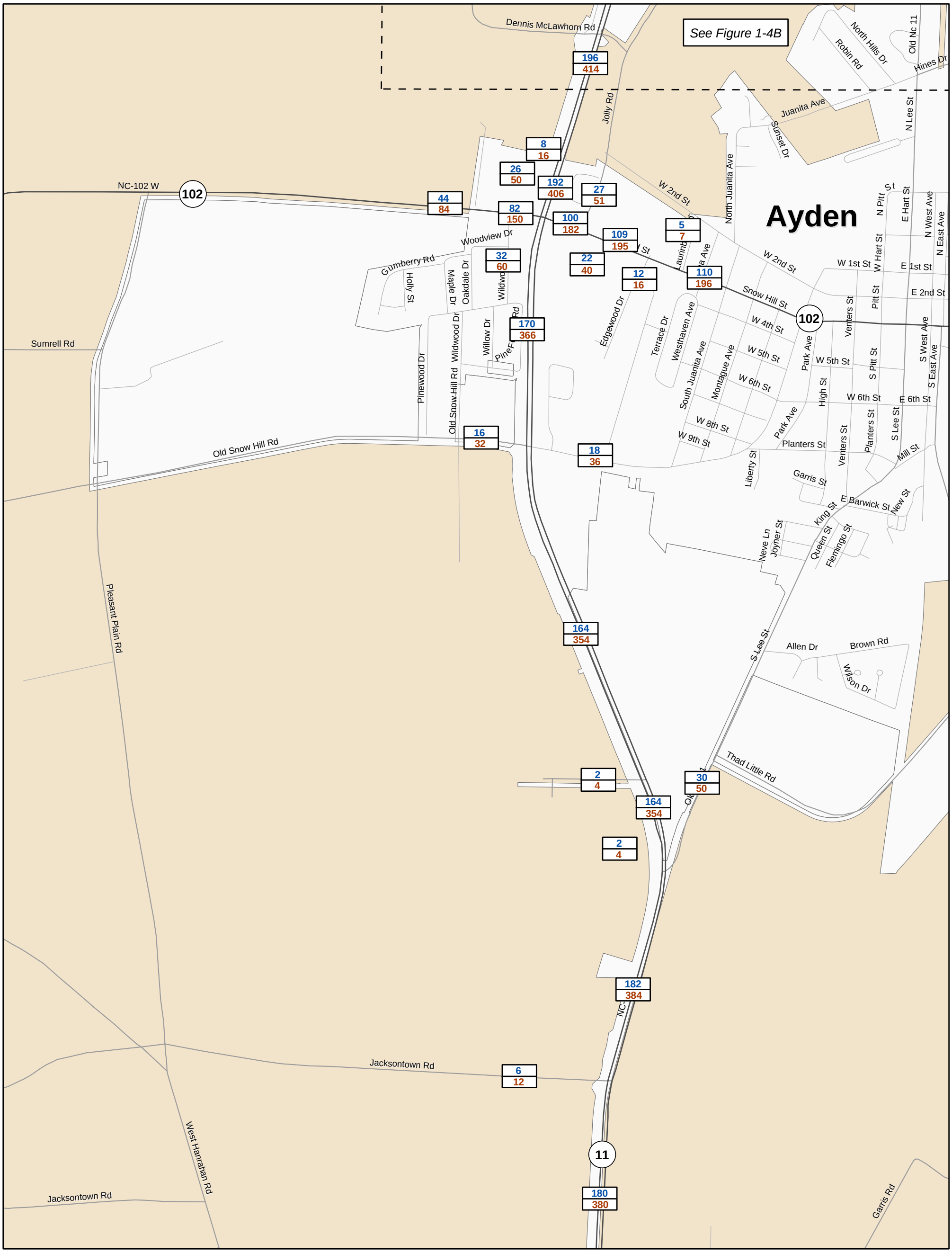
Greenville Southwest Bypass Study
(Improvements to NC 11 & US 264 Bus)

NCDOT Project Definition No.: 34411
T.I.P. No. R-2250

Figure 1-4 Traffic Comparison Index



Legend

# # #	2004 Estimated AADT In Hundreds (No Build)
# # #	2030 Estimated AADT In Hundreds (No Build)
	City Limit Area

N
W E
S

0 650 1,300 2,600 Feet

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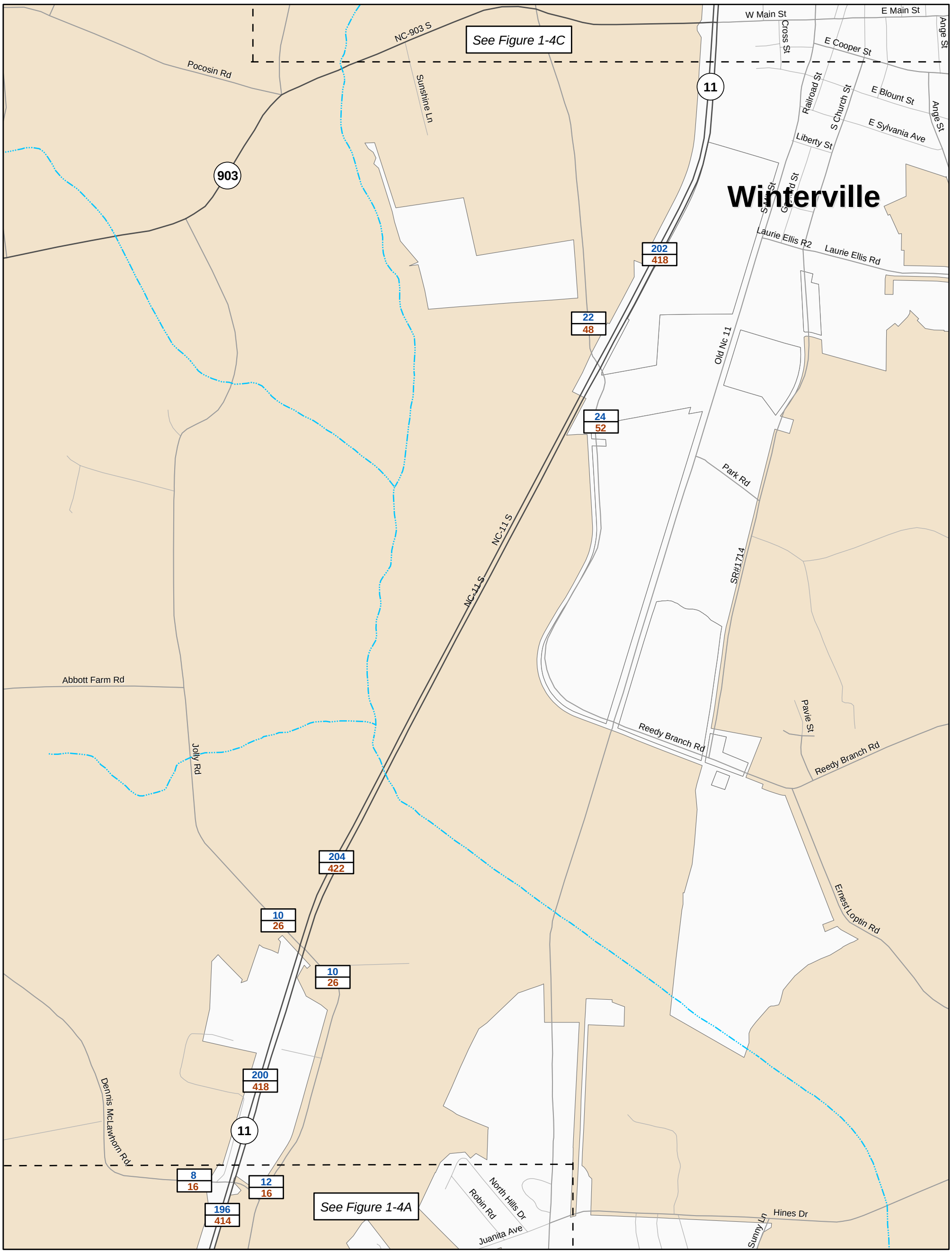
Figure 1-4A

No-Build Traffic Comparisons



Legend

# # #	2004 Estimated AADT In Hundreds (No Build)
# # #	2030 Estimated AADT In Hundreds (No Build)
	City Limit Area

N
W E
S

0 650 1,300 2,600 Feet

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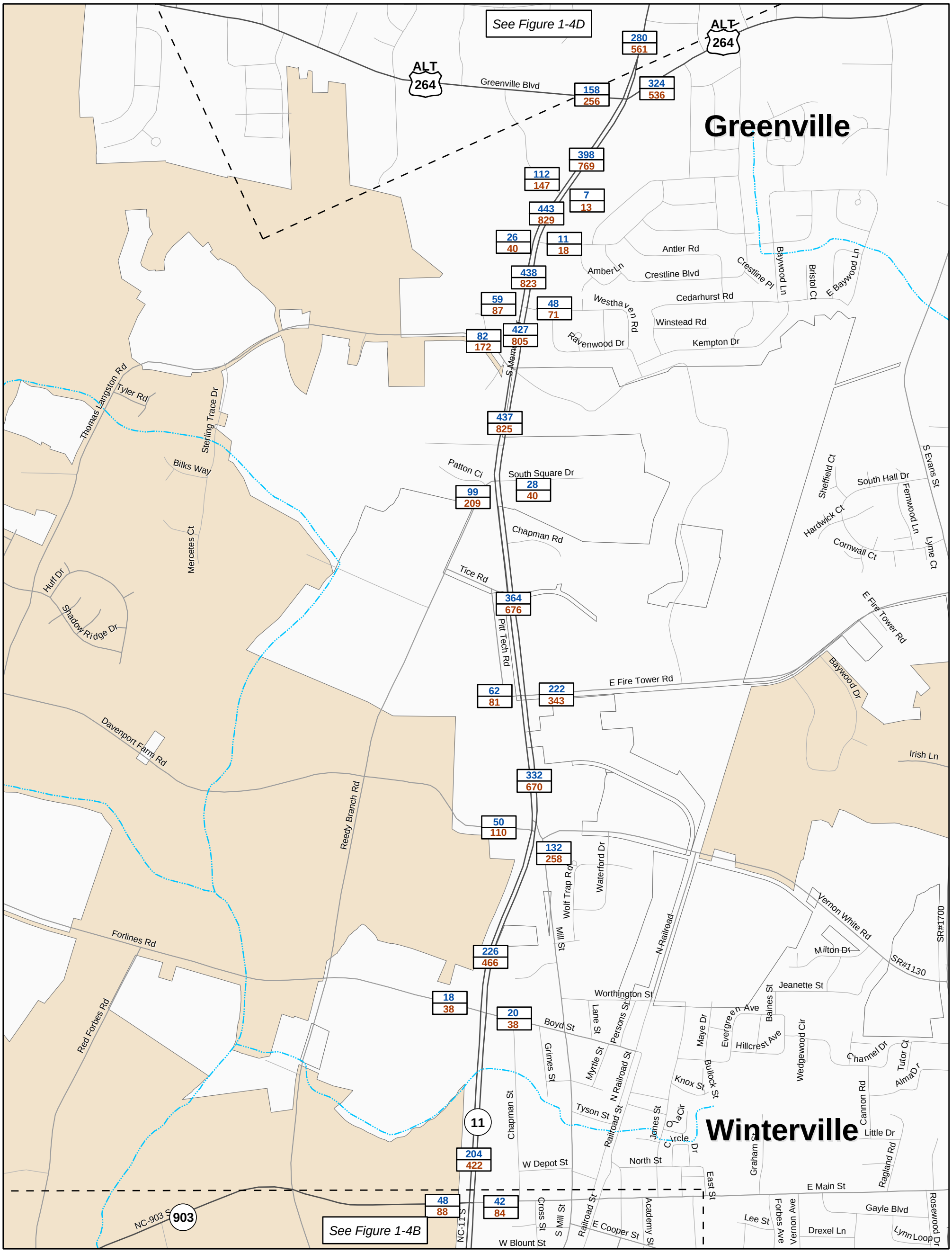
NCDOT Project Definition No.: 34411
T.I.P. No. R-2250

Figure 1-4B

No-Build Traffic Comparisons



Legend

# # #	2004 Estimated AADT In Hundreds (No Build)
# # #	2030 Estimated AADT In Hundreds (No Build)
	City Limit Area

N
W E
S

0 650 1,300 2,600 Feet

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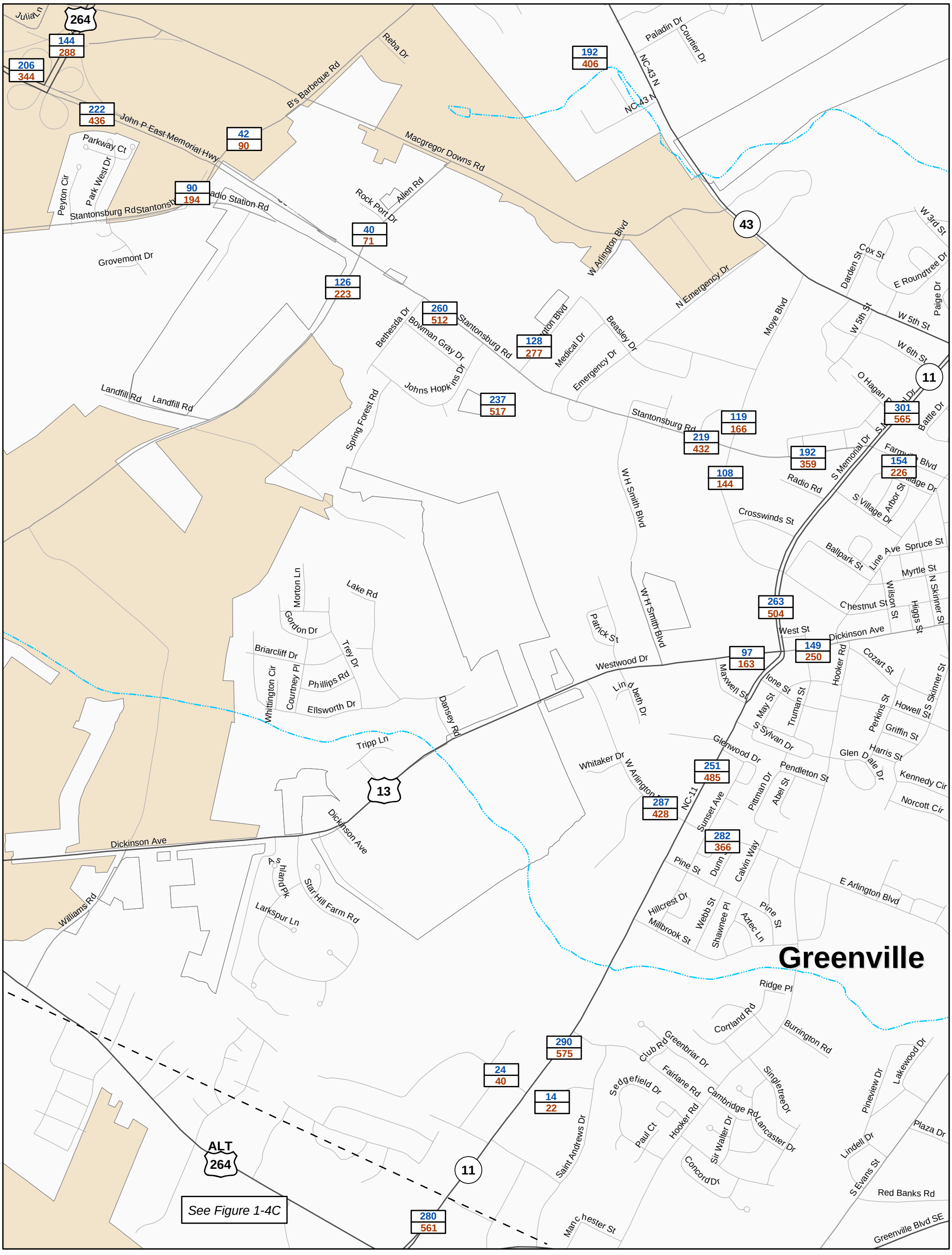
NCDOT Project Definition No.: 34411
T.I.P. No. R-2250

Figure 1-4C

No-Build Traffic Comparisons



Legend

# # #	2004 Estimated AADT In Hundreds (No Build)
# # #	2030 Estimated AADT In Hundreds (No Build)
	City Limit Area

N W E S

0 650 1,300 2,600 Feet

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Figure 1-4D **No-Build Traffic Comparisons**

TABLE 1-6: YEAR 2030 TRAFFIC VOLUMES (NO BUILD)

	Arterial Segment	ADT	LOS	Delay (seconds)
US 264 Business Stantonsburg Road	US 264 to Barbeque Rd (SR 1204)	43,600	F	294.3
	Barbeque Rd (SR 1204) to Allen Rd (SR 1203)	57,200	F	308.3
	Allen Rd (SR 1203) to Arlington Blvd	51,200	F	240.5
	Arlington Blvd to NC 11 (Memorial Dr)	43,200	F	329.4
NC 11 Memorial Drive	Stantonsburg Rd/Farmville Blvd to US 13 (Dickinson Ave)	50,400	F	249.9
	US 13 (Dickinson Ave) to Arlington Blvd	48,500	F	261.9
	Arlington Blvd to US 264ALT (Greenville Blvd)	57,500	F	433.1
	US 264ALT (Greenville Blvd) to Thomas Langston Rd (SR 1134)	82,300	F	415.3
	Thomas Langston Rd (SR 1134) to Reedy Branch Rd (SR 1131)	81,500	F	314.6
	Reedy Branch Rd (SR 1131) to Fulford Dr (SR 1152)/Fire Tower Rd (SR 1708)	67,600	F	269.2
	Fulford Dr (SR 1152)/Fire Tower Rd (SR 1708) to Davenport Farm Rd (SR 1128)/ Old NC 11 (SR 1149)	67,000	F	286.6
	Davenport Farm Rd (SR 1128)/ Old NC 11 (SR 1149) to Forlines Rd (SR 1129)/Boyd St	46,600	F	318.6
	Forlines Rd (SR 1129)/Boyd St to NC 903/ Main St (SR 1133)	42,200	F	271.9
	NC 903/ Main St (SR 1133) to Reedy Branch Rd (SR 1131)	41,800	D	*
	Reedy Branch Rd (SR 1131) to Jolly Rd (SR 1120)	42,200	D	*
	Jolly Rd (SR 1120) to McLawhorn Rd (SR 1119)	41,800	D	*
	McLawhorn Rd (SR 1119) to NC 102/ West 3rd St	41,400	D	*
	NC 102/ West 3rd St to Old Snow Hill Rd (SR 1113)/ Snow Hill St	36,600	D	*
	Old Snow Hill Road (SR 1113) to Old NC 11 (SR 1149)	35,400	C	*
	Old NC 11 (SR 1149) to Jacksontown Road (SR 1109)	38,400	D	*

*LOS reported from HCS 2000 Multilane Analysis due to rural location.

1.10 SAFETY

The total crash rate for Memorial Drive (NC 11) between NC 102 in Ayden and Stantonsburg Road (US 264 Business) is slightly below the state average for similar roadways (all NC routes having four or more lanes divided with no control of access). In total, between 2001 and 2005 1,308 crashes occurred on the 9.95-mile segment of Memorial Drive in the project area, representing a crash rate of 321.44 accidents per 100 MVM. However, a review of accident data by segment along Memorial Drive showed that 1,157 crashes, or 88.5 percent of the total crashes, occurred on the 4.9-mile segment of Memorial Drive between Fire Tower Road (SR 1708) and Stantonsburg Road. This represents a rate of 619.98 accidents per 100 MVM, almost 20 percent above the state average of 521.54 for urban NC routes. This section of roadway has no access control and numerous driveways to shopping centers, restaurants, and other businesses on both sides of the road.

TABLE 1-7: EXISTING NC 11 AND AVERAGE STATEWIDE ACCIDENT RATES

Accident Type	Existing NC 11 Accident Rate per 100 MVM*	Statewide Average Accident Rate per 100 MVM^
Total Accident Rate	321.44	376.19
Fatal Accident Rate	1.23	1.25
Non-Fatal Injury Accident Rate	113.54	129.73
Night Accident Rate	56.52	81.78
Wet Accident Rate	78.39	71.83

* Accident rates are expressed in accidents per 100 million vehicle miles (MVM) of travel. This study uses accident data for the period 2001-2005 for the project area.
^ The Statewide Average is for all NC Routes having 4 or more lanes divided with no control of access for the period 2001-2003.

As shown in Table 1-8, the most common type of accident (42.7 percent) in the corridor was rear end accidents, which are common in congested, stop-and-go conditions. Approximately 20 percent of accidents were angle type accidents and nearly 12 percent were sideswipes. These types of accidents typically occur when a driver fails to respond to changes in traffic signals and are characteristic of congested conditions and driver frustration.

TABLE 1-8: 2001-2005 ACCIDENT DATA

Accident Type	Number	Percent of Total
Rear End – slow or stop	558	42.66
Angle	268	20.49
Sideswipe – same direction	154	11.77
Left Turn – same roadway	85	6.50
Left Turn – different roadways	39	2.98
Ran Off Road – right	29	2.22
Collision – Animal	25	1.91
Collision – Fixed Object	25	1.91
Right turn – same roadway	23	1.76
Right turn – different roadway	14	1.07
Rear End – turning	12	0.92
Other Collision with Vehicle	12	0.92
Head on	11	0.84
Sideswipe – opposite direction	11	0.84
Backing up	6	0.46
Other Non-collision	6	0.46
Collision – movable object	6	0.46
Ran Off Road – Left	6	0.46
Unknown	5	0.38
Overturn/rollover	4	0.31
Parked Motor Vehicle	4	0.31
Pedestrian	2	0.15
Pedal Bicyclist	2	0.15
Ran Off Road – straight	1	0.08
Total	**1,308**	**100.00**